FHWA-AL-EIS-19-01-SD

SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

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

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

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

VOLUME II: APPENDICES A-K

March 2019

APPENDIX A

Coordination and Correspondence

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APPENDIX A-1:

Early Coordination

ALABAMA DEPARTMENT OF TRANSPORTATION

1409 Coliseum Boulevard, Montgomery, Alabama 36110
P. O. Box 303050, Montgomery, Alabama 36130-3050

Kay Ivey
Governor

John R. Cooper
Transportation Director

June 16, 2017

Mr. David Frank
Chief, Bridge Administration Branch
Eighth Coast Guard District
500 Poydras Street, Room 1313
New Orleans, Louisiana 70130-3310

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

Dear Mr. Frank:

As you are aware, the Draft Environmental Impact Statement (DEIS) for the I-10 Mobile River Bridge and Bayway Widening was approved by the Federal Highway Administration (FHWA) on July 22, 2014. The DEIS evaluated a wide range of alternatives, including the No Build Alternative and four Build Alternatives. Alternative B' was identified as the Preferred Alternative. Public Hearings were held on September 23 and September 29, 2014, following approval of the DEIS. As a Cooperating Agency, you were provided a distribution copy of the approved DEIS, and comments were received from your agency via letter dated November 4, 2014.

The purpose of this letter and the attached Notice Of Intent (NOI) is to inform you that FHWA, in cooperation with the Alabama Department of Transportation (ALDOT), will prepare a limited scope Supplemental DEIS in accordance with 23 CFR 771.130(f) and 40 CFR 1502.9 for the proposed project which includes increasing the capacity of Interstate Route 10 (I-10) by constructing a new bridge across the Mobile River and increasing the capacity of I-10 across Mobile Bay from four to eight lanes.

The purpose of the SDEIS is to identify changes, new information, and activities that have occurred in the project since the July 2014 DEIS. Issues to be addressed in the SDEIS will include, but are not limited to: refinements in Alternative B', storm surge analysis, tolling as a funding mechanism, Section 4(f) Evaluation, Section 106 consultation, bicycle/pedestrian facilities, threatened and endangered species, ecological resources, hazardous materials, cultural resources surveys, and agency coordination and public outreach activities. The SDEIS will review information from the original DEIS, incorporate new information into the SDEIS, and update the impacts and analyses where changes have occurred since the DEIS was approved. Responses to the USCG's comments on the DEIS will also be included in the SDEIS.

The SDEIS will follow the same process and format as the original DEIS, except that scoping is not required. Following approval of the SDEIS, FHWA will issue a combined Final Environmental Impact Statement (FEIS)/Record of Decision (ROD).

Coordination with the USCG regarding clearance requirements, proposed pier and pylon locations, and other considerations will continue as the SDEIS and combined FEIS/ROD are developed.

We appreciate your interest in this project and look forward to receiving any comments you may have for consideration in the SDEIS and combined FEIS/ROD. Should you have any questions or comments, please contact Natasha Clay at (334) 242-6315.

Sincerely,

Steven E. Walker, P.E.
State Design Engineer

By: Natasha Clay
Natasha Clay
State Environmental Administrator
Environmental Technical Section

SEW/NC/mem
Attachments
cc: FHWA
ALDOT Southwest Region
Thompson Engineering

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 Coliseum Boulevard, Montgomery, Alabama 36110
P. O. Box 303050, Montgomery, Alabama 36130-3050

Kay Ivey
Governor

John R. Cooper
Transportation Director

June 16, 2017

Mr. Craig Litteken
Chief, Regulatory Division
Mobile District, U.S. Army Corps of Engineers
PO Box 2288
Mobile, Alabama 36628-0001

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

Dear Mr. Litteken:

As you are aware, the Draft Environmental Impact Statement (DEIS) for the I-10 Mobile River Bridge and Bayway Widening was approved by the Federal Highway Administration (FHWA) on July 22, 2014. The DEIS evaluated a wide range of alternatives, including the No Build Alternative and four Build Alternatives. Alternative B' was identified as the Preferred Alternative. Public Hearings were held on September 23 and September 29, 2014, following approval of the DEIS. As a Cooperating Agency, you were provided a distribution copy of the approved DEIS.

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The SDEIS will follow the same process and format as the original DEIS, except that scoping is not required. Following approval of the SDEIS, FHWA will issue a combined Final Environmental Impact Statement (FEIS)/Record of Decision (ROD).

Coordination with the USACE regarding Section 404/10 Permit requirements and other considerations will continue as the SDEIS and combined FEIS/ROD are developed.

We appreciate your interest in this project and look forward to receiving any comments you may have for consideration in the SDEIS and combined FEIS/ROD. Should you have any questions or comments, please contact Natasha Clay at (334) 242-6315.

Sincerely,

Steven E. Walker, P.E.
State Design Engineer

By: ______________________
Natasha Clay
State Environmental Administrator
Environmental Technical Section

SEW/NC/mem
Attachments
cc: FHWA
ALDOT Southwest Region
Thompson Engineering

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 Coliseum Boulevard, Montgomery, Alabama 36110
P. O. Box 303050, Montgomery, Alabama 36130-3050

Kay Ivey
Governor

John R. Cooper
Transportation Director

June 16, 2017

«Title» «First_Name» «Last_Name»
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«City», «State» «ZIP_Code»

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

Dear Sir or Madam:

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Sincerely,

Steven E. Walker, P.E.
State Design Engineer

By: Tony Shaddix
for Natasha Clay
State Environmental Administrator
Environmental Technical Section

SEW/NC/mem

cc: FHWA
ALDOT Southwest Region
Thompson Engineering

U.S. Coast Guard
1500 - 15th St
Brookley Complex
Mobile, AL 36615-1390

U.S Coast Guard
Marine Safety
150 North Royal St
Mobile, AL 36602

Mr. Rans Black
Federal Aviation Administration
Airport Districts Office
100 West Cross St, Suite B
Jackson, MS 39208-2307

Habitat Conservation Division
National Marine Fisheries Service
3500 Delwood Beach Rd
Panama City, FL 32408

U.S. Environmental Protection Agency
NEPA Review Staff
100 Alabama St, SW
Atlanta, GA 30303-3104

U.S. Environmental Protection Agency
Region 4, Water Protection Division
Sam Nunn Atlanta Federal Center
61 Forsyth, SW
Atlanta, GA 30303-8960

Mr. William Pearson, Field Supervisor
U.S. Fish and Wildlife Service
1208-B Mail St
Daphne, AL 36526

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Deputy SHPO
Alabama Historical Commission
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Director
AL Dept of Environmental
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Mobile, AL 36633-1588

Mr. Chris Miller
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Planning Commission
PO Box 1665
Mobile, AL 36633

Director
Mobile Bay Estuary Program
4172 Commanders Dr
Mobile, AL 36615

Mayor Sandy Stimpson
City of Mobile
PO Box 1827
Mobile, AL 36633-1827

Mayor Dane Haygood
City of Daphne
PO Box 400
Daphne, AL 36526

Mayor Michael M. McMillan
City of Spanish Fort
PO Box 7226
Spanish Fort, AL 36577

Commissioner Merceria Ludgood
President
Mobile County Comission
PO Box 1443
Mobile, AL 36633

Baldwin County Commission
312 Courthouse Square
Suite 12
Bay Minette, AL 36507

APPENDIX A-2:

U.S. Coast Guard

U.S. Department of Homeland Security
United States Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

500 Poydras Street, Room 1313
New Orleans, LA 70130-3310
Staff Symbol: dpb
Phone: 504-671-2128
Fax: 504-671-2133
D8DPBALL@uscg.mil

16591A
November 4, 2014

Alabama Department of Transportation
Attn: Mr. William F. Adams, P. E.
Post Office Box 303050
Montgomery, AL 36130-1050

Dear Mr. Williams:

This letter is in reference to your request for comments on the Draft Environmental Impact Statement (DEIS) for the widening of the I-10 Bridge and Bayway over the Tenesaw River, mile 0.3, the Apalachee River, mile 0.0 and the Blakley River, 0.4. The Coast Guard has completed our review of the DEIS and have the following comments:

1. We have completed our review of the EIS prepared by the Alabama Department of Transportation and have the following comments. Please send a letter to the applicant, with copy to CG-BRG-2, including comments from both D8 (dpb) and CG-BRG-2.

2. In order for the Coast Guard to adopt the bridge-related portions of the FEIS as part of the Coast Guard bridge permitting process, please address the following comments.

3. Please include in the FEIS a description of stormwater management plans for the bridge.

4. Section 4.12.3.3 mentions the fact that several of the submerged aquatic vegetation (SAV) species are invasive. Additionally, *Phragmites australis* is also likely an invasive plant. Executive Order 13112 directs federal agencies to prevent the introduction and spread of invasive species. Please describe in the FEIS the steps that will be used in this project to ensure that these species do not spread.

5. In Section 4.12.4, the impacts to wetlands from the bridge/Bayway piers are termed "much less" than the overall width of new roadway that they will be supporting. Please state the total area of SAV and wetlands that will be lost due to the bridge/Bayway piers.

6. In Section 4.12.5, shading impacts are discussed solely in terms of area. What are the expected biological and ecological function impacts? Will existing SAV die from lack of sun? Will species be less able to make use of such areas, especially if the SAV is important habitat for them?

7. In section 4.12.5, it is stated that EFH impacts from the bridge are considered minimal, but the total area of habitat permanently lost to bridge/Bayway piers is not stated. Please include this information in the FEIS.

8. Section 4.12.5 needs a fuller discussion of EFH impacts. Impacts on aquatic animals from construction noise and suspended sediments are not discussed, and this is not currently sufficient for the USCG to adopt the document.

9. In Section 4.12.6, it is stated that in the FWS letter of 14 May 2003 providing the Service's Biological Opinion, there were four listed species identified by the FWS as possibly occurring in the project area. However, their letter only discusses the effects on the Alabama red-bellied turtle and the Gulf sturgeon, and does not mention any other species. Section 4.12.6 also states that the manatee was brought in as a species to be considered on 11 January 2007, but meeting notes dated a year earlier, on 18 January 2006 (Appendix A), noted the manatees at that time. Please include the correct citation for the four species and update dates as necessary.

10. Ensure that migratory bird impacts are thoroughly discussed in the FEIS in section 4.12.6, with all appropriate USFWS input included and coordination completed.

11. The section on GHG and Climate Change seems to be copied from some other document since it refers to the DOT as 'we'. Recommend changing to the third person since DOT isn't the author of this DEIS, and it is confusing to the reader.

12. Section 4.16.1 refers to the FHWA as "their" and gives the impression that FHWA is not the responsible agency. Recommend changing the language to "we" and "our" as necessary or deleting the pronouns and only referring to "the FHWA".

13. Recommend inserting the Wetland Determination and SAV Survey as a separate appendix for easy reference.

14. Recommend inserting the EFH Assessment as a separate appendix for easy reference, or combine with the Wetland Determination into one appendix.

15. Please include the Biological Assessment provided to the USFWS in 2002 in an appendix.

16. Please update the status of NMFS consultation in the FEIS and include all correspondence.

17. Appendix K could be renamed to highlight the fact that it also includes the shadow study.

18. If mitigation will take place as suggested by FWS in 2001/2002, please describe it in the FEIS.

19. USACE's jurisdictional determination expired 5 years after issuance, which occurred on 28 February 2002 (Appendix A). Has a new JD been procured from USACE? Please provide the MOA or PA with the Alabama SHPO when finalized.

20. Ensure that the proper waterways are annotated as there are two waterways that this bridge crosses; the Tenesaw River, mile 0.3, the Apalachee River, mile 0.0 and the Blakley River, 0.4.

If you have any questions or need further assistance, please don't hesitate to contact our office.

Sincerely,

David M Frank

DAVID M. FRANK
Chief, Bridge Administration Branch
U.S. Coast Guard
By direction

Copy: CG-BRG-2, Shelly Sugarman
FHWA, Mark Bartlett, P.E.

November 27, 2017

MEETING NOTES

U.S. Coast Guard Coordination Meeting
Project No. DPI-0030(005)
I-10 Mobile River Bridge and Bayway Project
Mobile and Baldwin Counties

Date: November 21, 2017

Time: 10:00 A.M.

Location: I-10 Mobile River Bridge and Bayway Project Office
107 St. Francis Street, Suite (Floor) 2100, Mobile, Alabama 36602

Participant	Organization	E-Mail
Doug Blakemore	USCG Bridge Administration	Douglas.a.blakemore@uscg.mil
Jeff Shelley	FHWA	Jeff.shelley@dot.gov
Tim Heisler	FHWA	Timothy.heisler@dot.gov
Lewis Harden	FHWA	Lewis.harden@dot.gov
Edwin Perry	ALDOT	perrye@dot.state.al.us
Andrew Wood	ALDOT	wooda@dot.state.al.us
Stephanie Dragotta	ALDOT	dragottas@dot.state.al.us
Pat Hickox	Thompson Team (HDR)	Patrick.hickox@hdrinc.com
Missi Shumer	Thompson Team (Shumer Consulting)	missi@shumerconsulting.com

I. Introductions/Safety Moment

- Attendees viewed the project site from the office.
- Stairs and bathrooms were noted as part of safety moment.
- Attendees introduced themselves and their role in the project.
- Mr. Blakemore gave an overview of the role of the USCG Bridge Administration group, which is summarized as follows:
  - Responsible for permitting new bridges, bridge rehabilitation projects, and bridge repairs
  - Evaluate permitting from two perspectives:
    - Navigational safety (support existing and future maritime industry), primarily as it relates to adequate clearances
    - Environmental/NEPA – operates under an agreement between FHWA and USCG to satisfy NEPA requirements, applicable from abutment to abutment
  - USCG Coordinates with Local Sector USCG Captain of the Port on the following:
    - Construction
    - Navigation and vessel safety

II. Project History

- ALDOT provided an overview of the history of the project, its purpose and need, and project timeline
- USCG asked if prohibiting hazardous materials from using the tunnels is a state or local regulation.

III. Environmental Studies

- Thompson Team provided a summary of environmental studies conducted to date, environmental documentation prepared to date, and an overview of agency involvement and coordination that has occurred to date.
- Thompson Team explained the current status of the project, including preparation of a Supplemental DEIS, and the anticipated schedule for future NEPA activities.
- USCG wants to continue to be invited to Section 106 Consulting Party Meetings and to public meetings.
- ALDOT to send USCG a copy of the Air Draft Clearance Report from the DEIS for their review/approval.
- SDEIS needs to be updated to reflect agency requirements related to where piles will be cut off.

IV. Project Scope

- Thompson Team explained the current scope of the project, including High Level approaches on west and east sides, the main span over the Mobile River, and plans for the Bayway.
- Thompson Team explained the P3 Design Build Finance Operate Maintain procurement process and concept (DBFOM).

V. Project Schedule

- The Supplemental DEIS and combined Final EIS/Record of Decision are anticipated in the summer of 2018.
- The Draft Request for Proposals is expected to be released to the shortlisted teams in the spring of 2018.
- The Final Request for Proposals is expected to be released in the summer of 2018.
- Construction is expected to begin in 2019 and end in 2024.

VI. Summary of Previous USCG Coordination

- USCG has copies of the previous USCG coordination on this project (see attached).

VII. Permit Requirements/Discussion

- USCG will issue four separate permits:
    - Mobile River
    - Tensaw River
    - Apalachee River
    - Blakeley River
- There is no map showing river mileposts.
- One NEPA document will cover four USCG permit actions.
    - Concurrent review will be performed by USCG Bridge Administration and USCG environmental/NEPA review in D.C.
    - USCG will verify that studies were performed and validate that they are

adequate/valid.
  - USCG will issue one set of comments on SDEIS.
- Other permits required before USCG can issue USCG Permits:
  - Section 401/404 from USACE/ADEM
  - SHPO concurrence/clearance (Section 106 MOA)
- Will take about 6 months to process USCG for new construction
- Construction must start within three years of permit issuance, and the navigational span has to be completed in five years. If construction takes longer, a variance can be requested.
- USCG Permits will be issued in ALDOT's name as Bridge Owner.
- USCG will allow Concessionaire to process permit applications on behalf of ALDOT, if ALDOT so chooses.
- USCG is willing to review preliminary permit packages.
- USCG wants to see commitment from project sponsor/Owner before issuing permit. USCG acknowledged that ALDOT/FHWA's commitment to this project being constructed is apparent.
- Existing Bayway will be used to maintain traffic on I-10 across Mobile Bay.
  - USCG will require demolition of old bridges at navigable waterways. They cannot be left in place.
  - USCG requires old bridges at navigable waterways to be removed within 90 days of construction completion of new bridges.
  - USCG will coordinate with Local Harbormaster to determine if any portions of the remainder of the Bayway would be allowed to remain in place and whether demolition of old bridge structures can be phased beyond 90-day guideline.
  - In order to keep existing bridges as bike/ped facility or as a fishing pier, ALDOT would have to provide justification for keeping it. ALDOT would also have to identify who would own and maintain the remaining structure(s). USCG would then evaluate the request from a navigational/vessel/user safety perspective.
  - Old bridges will need to be removed to the satisfaction of other agencies/stakeholders (i.e. USACE, Alabama Department of Conservation and Natural Resources, etc.)
    - Current plan is for all piers to be removed at mudline or 2 feet below mudline
- Construction Constraints:
  - ALDOT needs input from USCG regarding what will or will not be allowed during construction.
  - As currently planned, construction of main span would:
    - Begin with towers on either side of Mobile River and
    - Continue with contractor working its way to the center from each side, creating a cantilevered balanced condition.
    - Be land-based.
    - Be conducted 24/7.
  - It is anticipated that Concessionaire may want to construct the main span from the water using barges with cranes to save time and money.
  - Bridge Administration will have to approve construction plans with input from maritime industry and USCG Local Sector Captain of the Port.
  - Bridge Administration will coordinate with the maritime industry regarding reasonable expectations and the ability to use waterways.

    - Closures for hours are possible. Closures for days are more difficult to arrange.
    - USCG develops schedule and contractor is required to adhere to it.
    - USCG will help ALDOT define rules/limitations for river access/closures.
        - Will look at alternate routes for Bayway crossings of navigable waterways to see if closures can be longer than a few hours at a time
    - It was noted that construction constraints will affect bids from proposing teams, and USCG will provide base hours for allowable closures and construction requirements to ALDOT for use in procurement documents.
    - USCG will provide documentation related to safety requirements during construction.
    - ALDOT needs to include statement in Technical Provisions/RFP that Concessionaire shall follow all USCG Captain of the Port orders during hurricane season.
- Coordination with USCG:
    - Have periodic update meetings
    - When submitting documents for review/approval to USCG, e-mail them to: D08-DG-D8DPBALL@uscg.mil
    - Questions and general coordination can go directly to Doug (douglas.a.blakemore@uscg.mil)
    - When transmitting documents for review/approval/input to USCG, include deadlines for when response is needed.
    - Ms. Gerri Robinson will be specialist assigned for main span bridge permit.
    - Someone else will be assigned for Bayway bridge permits.
    - ALDOT/FHWA will coordinate with USCG concurrently while going through procurement process to answer questions from Concessionaire about what is or is not allowed.

From:	Blakemore, Douglas A CIV
To:	MISSI@SHUMERCONSULTING.COM
Cc:	D8DPBAll; lewis.harden@dot.gov
Subject:	MOBILE RIVER BRIDGE USCG COORDINATION
Date:	Monday, April 23, 2018 8:10:46 AM
Attachments:	CONSTRUCTION_REQUIREMENTS_NAVIGATION_SAFETY.docx DOC.PDF DOC.PDF DOC.PDF DOC.PDF

Ms. Shumer, Attached are several documents we talked about in our meeting this past spring about the Mobile River bridge project. The first attachment provides basic Coast Guard navigation safety and bridge administration requirements for construction projects and the remaining attachments are copies of letters we sent to verify that the 215' ADC in your bridge design is still valid. We will send you a letter on the ADC by next week.

Please contact me if there is anything else that you need for this project.

Doug Blakemore
Chief, Bridge Administration Branch
Eighth Coast Guard District
500 Poydras Street
New Orleans, LA 70130
Douglas.A.Blakemore@uscg.mil
(504) 671-2127 (w)
(618) 225-7727 (c)

Coast Guard Bridge Administration and Navigation Safety General Requirements for Long Term Bridge Construction Activities

1. The bridge owner or authorized representative will provide the Coast Guard (CG) Bridge Administration Office (dpb) and the respective CG Captain of the Port (COTP) in writing with the following:
    a. 24-hour contact information for the person in charge of overall construction activities
    b. 24-hour contact information for the person in charge of onsite construction activities
    c. 24-hour contact information for the person in charge of all waterborne activities
    d. A general work plan that provides:
        i. The dates when construction activities will begin over or on the waterway
        ii. Major phases for activities over or on the waterway
        iii. Projected completion dates of each phase
        iv. Names, type and size and general locations of all major waterborne equipment used during each phase.
2. The CG expects that all activities will not impede a vessels reasonable ability to navigate the channel without the CG COTP's approval. The bridge owner or authorized representative will the provide the CG COTP in writing requests to restrict a vessels ability to navigate the channel according to the following requirements:
    a. At least 14 days advance request for any restriction that will last less than 24 hours
    b. At least 21 days advance request for any restriction that will last greater than 24 hours
3. The CG expects that all waterborne equipment will be removed from the channel at the end of each working day and secured in a safe manner and location.
4. The bridge owner or authorized representative will not place any temporary pier, dock, anchorage, cofferdam, barge fleeting, staging area or any other equipment in the navigable waterway without the approval of the CG COTP. Approved temporary structures will be appropriately lighted or marked according to CG requirements.
5. Barges or other watercraft engaged in construction activities shall display such lights, shapes and signals as required by 33 Code of Federal Regulations (CFR) Subchapter E Inland Navigation Rules.
6. Barges or other watercraft engaged in construction activities shall meet all CG inspection, examination, documentation, licensing and regulatory requirements.
7. The bridge owner or authorized representative will:
    a. Completely remove any object dropped in the waterway which may constitute a hazard to navigation to the satisfaction of the CG COTP.
    b. Open the channel for the safe passage of any vessel involved in emergency operations.
8. Vessel owners or operators will comply with 33 CFR Part 4 Marine Casualties and Investigations

9. The bridge owner is ultimately responsible for meeting all CG laws, regulations and requirements.

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard
Hale Boggs Federal Building

500 Poydras Street, Room 1313
New Orleans, LA 70130-3310
Staff Symbol: dpb
Phone: (504) 671-2128
Fax: (504) 671-2133
D8dpball@uscg.mil

16591C
April 18, 2018

MEMORANDUM

From: Doug Blakemore Doug Blakemore
CGD EIGHT Bridge Administration Branch

To: Colonel James A. DeLapp
Commander, USACE Mobile

Subj: Alabama Department of Transportation I-10 Mobile River Bridge and Bayway Widening Project

1) The Alabama Department of Transportation (DOT) developed an I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance study in December 2012 in support of Alabama DOT project DPI-0030 (005) I-10 Mobile River Bridge and Bayway Widening Mobile and Baldwin counties, Alabama. This study was part of the environmental impact statement developed by Alabama DOT. The study recommended the I-10 Mobile River Bridge be constructed with a 215' air draft clearance (ADC). In 2012 the Alabama State Port Authority, City of Mobile and the Mobile Chamber of Commerce Cruise Industry Task Force concurred with this 215' ADC.

2) 33 Code of Federal Regulations (CFR) Part 114 establishes several bridge laws that are intended to prevent any interference with navigable waters of the United States by bridges to navigation except by express permission of the United States. This includes establishing requirements for locations and clearances of bridges over navigable waters. The Coast Guard needs to provide Alabama DOT with a preliminary bridge clearance determination required to further the development of this project.

3) We therefore ask that you provide the Coast Guard with comments on this project as it relates to navigation safety and bridge clearances that are or could be impacted by current or future USACE projects on the Mobile River.

4) I have attached a copy of this study and previous correspondence for your review. Please contact me if you want to discuss this letter or need more information. I can be reached at (504) 671-2128, email Douglas.A.Blakemore@uscg.mil.

#

Copy: CG Sector Mobile

U.S. Department of Homeland Security
United States Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

500 Poydras Street, Rm. 1313
New Orleans, LA 70130-3310
Staff Symbol: (dpb)
Phone: (504) 671-2128
Fax: (504) 671-2133
d8dpball@uscg.mil

16590
April 18, 2018

Mobile Bar Pilots
201 N. Jackson St.
Mobile, LA 36603

Dear Sir or Ma'am,

The Alabama Department of Transportation (DOT) developed an I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance study in December 2012 in support of Alabama DOT project DPI-0030 (005) I-10 Mobile River Bridge and Bayway Widening Mobile and Baldwin counties, Alabama. This study was part of the environmental impact statement developed by Alabama DOT. The study recommended the I-10 Mobile River Bridge be constructed with a 215' air draft clearance (ADC). In 2012 the Alabama State Port Authority, City of Mobile and the Mobile Chamber of Commerce Cruise Industry Task Force concurred with this 215' ADC.

33 Code of Federal Regulations (CFR) Part 114 establishes several bridge laws that are intended to prevent any interference with navigable waters of the United States by bridges to navigation except by express permission of the United States. This includes establishing requirements for locations and clearances of bridges over navigable waters. The Coast Guard needs to provide Alabama DOT with a preliminary bridge clearance determination required to further the development of this project.

We therefore ask that you provide the Coast Guard with a letter stating your concurrence for the 215' ADC or your reasons for not supporting this clearance.

I have attached a copy of this study and your previous correspondence for your review. Please contact me if you want to discuss this letter or need more information. I can be reached at (504) 671-2128, email Douglas.A.Blakemore@uscg.mil.

Sincerely,

Doug Blakemore

DOUG BLAKEMORE
Chief, Bridge Administration Branch
U.S. Coast Guard
By direction

Copy: AL DOT, CG Sector Mobile, USACE Mobile

U.S. Department of
Homeland Security

United States
Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

500 Poydras Street, Rm. 1313
New Orleans, LA 70130-3310
Staff Symbol: (dpb)
Phone: (504) 671-2128
Fax: (504) 671-2133
d8dpball@uscg.mil

16590
April 18, 2018

Alabama State Port Authority
Attn: Terri Gilbreath
250 N. Water St.
Mobile, LA 36602

Dear Mr. Gilbreath,

The Alabama Department of Transportation (DOT) developed an I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance study in December 2012 in support of Alabama DOT project DPI-0030 (005) I-10 Mobile River Bridge and Bayway Widening Mobile and Baldwin counties, Alabama. This study was part of the environmental impact statement developed by Alabama DOT. The study recommended the I-10 Mobile River Bridge be constructed with a 215' air draft clearance (ADC). On April 18, 2012 the Alabama State Port Authority sent a letter to Alabama DOT stating their concurrence with this 215' ADC.

33 Code of Federal Regulations (CFR) Part 114 establishes several bridge laws that are intended to prevent any interference with navigable waters of the United States by bridges to navigation except by express permission of the United States. This includes establishing requirements for locations and clearances of bridges over navigable waters. The Coast Guard needs to provide Alabama DOT with a preliminary bridge clearance determination required to further the development of this project.

We therefore ask that you provide the Coast Guard with a letter stating your continued concurrence for the 215' ADC or your reasons for not supporting this clearance.

I have attached a copy of this study and your previous correspondence for your review. Please contact me if you want to discuss this letter or need more information. I can be reached at (504) 671-2128, email Douglas.A.Blakemore@uscg.mil.

Sincerely,

Doug Blakemore

DOUG BLAKEMORE
Chief, Bridge Administration Branch
U.S. Coast Guard
By direction

Copy: AL DOT, CG Sector Mobile, USACE Mobile

U.S. Department of Homeland Security
United States Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

500 Poydras Street, Rm. 1313
New Orleans, LA 70130-3310
Staff Symbol: (dpb)
Phone: (504) 671-2128
Fax: (504) 671-2133
d8dpball@uscg.mil

16590
April 18, 2018

Mobile Chamber of Commerce
Cruise Industry Task Force
P.O. Box 2187
Mobile, LA 36652-2187

Dear Sir or Ma'am,

The Alabama Department of Transportation (DOT) developed an I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance study in December 2012 in support of Alabama DOT project DPI-0030 (005) I-10 Mobile River Bridge and Bayway Widening Mobile and Baldwin counties, Alabama. This study was part of the environmental impact statement developed by Alabama DOT. The study recommended the I-10 Mobile River Bridge be constructed with a 215' air draft clearance (ADC). On March 20, 2012 and April 3, 2012 the Cruise Industry Task Force sent letters to Alabama DOT stating their concurrence with this 215' ADC.

33 Code of Federal Regulations (CFR) Part 114 establishes several bridge laws that are intended to prevent any interference with navigable waters of the United States by bridges to navigation except by express permission of the United States. This includes establishing requirements for locations and clearances of bridges over navigable waters. The Coast Guard needs to provide Alabama DOT with a preliminary bridge clearance determination required to further the development of this project.

We therefore ask that you provide the Coast Guard with a letter stating your continued concurrence for the 215' ADC or your reasons for not supporting this clearance.

I have attached a copy of this study and your previous correspondence for your review. Please contact me if you want to discuss this letter or need more information. I can be reached at (504) 671-2128, email Douglas.A.Blakemore@uscg.mil.

Sincerely,

Doug Blakemore

DOUG BLAKEMORE
Chief, Bridge Administration Branch
U.S. Coast Guard
By direction

Copy: AL DOT, CG Sector Mobile, USACE Mobile

U.S. Department of Homeland Security
United States Coast Guard

Commander
Eighth Coast Guard District
Hale Boggs Federal Building

500 Poydras Street, Room 1313
New Orleans, LA 70130-3310
Staff Symbol: (dpb)
Phone: (504) 671-2128
Fax: (504) 671-2133
D8DPBALL@uscg.mil

165930
June 6, 2018

Alabama Department of Transportation
I-10 Mobile River Bridge and Bayway Project Director
Attn: Matthew Ericksen
107 St. Francis Street
Suite 2100
Mobile, Alabama 36602

Dear Mr. Ericson,

We have reviewed the Air Draft Report you provided within the Draft Environmental Impact Statement in December 2015 that recommends a 215 foot air draft clearance (ADC) for a new I-10 fixed bridge across the Mobile River in the Mobile Harbor Federal Navigation Channel. We requested input on this ADC from the Alabama State Port Authority, the City of Mobile, the U.S. Army Corps of Engineers (USACE) Mobile District, the Mobile Chamber of Commerce and the Mobile Bar Pilots.

Based on the information presently available we have determined that an application for a new fixed bridge in this location requires a minimum 215 foot ADC. According to information and data provided in your Air Draft Report this ADC will meet the current and prospective reasonable needs of navigation in the Mobile Harbor Federal Navigation Channel.

This is a preliminary determination on the ADC for this bridge and does not constitute a final agency approval. Prior to issuing a Coast Guard bridge permit Alabama Department of Transportation must meet all agency and regulatory requirements.

Please contact me if you need additional information. My contact information is: office phone number (504) 671-2127, cellular phone number (618) 225-7727, email Douglas.A.Blakemore@uscg.mil.

Sincerely,

Doug B Blakemore

Doug Blakemore
Chief Bridge Administration Branch
U.S. Coast Guard
By direction

Copy: USACE Mobile, Alabama State Port Authority, Office of the Mayor Mobile, Mobile Chamber of Commerce, Mobile Bar Pilots, Shumer Consulting, CG Sector Mobile

From:	Missi Shumer
To:	Hickox, Patrick
Subject:	FW: [Non-DoD Source] RE: MOBILE RIVER BRIDGE USCG COORDINATION
Date:	Tuesday, June 19, 2018 3:00:00 PM

From: Blakemore, Douglas A CIV <Douglas.A.Blakemore@uscg.mil>
Sent: Friday, June 1, 2018 9:55 AM
To: Missi Shumer <missi@shumerconsulting.com>
Subject: RE: [Non-DoD Source] RE: MOBILE RIVER BRIDGE USCG COORDINATION

Ms. Shumer, we are sending a letter to AL DOT w the preliminary approval of 215' vertical clearance. Where should I send this letter?

On your questions. A lot depends on timing - when will construction begin, how long will it take, etc. I can provide you w/ general answers that should help w/ contracting but we will need specific construction information to make decisions on navigation.

1) Will the contractor be required to maintain the 215-foot vertical air draft clearance over the Mobile Harbor Navigation Channel throughout the duration of construction or is it only required in the permanent condition?
Yes, a 215' vertical clearance is required to meet navigation requirements for potential new cruise ships in Mobile. The Coast Guard does not know when these vessels will arrive in Mobile but once here they will need the 215' vertical clearance to operate. The Mobile Mayor’s office should be able to provide information on cruise vessels.

2) Will the contractor be allowed to use the area in the Mobile River outside of the Mobile Harbor Navigation Channel between the channel and the banks of the river? Can the contractor use this area for construction access/staging/construction purposes?
This is outside of Coast Guard jurisdiction - Captain of the Port and District Commander. The Alabama State Port Authority controls/owns/manages property w/in the port of Mobile. You will need to contact the Port Authority to discuss this issue.

3) What restrictions and/or navigation requirements will be implemented for the Mobile River?
I sent you CG requirements for construction projects. Paragraph 2 - The CG expects that all activities will not impede a vessels reasonable ability to navigate the channel without the CG COTP’s approval. The bridge owner or authorized representative will the provide the CG COTP in writing requests to restrict a vessels ability to navigate the channel according to the following requirements: a. at least 14 days advance request for any restriction that will last less than 24 hours, b. at least 21 days advance request for any restriction that will last greater than 24 hours

4) What restrictions and/or navigation requirements will be implemented for the Tensaw River, Apalachee River, and Blakeley River?
Same as above.

5) When do you anticipate having responses from the river users regarding specific

requirements and restrictions during construction?

This is dependent on the construction plan. Waterways users expect, and the Coast Guard require that waterways remain clear and unobstructed at all times. If the construction plan requires a waterway closure or restriction – then the CG will coordinate w/ waterways users.

Doug

Doug Blakemore
Chief, Bridge Administration Branch
Eighth Coast Guard District
500 Poydras Street
New Orleans, LA 70130
Douglas.A.Blakemore@uscg.mil
(504) 671-2127 (w)
(618) 225-7727 (c)

-----Original Message-----
From: Missi Shumer <missi@shumerconsulting.com>
Sent: Thursday, May 31, 2018 1:21 PM
To: Blakemore, Douglas A CIV <Douglas.A.Blakemore@uscg.mil>
Cc: D8DPBAll <D08-DG-D8DPBAll@uscg.mil>; Hickox, Patrick <Patrick.Hickox@hdrinc.com>; 'Ericksen, Matthew' <ericksenm@dot.state.al.us>; 'Andrew Wood' <wooda@dot.state.al.us>; 'Walker, Steve' <walkers@dot.state.al.us>; clayn@dot.state.al.us
Subject: [Non-DoD Source] RE: MOBILE RIVER BRIDGE USCG COORDINATION

Doug,

Thank you for your e-mail on 2018 April 23 regarding general construction requirements for navigation safety for the proposed I-10 Mobile River Bridge and Bayway Project in Mobile and Baldwin Counties.

We have the following questions for you based on discussions with and questions from the proposing teams:

1) Will the contractor be required to maintain the 215-foot vertical air draft clearance over the Mobile Harbor Navigation Channel throughout the duration of construction or is it only required in the permanent condition?
2) Will the contractor be allowed to use the area in the Mobile River outside of the Mobile Harbor Navigation Channel between the channel and the banks of the river? Can the contractor use this area for construction access/staging/construction purposes?
3) What restrictions and/or navigation requirements will be implemented for the Mobile River?
4) What restrictions and/or navigation requirements will be implemented for the Tensaw River, Apalachee River, and Blakeley River?
5) When do you anticipate having responses from the river users

regarding specific requirements and restrictions during construction?

We are happy to schedule a conference call at your convenience to discuss the above-listed items. We appreciate your feedback and interest in this project and look forward to hearing back from you.

Missi Shumer
SHUMER CONSULTING, LLC
951 Government Street, Suite B
Mobile, Alabama 36604
251.605.7252 cell
missi@shumerconsulting.com

-----Original Message-----
From: Blakemore, Douglas A CIV <Douglas.A.Blakemore@uscg.mil>
Sent: Monday, April 23, 2018 8:11 AM
To: MISSI@SHUMERCONSULTING.COM
Cc: D8DPBAll <D08-DG-D8DPBAll@uscg.mil>; lewis.harden@dot.gov
Subject: MOBILE RIVER BRIDGE USCG COORDINATION

Ms. Shumer, Attached are several documents we talked about in our meeting this past spring about the Mobile River bridge project. The first attachment provides basic Coast Guard navigation safety and bridge administration requirements for construction projects and the remaining attachments are copies of letters we sent to verify that the 215' ADC in your bridge design is still valid. We will send you a letter on the ADC by next week.

Please contact me if there is anything else that you need for this project.

Doug Blakemore
Chief, Bridge Administration Branch
Eighth Coast Guard District
500 Poydras Street
New Orleans, LA 70130
Douglas.A.Blakemore@uscg.mil
(504) 671-2127 (w)

A conference call was held on June 25, 2018 at 10:00 am to discuss USGC's response dated June 1, 2018 to Missi Shumer regarding permitting during the construction phase (copy attached). Below are the topics and discussion of this meeting.

1. Allowable vertical clearance during construction. HDR provided information related to the temporary need to infringe on the permanent vertical clearance during construction to obtain the 215' of vertical clearance for the final condition of the Mobile River Bridge. USCG agreed that it is common practice to approve less than the authorized clearance during the construction phase but will need input from ALDOT and the river users on the timing of construction and potential for larger ships. ALDOT will work with USCG to set up a meeting with the river users to solicit feedback.
2. Allowable vertical clearance during maintenance. HDR provided information regarding the methods and equipment (maintenance travelers and under bridge inspection vehicles) used for inspection and maintenance of bridges. USCG confirmed that on other similar bridges, agencies simply request a temporary variance to allow the use of this type of equipment as long as they provide the schedule and information on the type of equipment used. As long as the notice is provided to USCG in a timely manner with the required information (type, size, schedule, etc.), there should not be any issues.
3. Review of preliminary permit packages. USCG confirmed that they would be willing to provide a review of a preliminary permit and drawings on the Mobile, Tensaw, Apalachee and Blakeley Rivers. The Procurement Advisory Team will prepare preliminary permit packages and drawings and submit them to the USCG for initial review on ALDOT's behalf. The USCG would also like to review the initial draft of the Supplemental DEIS regarding navigational safety and clearances.

The meeting was concluded at 10:30 am.

From:	Colquett, Tim
To:	Hickox, Patrick
Cc:	Wood, Andrew; Dragotta, Stephanie A.; Missi Shumer; Carballo, Manuel; Parker, Kathryn S (kathryn.parker@mottmac.com); Hedlund, Ryan
Subject:	Re: I-10 Mobile River Bridge and Bayway Project - Tensaw, Apalachee and Blakely River Channel Locations
Date:	Thursday, November 15, 2018 8:09:50 AM
Attachments:	image003.png image004.png

Good for me Pat.

Tim

Sent from my iPad

On Nov 14, 2018, at 4:14 PM, Hickox, Patrick <Patrick.Hickox@hdrinc.com> wrote:

Andrew / Tim,

Based on the response below from the USCG (no information available), we have studied the available information including:

<!--[if !supportLists]-->• <!--[endif]-->Available project plans and asbuilt drawings from the existing bayway bridges
<!--[if !supportLists]-->• <!--[endif]-->Navigational charts from NOAA and other maps from US Army Corps
<!--[if !supportLists]-->• <!--[endif]-->ALDOT provided bathymetric survey of the bayway bottom
<!--[if !supportLists]-->• <!--[endif]-->MRB Reference Plans

The recommended clearance below for each river will be normal to the stations (like the current alignment). Please note that we are only recommending a change to the location of Apalachee River clearance location due to the updated bathymetry survey provided. To confirm these locations, we translated the stationing of these rivers from the existing bridge plans to the reference plans. The clearances were verified from the DEIS and existing bridge plans. Based on this information, we recommend the following at each of the river locations:

Tensaw River
Station (center of channel) - 624+51.69
Horizontal clearance – 100’-0”
Vertical clearance – 24’-0”

<image001.jpg>

Apalachee River

Station (center of channel) – 804+20.54
Horizontal clearance – 50'-0"
Vertical clearance – 16'-0"

<image003.png>

Blakeley River
Station (center of channel) – 901+70.56
Horizontal clearance – 50'-0"
Vertical clearance – 16'-0"

<image004.png>

Please let us know if you have any questions. If acceptable, we will update the TPs and prepare the drawings for the USCG permit application.

Thank you,

Patrick P. Hickox, PE
Bridge & Structures Director / Senior Vice President

HDR
63 S. Royal Street, Suite 1106
Mobile, AL 36602
D 251.586.6084 **M** 251.295.6874
patrick.hickox@hdrinc.com

hdrinc.com/follow-us

From: Blakemore, Douglas A CIV [mailto:Douglas.A.Blakemore@uscg.mil]
Sent: Tuesday, October 23, 2018 10:52 AM
To: Hickox, Patrick <Patrick.Hickox@hdrinc.com>
Cc: D8DPBAll <D08-DG-D8DPBAll@uscg.mil>
Subject: RE: I-10 Mobile River Bridge and Bayway Project - Tensaw, Apalachee and Blakely River Channel Locations

Mr. Hickox, we do not have information on marked or exact channel locations. The bridge clearances set in NOAA charts are provided by the bridge owner to the Coast Guard after the bridge is built. We in turn pass this information to NOAA. This might fall under the Corps of Engineers if these are federally maintained channels. Outside of a federally maintained channel it is the bridge owners responsibility to identify waterway characteristics when applying for a Coast Guard bridge permit.

Doug Blakemore

Doug Blakemore

Chief, Bridge Administration Branch
Eighth Coast Guard District
500 Poydras Street
New Orleans, LA 70130
Douglas.A.Blakemore@uscg.mil
(504) 671-2127 (w)
(618) 225-7727 (c)

From: Hickox, Patrick <Patrick.Hickox@hdrinc.com>
Sent: Tuesday, October 23, 2018 10:17 AM
To: Blakemore, Douglas A CIV <Douglas.A.Blakemore@uscg.mil>
Cc: Robinson, Geri A CIV <Geri.A.Robinson@uscg.mil>; Wood, Andrew <wooda@dot.state.al.us>; Dragotta, Stephanie A. (dragottas@dot.state.al.us) <dragottas@dot.state.al.us>; Missi Shumer <missi@shumerconsulting.com>
Subject: [Non-DoD Source] RE: I-10 Mobile River Bridge and Bayway Project - Tensaw, Apalachee and Blakely River Channel Locations

Mr. Blakemore,

Just touching base on this request. Thanks,

Patrick P. Hickox, PE
Bridge & Structures Director / Senior Vice President

HDR
63 S. Royal Street, Suite 1106
Mobile, AL 36602
D 251.586.6084 **M** 251.295.6874
patrick.hickox@hdrinc.com

hdrinc.com/follow-us

From: Hickox, Patrick
Sent: Wednesday, September 19, 2018 9:06 AM
To: Douglas.A.Blakemore@uscg.mil
Cc: 'Geri.A.Robinson@uscg.mil' <Geri.A.Robinson@uscg.mil>; Wood, Andrew <wooda@dot.state.al.us>; Dragotta, Stephanie A. (dragottas@dot.state.al.us) <dragottas@dot.state.al.us>; Missi Shumer <missi@shumerconsulting.com>
Subject: I-10 Mobile River Bridge and Bayway Project - Tensaw, Apalachee and Blakely River Channel Locations

Mr. Blakemore,

On behalf of ALDOT and as part of the data needed for the procurement of the I-10 Mobile River Bridge and Bayway Project, we need your assistance identifying the exact location of the following channels as they cross the existing I-10 westbound and eastbound bridge structures: Tensaw, Apalachee and Blakely Rivers. These locations are needed to ensure that the required clearances for each of the new bridges are maintained.   For your reference, below is an excerpt from the NOAA Navigational chart for the area (http://www.charts.noaa.gov/PDFs/11376.pdf) which shows horizontal and vertical clearances for existing bridges crossing these rivers. From this navigation chart we were unable to identify any specific marked channel locations. We were hoping that the USCG would have the needed information. Thank you for your assistance in this matter and please let us know if you have any questions. Thanks,

<image002.jpg>

Patrick P. Hickox, PE
Bridge & Structures Director / Senior Vice President

HDR
63 S. Royal Street, Suite 1106
Mobile, AL 36602
D 251.586.6084 **M** 251.295.6874
patrick.hickox@hdrinc.com

hdrinc.com/follow-us

APPENDIX A-3:

Federal Aviation Administration

August 22, 2017

CONFERENCE CALL NOTES

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

Date: August 22, 2017 Time: 9:30 A.M.

Participant	Organization	E-Mail
Thomas Hughes	Mobile Airport Authority (MAA)	thomas@mobairport.com
Jennifer Shearer	MAA	jennifer@mobairport.com
Kendall Kilpatrick	Mott MacDonald	kendall.kilpatrick@mottmac.com
Katie Parker	Mott MacDonald	kathryn.parker@mottmac.com
Greg Lowe	Thompson Team	glowe@thompsonengineering.com
Missi Shumer	Thompson Team	missi@shumerconsulting.com

The purpose of the call was to discuss FAA permitting requirements for the subject project and to identify whether any special considerations will be required in the design phase of the project.

MAA noted that FAA is aware of the proposed project and that FAA Form 7460 will be required. One 7460 will be required for the towers of the new I-10 Mobile River Bridge, and separate 7460s will be required for the cranes that will be used during construction.

The Thompson Team has copies of FAA Form 7460 and Advisory Circular 150/5345-43H on Lighting Equipment.

Mott MacDonald stated that the project is still being designed, so final design information is not yet available. Preliminary design indicates that the tower for the new I-10 Mobile River Bridge would be approximately 490 feet high, with cables extending from the tower, similar to what currently exists for the Cochrane-Africatown Bridge. The tower will require red obstruction lighting that is standard for FAA permits. Previous coordination with the U.S. Fish & Wildlife Services indicates that they would like to have input related to the duration and frequency of the lighting on the tower to help prevent migratory birds from colliding with the tower and cables and to prevent nesting. Coordination with FAA and the U.S. Fish & Wildlife Service needs to occur to determine if this lighting request can be achieved and meet FAA requirements.

MAA stated that the proposed project may require changes to their flight paths. MAA recommended that the team prepare preliminary 7460s for the bridge tower and cables and for the proposed cranes that would be used during construction. The preliminary 7460s should be submitted to MAA/FAA for review and comment to determine whether any design considerations related to MAA/FAA requirements need to be included in future phases as the design develops.

The Thompson Team noted that it would be helpful to have a letter from the MAA documenting that the team has coordinated with the MAA on the project and that any special design considerations that should be carried forward into the design phase will be identified and included as environmental commitments on the project.

APPENDIX A-4:

Other Correspondence and Coordination

U.S. Department of Transportation
Federal Highway Administration

Alabama Division

9500 Wynlakes Place
Montgomery, AL 36117
334-274-6350
334-274-6352
Alabama.FHWA@dot.gov

May 11, 2017

In Reply Refer To:
HDA-AL

Mr. John R. Cooper
Director
Alabama Department of Transportation
1409 Coliseum Blvd.
Montgomery, AL 36110

Subject: DPI-00030(005)
Section 129 General Toll Program
I-10 Mobile River Bridge
Mobile and Baldwin Counties

Dear Mr. Cooper:

We have reviewed your letter dated March 10, 2017, regarding a variable price tolling request for the Wallace Tunnels as part of the Mobile River Bridge Project.

Under 23 U.S.C. 129 (General Toll Program), Congress permits Federal participation in certain types of toll-financed construction activities, including reconstruction or replacement of bridges or tunnels on the Interstate System. Consistent with FHWA guidance promulgated to implement the National Highway System Designation Act of 1995, we have determined that 23 U.S.C. 129 may be applied to the proposed improvements to the West Tunnel Interchange and existing I-10 Tunnels in Mobile, Alabama. The guidance interpreting 23 U.S.C. 129 states as follows:

> "Reconstruction or replacement of free bridges or tunnels and conversion to toll facilities [129(a)(1)(C)].
>
> Examples of reconstruction would be widening existing bridges or tunnels to add lanes or providing a dual facility. On the other hand, certain types of work clearly do not meet the intent for reconstruction. For example, putting up toll booths, painting and updating bridge rail are not considered to be work that would qualify a bridge for conversion. Although these latter types of activities could be eligible for Federal participation as part of a reconstruction effort, standing alone those activities are not viewed as reconstruction.
>
> The criteria of reconstruction could be satisfied by construction of a dual bridge or tunnel. The two bridges or tunnels do not have to be side-by-side; however, to be considered a dual facility, the new and existing bridge or tunnel must serve together as one to carry traffic on a single route-" and should be proximately located.

Based on the interpretation, ALDOT would have the authority to toll the George Wallace Tunnels under 23 U.S.C. 129. Specifically, the new I-10 Mobile River Bridge and the existing George Wallace Tunnels will provide dual facilities, and serve together as one to carry traffic on a single route. In addition, variable price tolling is allowed under the Section 129 Program and could be used by ALDOT if so desired.

If you have any questions, please call Mr. Jeff Shelley at (334) 274-6362.

Sincerely,

Mark D. Bartlett

Mark D. Bartlett, P. E.
Division Administrator

By email

cc: Don Arkle, ALDOT (electronic)
Vince Calametti, ALDOT (electronic)

MCHD
mobile county health department
A legacy of excellence since 1816

Bernard H. Eichold II, M.D., Dr.P.H., F.A.C.P.
Health Officer

SECTION	INFO	ACTION	FILE
REGIONAL ENGINEER			
ASST REGION ENGINEER			
ADMINISTRATION			
OPERATIONS MOBILE			
OPERATIONS GROVE HILL			
CONSTRUCTION			
COUNTY TRANSPORTATION			
EQUIPMENT			
EEO			
MATERIALS			
PRE-CONSTRUCTION			
SPECIAL PROJECTS			
DISTRICT MANAGERS			

January 18, 2018

Vince Calametti, P.E., Regional Engineer
Alabama Department of Transportation
Region 9th Division
1701 West I-65 Service Rd, West
Mobile, AL 36618-1109

Subject: Proposed I-10 Bridge

Dear Mr. Calametti:

Happy New Year and thanks for all your hard work. Since I do not believe the public comment period for the Environmental Impact Statement (EIS) has opened and it is now known the Alabama Department of Transportation (ALDOT) must build a new more elevated bayway, could we modify the current plans and build the new I-10 Bridge and Bayway south of the planned route (Attachment 1)? If we follow the more southern route, the existing I-10 could be designated the I-210 for predominately local Mobile traffic with heavier use during high traffic events, maintenance and wrecks. There would be enhanced traffic flow across the Mobile River and Mobile Bay with five lanes of interstate quality road going each direction and save the tax payers $200-300 million which is an estimated cost to demolish the current I-10 Bayway.

I admit I'm not an engineer but the redundancy of five lanes going east and west will make Mobile a safer, healthier community and provide more opportunity for economic growth in both Mobile/Baldwin Counties. The current river front property owned by ALDOT may be more valuable to the maritime industry bringing in more high paying jobs. Trucks leaving the Alabama Port on Virginia Street could take the "Airbus Route" to Brookley and go north on the new Michigan Ave. to I-10 and then turn east to cross the new bridge. Also the slope of the bridge could be less on both sides, since there would be more length to rise and fall. Maybe the Alabama Port Authority will consider trading the ALDOT owned property for an easement across the proposed southern route or purchase it for your original investment cost. The Mobile Chamber of Commerce may be able to provide insight into the future of the coal industry, but I believe current data predicts a steady decline.

Is a 250% increase in crossing capacity better than 150% while saving hundreds of millions of dollars?

Sincerely,

B. Eichold

Bernard H. Eichold II, M.D., Dr.P.H., F.A.C.P.
Health Officer

BHE:vw

cc: Mr. John R. Cooper, Transportation Director, ALDOT
Mayor Sandy Stimpson, Mobile
Mr. Kevin Harrison, South Alabama Regional Planning Commission

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JAN 22 2017

Mobile, AL
Arlington Park
est 51,852 ft.
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Google earth
ATTACHMENT 1
Imagery Date: 1/13/2012

MOBILE AREA
CHAMBER OF COMMERCE

May 10, 2018

Mr. Vince E. Calametti PE
Alabama Department of Commerce
1701 North Beltline Highway
Mobile, Alabama 36618

Dear Mr. Callametti:

The Alabama Department of Transportation (DOT) developed an I-10 Mobile River Bridge Determination of Appropriate Air Draft Clearance study in December 2012 in support of Alabama DOT project DPI-0030 (005) I-10 Mobile River Bridge and Bayway Widening Mobile and Baldwin counties, Alabama. This study was part of the environmental impact statement developed by Alabama DOT. The study recommended the I-10 Mobile River Bridge constructed with a 215' air draft clearance (ADC).

As a follow up to our March 20, 2012 and April 3, 2012 letter stating our concurrence with the recommended 215' ADC, the Cruise Industry Task Force would like to officially state our continued and strong belief that a minimum height of 215 feet is critical to the future of the cruise industry in Mobile.

Since this time, we have successfully seen the return of Carnival to Mobile, and we are currently in discussions for additional ships from Carnival and other cruise lines. Anything less than the 215' ADC would be detrimental to the possibility of continued success in the cruise industry for Mobile.

Respectfully,

Michael Lee
Chairman
Cruise Industry Task Force

SECTION	INFO	ACTION	FILE
REGIONAL ENGINEER			
ASST REGION ENGINEER			
ADMINISTRATION			
OPERATIONS-MOBILE			
OPERATIONS-GROVE HILL			
CONSTRUCTION			
COUNTY TRANSPORTATION			
EQUIPMENT			
EEO			
MATERIALS			
PRE-CONSTRUCTION			
SPECIAL PROJECTS			
DISTRICT MANAGERS			

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APPENDIX B

Bicycle and Pedestrian Coordination

I-10 Mobile River Bridge and Bayway Project

Proposed Bicycle & Pedestrian Alternatives and Evaluations

Technical Report

November 16, 2018

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Appendix F: February 15, 2017 – Mobile Area MPO BPAC Meeting

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Appendix I: Bicycle and Pedestrian Preferred Alternatives Map

I. Executive Summary

As part of the Draft Environmental Impact Statement for the I-10 Mobile River Bridge and Bayway Project (the Project), the Alabama Department of Transportation (ALDOT) committed to providing bicycle and pedestrian (bike/ped) facilities across the Mobile River which included routes via the Bankhead Tunnel, Cochrane-Africatown USA Bridge (Cochrane Bridge) or the Mobile River Bridge. At the Corridor Public Hearings held in 2014, ALDOT received comments from the public stating that they would like ALDOT to consider including bicycle and pedestrian facilities to the new bridge. This report provides information regarding the technical merits and public input for all of the alternatives considered.

<u>Bicycle and Pedestrian Workshop Held on October 27, 2016</u>

Alternative routes studied and presented at the October 27, 2016 Bicycle and Pedestrian Workshop include: (see Appendix B: Bike/Ped Alternatives Presented at this meeting)

1) I-165/Bay Bridge Road/Cochrane Bridge/US 90;
2) Bankhead Tunnel;
3) Mobile River Bridge with bike/ped facilities on the south side of the new bridge;
4) Mobile River Bridge with bike/ped facilities on the north side of the new bridge; and
5) Mobile River Bridge with bike/ped facilities on both the north and south sides of the new bridge.

Estimates of total cost, maximum grades, width of paths, and length of paths were developed for each of these alternatives. The matrix below (presented at the October 27, 2016 Bicycle and Pedestrian Workshop, see Appendix A: October 27, 2016 Public Meeting Presentation) summarizes this information.

Alternatives Comparison Matrix*

Description	I-165 / Cochrane	Bankhead	MRB (S)	MRB (N)	MRB (N&S)
Total Cost ($M)	$8M	$5M	$64.0M	$70.3M	$93.4M
Max Grade**	4.67%	6%	4%	4%	4%
Width (feet)	8’ or 12’	21’	12’	12’	8’
Total Length (miles)	9	1.5	2.8	2.9	5.7

*** - matrix presented at the October 27, 2016 Bicycle and Pedestrian Workshop; **- grade from construction plans or preliminary design.**

The proposed alternatives were also evaluated for a variety of factors, including user safety, user functionality, traffic impacts, connectivity, cost, constructability, and viewshed (i.e., views from the bike/ped facility). The results of this evaluation are detailed in this report. For the Alternatives Comparison Matrix above, it was assumed that all of the options considered would have the same terminus location (the Causeway at USS Alabama Battleship Park).

<u>Additional Information from the Mobile River Bridge Bicycle and Pedestrian Workshop Held on October 27, 2016</u>

The alternatives listed above were presented to the public for review and comment at a Bicycle and Pedestrian Workshop on October 27, 2016. A total of 523 comment forms were submitted to ALDOT before the comment period closed on November 11, 2016. In addition to the comment forms, 95 individuals signed a petition supporting the path to be built on the Cochrane Bridge. With the petition, comments received from the workshop totaled 618.

Of the comments received, 62% prefer the bike/ped facility to be placed on the new Mobile River Bridge. Of the 322 people who prefer the Mobile River Bridge option, 65% stated that they would use this route on a weekday, and 91% stated they would use the route on weekends. Of the 322 comments in favor of the Mobile River Bridge route, more than half (191) of the commenters specifically noted that the view from the bridge would be an attraction for residents and tourists, and the City of Mobile would benefit from placing the bike/ped facility on the new bridge. This route is supported by the Mobile bike/ped focus group and the Mobile Metropolitan Planning Organization (MPO) Bike and Pedestrian Advisory Committee (BPAC).

A total of 88 individuals (13%) preferred the Bankhead Tunnel for a bike/ped facility. Of the 88 people who prefer this route, 97% stated they would use the Bankhead Tunnel on the weekends. The other 3% stated that they would not use the route at all but feel like it is the best option. This route is supported by the Eastern Shore MPO BPAC.

A total of 129 people (19%) prefer the Cochrane Bridge route. Of the individuals who completed the comment form in favor of the Cochrane Bridge option, 53% stated they would use the facility on a weekday, and 68% stated they would use it on a weekend. The petition received in favor of the Cochrane bridge route stated that this route is the most feasible option as it relates to safety and to the growth and redevelopment of the area surrounding the Cochrane Bridge.

A total of 41 (6%) stated that they were opposed to providing a bike/ped facility because of the cost.

Although an observation area on the new Mobile River Bridge was not presented as an option at the workshop, the Mobile bike/ped focus group, Mobile MPO BPAC, and the Eastern Shore MPO BPAC all commented on the desire to see an observation area on the new bridge.

Information Received from Bike/Ped Update Meetings

An informational meeting was held between ALDOT and the Eastern Shore MPO BPAC on February 6, 2017. The meeting minutes can be found in Appendix D.

An informational meeting was held with Mobile Baykeeper on February 13, 2017. Meeting minutes can be found in Appendix E.

An informational meeting was held with Mobile Area MPO BPAC on February 15, 2017. Meeting minutes can be found in Appendix F.

An informational meeting with Mobile Area MPO BPAC and Eastern Shore MPO BPAC was held on February 27, 2018. At this meeting, ALDOT presented an update to the current bike/ped studies. The presentation as well as the questions and responses from this meeting can be found in Appendix G.

The Mobile MPO BPAC met and adopted ALDOT's preferred bicycle and pedestrian plan (see below under Results and Recommendations) on October 3, 2018 (the meeting minutes can be found in Appendix H).

Results and Recommendations

Cochrane-Africatown USA Shared Use Path

After reviewing the input from the workshop and further discussions with the bicycle/pedestrian focus groups and BPACs, ALDOT's preferred bicycle and pedestrian alternative includes a combination of facilities to meet the interests of a variety of user groups based on feedback from the public workshop, BPACs, and focus groups. The preferred route can be found in Appendix I: Bicycle and Pedestrian Preferred Alternatives Map. The preferred route to cross the Mobile River is the Cochrane-Africatown USA Shared Use Path.

ALDOT will provide a bicycle and pedestrian shared use path from the I-165 southbound on-ramp at Bay Bridge Road to the Cochrane-Africatown USA Bridge. ALDOT will retrofit the Cochrane-Africatown USA Bridge to provide two protected bicycle and pedestrian lanes (one on each side of the bridge). The bicycle and pedestrian path will be a minimum of eight feet wide. ALDOT proposes to provide a shared use path on the south side of Bay Bridge Road and a sidewalk on the north side of Bay Bridge Road with crosswalks at appropriate locations. More detailed studies, design, and coordination with the local community will be required to finalize the details of the bicycle and pedestrian facilities along this route. The length of this proposed corridor is approximately 2.6 miles.

Cochrane-Africatown USA Shared Use Path Future Phases

ALDOT has also committed to work with local municipalities to provide bicycle and pedestrian paths from Beauregard Street in downtown Mobile to the Cochrane-Africatown USA Bridge Shared Use Path via surface streets, such as Conception Street or Telegraph Road ALDOT will work with local municipalities and the local BPAC of the Mobile MPO to determine the appropriate route for these paths, taking into consideration the opportunity for connectivity with the proposed Three Mile Creek Trail improvements, the Africatown Connections Blueway, and other proposed and existing bicycle and pedestrian plans and greenway initiatives.

ALDOT will also work with local municipalities and the Mobile and Eastern Shore BPACs to extend the path to the USS ALABAMA Battleship Memorial Park.

It is anticipated that these extensions will be funded with Better Utilizing Investments to Leverage Development (BUILD) transportation grants, Federal-aid funds, and/or other available means.

Other Potential Future Connections to the Cochrane Africatown USA Shared Use Path

ALDOT will also work with local municipalities from the Eastern Shore to extend the bicycle and pedestrian facilities from the USS ALABAMA Battleship Memorial Park to Spanish Fort/Daphne as proposed in the Spanish Fort Causeway Masterplan. Specifically, ALDOT will include bicycle and pedestrian facilities in future transportation improvement projects along the US-90/US-98 corridor, such as the bicycle and pedestrian accommodations being included in the ongoing Tensaw River Bridge replacement project.

Mobile River Bridge Belvedere

In addition to the above-listed facilities, ALDOT's preferred or selected alternative to constructing a belvedere (i.e., overlook that provides a space for people to stop, rest, and enjoy the view) on the bridge at the west main tower. This commitment is provided to address the stated desire from the BPACs and the public to have a viewing area from the bridge as an attraction for residents and tourists. Access to the belvedere will be provided via an elevator and stair tower located on the west side of the river. The path from the tower access to the belvedere will be a minimum of 12 feet wide. The belvedere will have a minimum area of 700 square feet. The location of the belvedere (north or south) on the bridge will be decided during the procurement phase of the project. Construction of the belvedere will be accomplished with the I-10 Mobile River Bridge and Bayway Project and will provide the view from the new Mobile River Bridge that was requested in comments received from the public workshop, the BPACs, and the bicycle/pedestrian focus group.

Bankhead Tunnel

ALDOT has previously closed the Bankhead Tunnel to vehicular traffic for a few hours on the weekends to allow bicyclists and pedestrians to use the tunnel to cross the Mobile River. The majority of respondents from the public workshop who favored the Bankhead Tunnel alternative said they would solely use the tunnel on the weekends. The Eastern Shore MPO BPAC also supported this route for the Mobile River crossing. ALDOT will continue this program as long as there is interest from the community and availability to close the tunnel without major disruptions to traffic.

Bicycle and Pedestrian Options with New Mobile River Bridge

In response to public input requesting that bicycle and pedestrian facilities be located on the new bridge, ALDOT has included options that may be incorporated into the I-10 Mobile River Bridge and Bayway Project should sufficient funding become available. As part of their bids, the teams proposing on the project will include prices for the options listed below. This process encourages the proposing teams to be innovative in how they approach including these options on the project. Ultimately, ALDOT will determine whether either of these options can be added to the project. A decision on these options would not be made until after the FEIS/ROD is approved since the proposing teams will not be able to submit their proposals and bids until after the FEIS/ROD is approved. These options are shown in Appendix H: Bicycle and Pedestrian Preferred Alternatives Map and are described in the following paragraphs:

Option 1: Full Shared Use Path on Mobile River Bridge

Option 1 would provide a minimum 12-foot-wide shared use path along the high level approaches and main span bridge crossing the Mobile River. The path would begin between Virginia Street and Texas Street on the west side of Mobile River and end near US-90/US-98 on the east side of Mobile River. The path would be located on the same side as the Mobile River Bridge Belvedere and would provide a connection to the belvedere from the path.

Option 2: Elevators/Stairs on Both Sides of Mobile River with Connecting Shared Use Path

Option 2 would provide an elevator and stair tower on the east anchor pier on the east side of Mobile River. A 12-foot-wide shared use path from the Mobile River Bridge Belvedere on the west side of the Mobile River would connect to the elevator and stair tower on the east side of Mobile River, and the belvedere could be moved to the center of the main span bridge.

Bicycle/Pedestrian Matrix for Preferred Route, Enhancements, and Options

Description	Cochrane/Bay Bridge Rd	Cochrane Future Phases	MRB Path to Belvedere	Bankhead	MRB Option 1	MRB Option 2
Total Cost ($M)	$5.9M	$5.1M	$22.4M	$0M*	$55.6M	$29.7M
Max Grade	4.67%	0%	3.2%	6%	4%	3.2%
Width (feet)	8’ or 12’	8’ or 12’	12’	21’	12’	12’
Total Length (miles)	2.6	5.7	0.1	0.7	2.8	0.4

*- excludes ALDOT’s costs associated with maintenance of traffic and operations.

II. Introduction

During the preparation of the Draft Environmental Impact Statement (DEIS) for the I-10 Mobile River Bridge and Bayway Project, ALDOT made the following Environmental Commitment Statement regarding bicycle and pedestrian accommodations for this project:

> ***"Pedestrian and Bicycle Facilities:***
>
> - **Proposed Accommodations:** ALDOT is committed to providing pedestrian and bicycle facilities across the Mobile River. This may be via Cochrane 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."

As part of the consultant contract on this project for ALDOT, the Thompson Engineering Team has performed an evaluation of the potential alternatives for providing pedestrian and bicycle facilities across the Mobile River. The alternatives evaluated include:

- Bankhead Tunnel alternatives
- Cochrane Bridge alternatives
- New Mobile River Bridge alternatives

For each of these alternatives, routes and associated criteria were considered in addition to previous studies including:

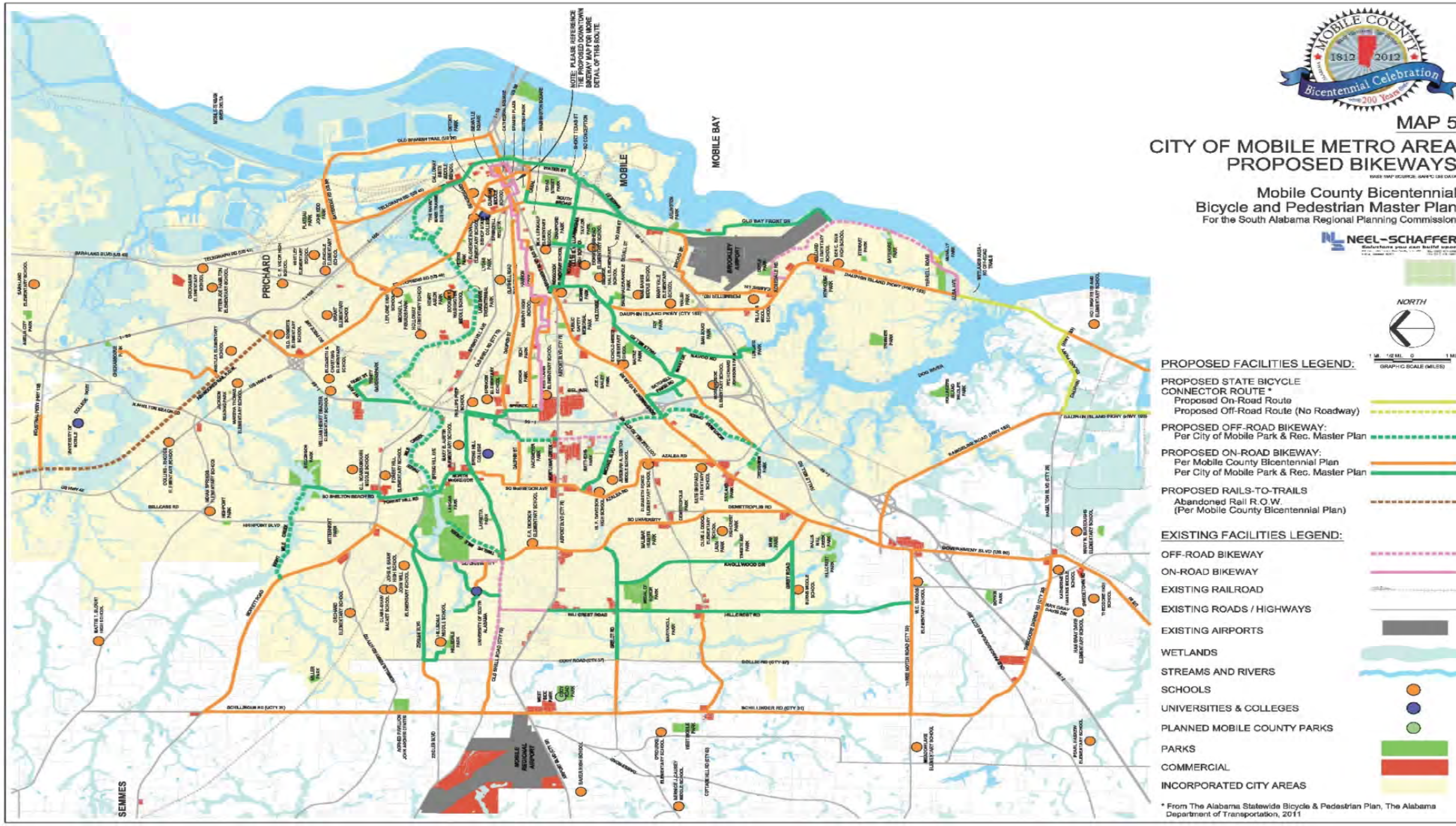
- Alabama Department of Transportation Bicycle and Pedestrian Plan, 2017
- Mobile County Bicentennial Bicycle and Pedestrian Master Plan, October 21, 2011
- Eastern Shore Metropolitan Planning Organization Bicycle and Pedestrian Transportation Concept, February 2015

The following pages include proposed and existing plan maps from the Mobile County Bicentennial Bicycle and Pedestrian Master Plan and the Eastern Shore Metropolitan Planning Organization Bicycle and Pedestrian Transportation Concept to establish the study area and potential connections to existing or planned bicycle and pedestrian routes. The beginning and ending locations for each of the options is shown on the alternatives maps (see Appendix B: Bike/Ped Alternatives Presented at the October 27, 2016 Public Meeting). A set of criteria was used to characterize each of the alternatives evaluated. Below is a summary of this criteria:

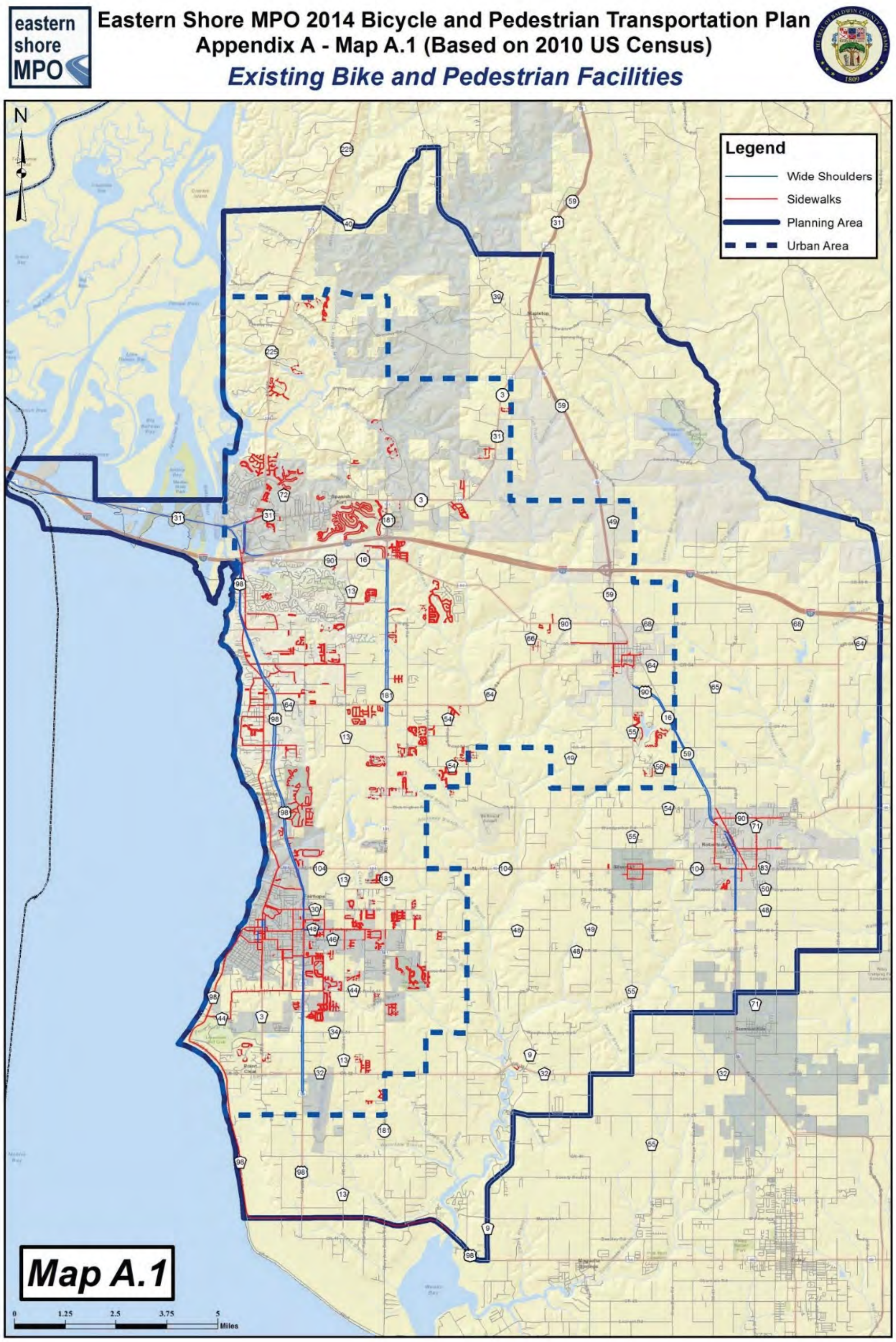
1) User Safety – the condition of non-motorized modes of travel, such as biking and walking interfacing and utilizing the same roadway as motorized travelers; condition of travel along protected areas of alternatives considered without interfacing motorized vehicles.
2) User Functionality – an alternative's ability to serve as an intermodal transportation system.
3) Traffic Impacts – the impacts a new bicycle and pedestrian facility would have upon an existing or proposed roadway system.

4) Connectivity – an alternative's ability to provide direct routing to connections, few physical barriers, and ease of use.
5) Cost – the construction cost.
6) Constructability – a technique to review construction processes from start to finish during pre-construction phase. It is also used to identify/describe obstacles before a project is actually built to reduce or prevent errors, delays, and cost overruns.
7) Viewshed - the natural or historic environment that is visible from one or more viewing points.

The following sections provide a description of each of the alternatives with a subjective evaluation of each using the criteria described above.

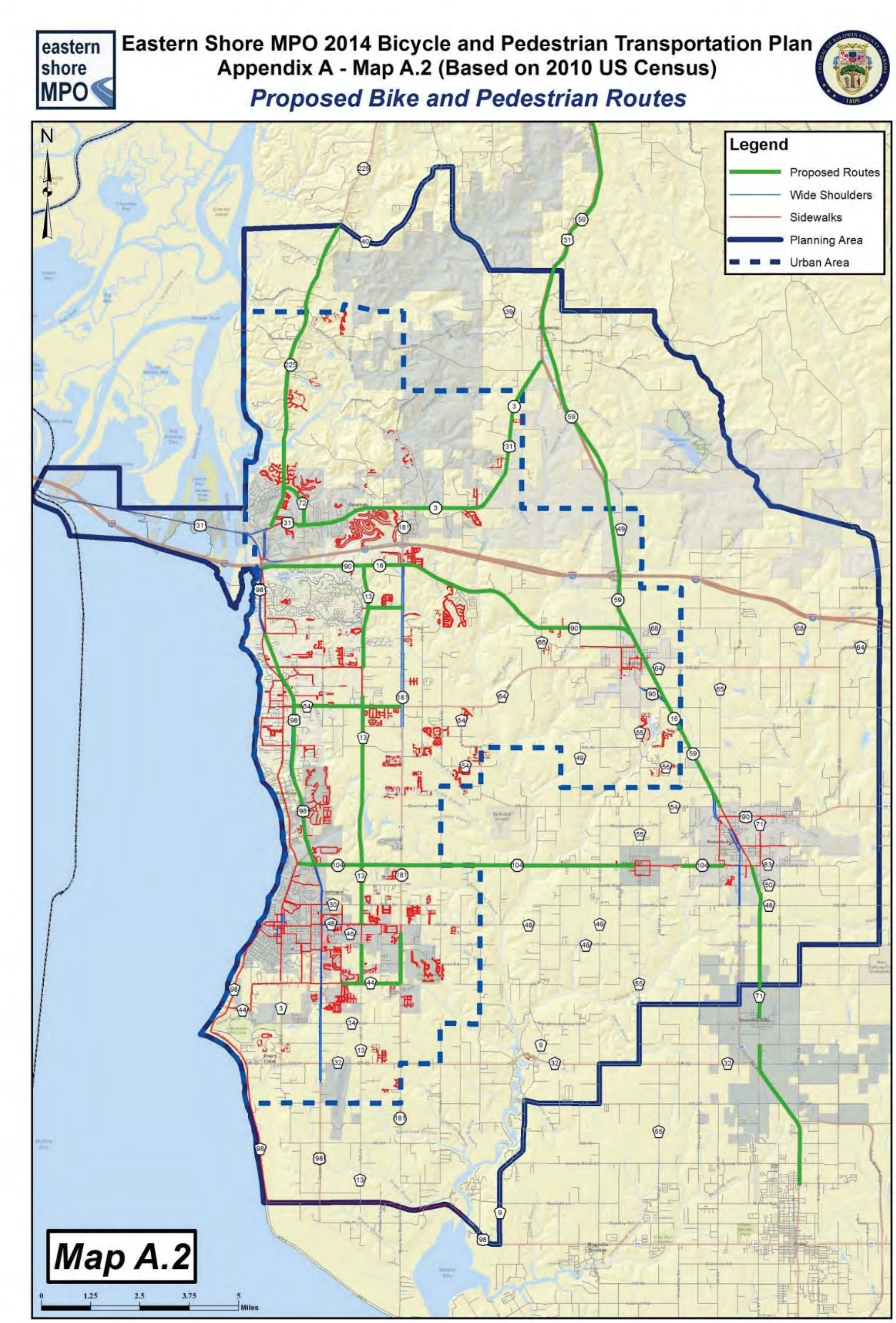

MAP 5
CITY OF MOBILE METRO AREA
PROPOSED BIKEWAYS
Mobile County Bicentennial
Bicycle and Pedestrian Master Plan
For the South Alabama Regional Planning Commission
NEEL-SCHAFFER
NORTH
PROPOSED FACILITIES LEGEND:
PROPOSED STATE BICYCLE CONNECTOR ROUTE *
Proposed On-Road Route
Proposed Off-Road Route (No Roadway)
PROPOSED OFF-ROAD BIKEWAY:
Per City of Mobile Park & Rec. Master Plan
PROPOSED ON-ROAD BIKEWAY:
Per Mobile County Bicentennial Plan
Per City of Mobile Park & Rec. Master Plan
PROPOSED RAILS-TO-TRAILS
Abandoned Rail R.O.W.
(Per Mobile County Bicentennial Plan)
EXISTING FACILITIES LEGEND:
OFF-ROAD BIKEWAY
ON-ROAD BIKEWAY
EXISTING RAILROAD
EXISTING ROADS / HIGHWAYS
EXISTING AIRPORTS
WETLANDS
STREAMS AND RIVERS
SCHOOLS
UNIVERSITIES & COLLEGES
PLANNED MOBILE COUNTY PARKS
PARKS
COMMERCIAL
INCORPORATED CITY AREAS
* From The Alabama Statewide Bicycle & Pedestrian Plan, The Alabama Department of Transportation, 2011
MOBILE BAY
MOBILE
PRICHARD
SEMMES

MICHAEL A. FIGURES PARK
HENRY AARON PARK
LAKE DRIVE TRICENTENNIAL PARK
PETERS PARK
LYONS PARK
SPRINGHILL REC CTR
"THE WAVE" MASS TRANSIT BUS HUB
DETONTI PARK
BIENVILLE SQUARE
CATHEDRAL SQUARE
SPANISH PLAZA
BRITISH PARK
WASHINGTON SQUARE
DENON PARK
RICH PARK
HANNON PARK
CRAWFORD PARK
TEXAS STREET PARK
TAYLOR PARK
PUBLIC SAFETY MEMORIAL PARK
RICKARBY PARK
JOE A. BAILEY PARK
BAUMHAUER-RANDLE PARK
MAITRE PARK
BEL AIR
I - 65
I - 165
I - 10
US 90
ST STEPHENS RD (US 45)
TELEGRAPH RD. (US 43)
OLD SPANISH TRAIL (US 90)
DR. MARTIN LUTHER KING JR. AVE.
BEAUREGARD
SPRING HILL AVE
OLD SHELL RD (CTY 70)
DAUPHIN ST
DAUPHIN ST.
ESPLANADE AVE.
EMOGENE ST
EMOGENE ST.
RALSTON RD.
TAYLOR AVE.
CLEARMONT ST.
AIRPORT BLVD (CTY 70)
SOUTH ST.
SO. CARLEN
SO. MONTEREY ST.
CONTI ST.
HUNTER AVE.
GOVERNMENT BLVD (US 90)
CAROLINE AVE.
N. BROAD ST.
S. BROAD ST.
N. SCOTT ST.
ST. FRANCIS ST.
N. ROYAL ST.
CHURCH ST.
CANAL
FACILITIES LEGEND:
EXISTING BIKEWAY ROUTE
EXISTING BIKEWAY ROUTE IDENTIFIED FOR ABANDONMENT
PROPOSED BICENTENNIEL BIKEWAY & PEDESTRIAN PLAN ROUTE
PROPOSED PER CITY OF MOBILE PARKS & RECREATION MASTER PLAN
- On-Road Bikeway
- Off-Road Shared-Use Trail
COMMENT KEY (SEE NEXT PAGE)
EXISTING RAILROAD
EXISTING ROADS / HIGHWAYS
WETLANDS
STREAMS AND RIVERS
PARKS
COMMERCIAL
MOBILE CITY LIMITS
NORTH
MOBILE COUNTY
1812 2012
Bicentennial Celebration
MAP 6
CITY OF MOBILE PROPOSED DOWNTOWN BIKEWAYS
Mobile County Bicentennial Bicycle and Pedestrian Master Plan
For the South Alabama Regional Planning Commission
NEEL-SCHAFFER



A-1

For larger image, visit - http://easternshorempo.org/wp-content/uploads/2015/05/2014-11-21-Final-Bike-Ped-Plan-v21.pdf



A-2

For larger image, visit - http://easternshorempo.org/wp-content/uploads/2015/05/2014-11-21-Final-Bike-Ped-Plan-v21.pdf

III. Evaluation Detail

For the evaluation below for A through C, the terminus point of Battleship Park was selected for comparison reasons. Discussions for Sections A. through C. were the alternatives shown at the October 27, 2016 Bicycle and Pedestrian Workshop. Sections D. through I. were subsequently studied following public input and are included below.

A. Bankhead Tunnel Alternative (*As presented at Bike / Ped Workshop*)

The Bankhead Tunnel Alternative converts the existing vehicular tunnel to an all pedestrian and bicycle facility (see Figure 1 - Cross section of existing and proposed Bankhead Tunnel). The Bankhead Tunnel alternative would begin at North Conception and Government Street, go under the Mobile River via Bankhead Tunnel, progress to the south side of US90/98 and end at the entrance of Battleship Memorial Park entrance. With this alternative, Bankhead Tunnel would be closed to vehicular traffic. This route is approximately 1.5 miles long and has a 6% maximum grade.

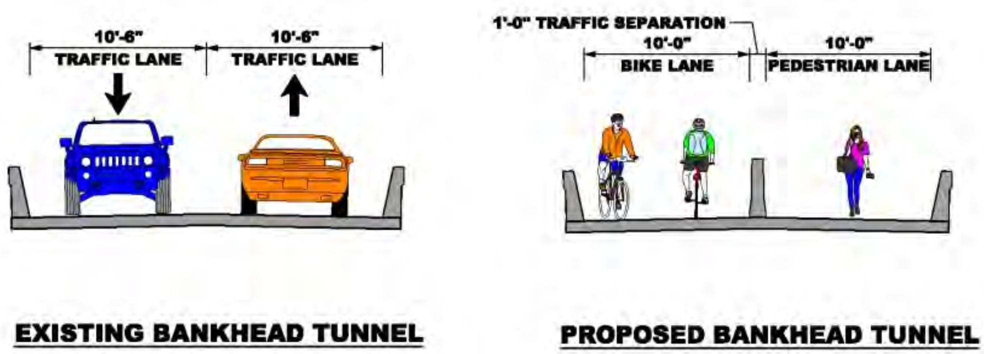


Figure 1 - Cross section of existing and proposed Bankhead Tunnel

1. *User Safety*

   Portions of the tunnel's ascent/descent slope are approximately 6%. AASHTO recommends a slope no greater than 5% as this can cause some bicycle users to exceed safe speeds. To address this issue, signage and/or a message system regarding speed, slope, and direction of travel could be used to warn users. The tunnel may need to be modified for improved bike/ped user experience. Video monitoring would need to be considered to improve safety. The existing 21-foot width would allow for the separation of bike/ped users and improved safety.
2. *User Functionality*

   The tunnel is the most direct alternative for moving bike/ped users across the Mobile River. Users will have access to public accommodations at Mardi Gras Park and USS Alabama Battleship Memorial Park on each end of this alternative. The tunnel is 21 feet wide, and there is adequate width to accommodate bicycle users and pedestrians. For improved functionality, this alternative should consider separating bicycle users and pedestrians using bidirectional cycle tracks (5 feet in each direction) and a 10-foot pedestrian path.

3. *Traffic Impacts*
   For the Bankhead Tunnel Alternative, vehicular traffic would be prohibited to allow for permanent conversion to a bike/ped facility. Traffic analysis was not performed to determine the impact of closing the Bankhead Tunnel.
4. *Connectivity*
   The purpose of the tunnel route is to provide direct access across the Mobile River. In downtown, a connection from North Claiborne Street to the tunnel along Government Street should be considered. There is no existing or planned bicycle route on this roadway. North Claiborne Street is a planned route in the Mobile County Bicentennial Bicycle and Pedestrian Master Plan. This alternative should also consider adding a link to US 90 from the tunnel below I-10 (12-foot shared-use path), and a bicycle and pedestrian linkage (12-foot shared-use path) along US 90 to Addsco Road. The Addsco Road intersection would also provide a connection to the eastbound shoulder of US 90. All connections to this alternative except Government Street are consistent with local and regional planning efforts shown in the Mobile County Bicentennial Bicycle and Pedestrian Master Plan.
5. *Estimated Construction Cost*
   $5.0M. This estimate includes improvements to convert the Bankhead Tunnel to facilitate bicycle and pedestrian uses and for the route described above.
6. *Constructability*
   Under full time bike/ped usage, the tunnel would require restriping, signage, and devices to separate bikes and pedestrians (if desired). Government Street directional traffic around the north portal would need to be re-configured. Restriping and additional bicycle accommodations between the east and west alternative transitions would be required.
7. *Viewshed*
   The Bankhead Tunnel is a historic and unique structure. Repurposing it from an auto-centric corridor to a bicycle and pedestrian corridor would still allow it to be utilized and enjoyed by the residents and tourists of Mobile. This alternative would create minimal impacts to the viewshed of the river from downtown and integrates the historic tunnel into the fabric of the downtown experience.

B. Cochrane-Africatown USA Bridge Alternative *(As presented at Bike / Ped Workshop)*

This route would begin at South Royal and Government Street, progress down Water Street onto the I-165 Southbound Bridge. From there, the I-165 southbound lanes would have a protected bike/ped path on one side with a barrier to Bay Bridge Road. There would then be a separated shared bike/ped path on one side of Bay Bridge Road to the Cochrane Bridge. Cochrane Bridge would have a shared bike/ped path on each side. To provide access across the Mobile River via the Cochrane Bridge, the bridge will be retrofitted to allow for the construction of protective barrier walls and bike/ped fencing and other protective measures for the full length of the bridge. The existing traffic lanes and shoulders will be reapportioned to allow for a shared-used path on the eastbound and westbound sides of the bridge (see Figures 2 and 3- Cross sections for existing and proposed on Cochrane Bridge and I-165 South). US 90/98 would have a shared bike/ped path on each side of the roadway to Battleship Memorial Park entrance. The total length of this route is 9 miles and has a maximum grade of 4.67% for the Cochrane Bridge section.

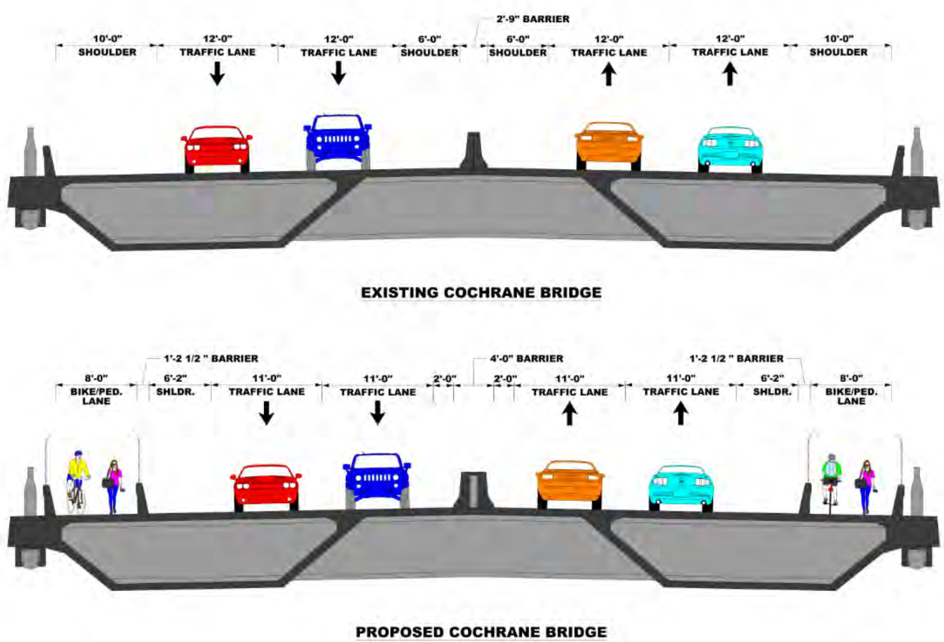


Figure 2 - Cross sections for existing and proposed on Cochrane Bridge and I-165 South.

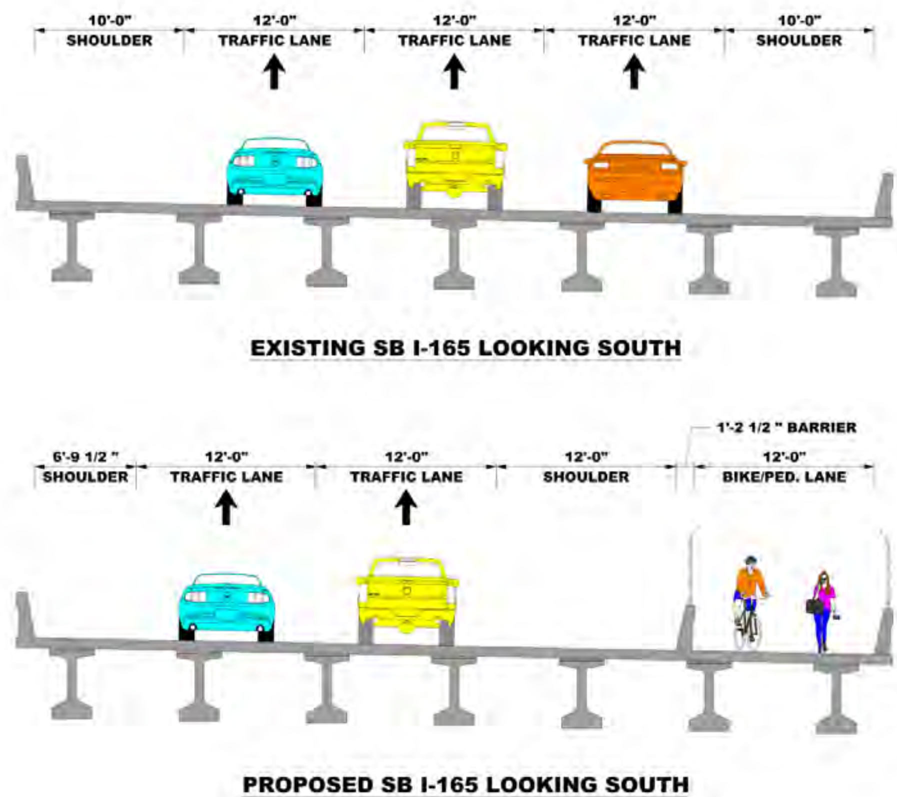


Figure 3 - Cross sections for existing and proposed on Cochrane Bridge and I-165 South.

1. *User Safety*
   Safety features will need to address overall height of the pathway on the bridges, proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. This alternative includes 30 to 45 mph roadway speeds. A two-way shared-use path is separated from traffic by a wall or barrier on US 90 (Bay Bridge Road) Bridge and I-165. The I-165 path was included in this alternative for comparative reasons. Designated sidewalks and bike lanes (non-buffered) planned along Old Spanish Trail (US 90) separate bicycle users and pedestrians from motor vehicles.
2. *User Functionality*
   For the Cochrane Bridge crossing, the cross section and laneage will be reapportioned to allow for an 8-foot bike/ped lane on each side of the bridge for eastbound and westbound movements. The remaining sections of this alternative will provide a 12-foot, two-way shared-use path. Travel distances will preclude pedestrians in the downtown area from using this alternative.
3. *Traffic Impacts*
   A loss of shoulder width on the Cochrane Bridge and US 90 (Bay Bridge Road) Bridge will be required. A lane of the I-165 southbound will be required to be reapportioned to accommodate the new bike path if the bike/ped path is extended in the future. A traffic analysis was not performed to determine the impact to existing traffic.

4. *Connectivity*
   This alternative is consistent with local and regional planning efforts shown in the *Mobile County Bicentennial Bicycle and Pedestrian Master Plan* and the *Parks and Recreation Master Plan*. Additionally, US 90 is part of the U.S. Bicycle Route System (USBRS), a national network of bicycle routes, which connects urban, suburban and rural areas using roads, trails, and other facilities appropriate for bicycle travel.
5. *Estimated Construction Cost*
   $8.0 M. This estimate includes improvements to convert the Cochrane Bridge and I-165 to facilitate bicycle and pedestrian uses and for route described above. Costs associated with improvements from Cochrane Bridge to the entrance to Battleship Park is not included.
6. *Constructability*
   For the Cochrane Bridge and I-165 Bridge (potential future connection), construction of a bike/ped barrier wall and restriping would be required. For the approach roadways, sidewalk construction, restriping, and signage would be required. A possible reduction in lane widths may be required.
7. *Viewshed*
   The Cochrane-Africatown USA Bridge provides views of Mobile and the Mobile River. This option runs through a predominately industrial area.

C. New Mobile River Bridge Alternatives *(As presented at Bike / Ped Workshop)*
These alternatives would provide access across the Mobile River via the newly constructed bridge. The bridge would be designed to accommodate the various options described below.

<u>New Mobile River Bridge – North Side Alternative</u>
(As presented at Bike / Ped Workshop)
This route begins at Virginia Street, progresses up the new bridge crossing the river (see Figure 4 - Cross Section for Mobile River Bridge North Side Alternative), down the bridge on the east side of the mobile river, around a loop ramp due to the grade differences between the bridge and tie in locations, along the south side of US 90/98 and ending at the entrance to the Battleship Memorial Park. The total length of this route is 2.9 miles and has a maximum grade of 4%.

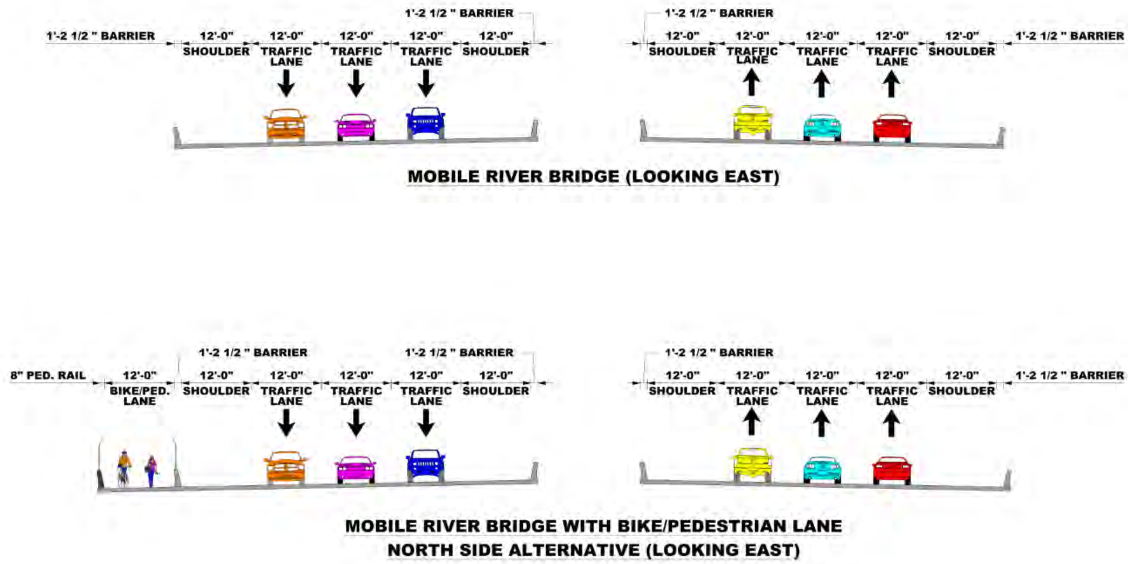


Figure 4 - Cross Section for Mobile River Bridge North Side Alternative

1. *User Safety*
   Safety features would need to address overall height of the pathway; proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. A two-way shared-use path would be separated from traffic by a wall or barrier. There are possible security issues, such as a Department of Defense contractor located just below bridge. A wall or cover may be needed to impede or limit viewing.
2. *User Functionality*
   A 12-foot (minimum), two-way, shared-use path would provide enough width to comfortably accommodate pedestrians and bicyclist (including passing movements). AASHTO recommends 10 to 14 feet for shared-use paths. The Mobile River Bridge would primarily accommodate intense users such as joggers, runners and cyclists. Due to the ascent/decent distance and grade of the bridge, casual users such as walkers and recreational riders may be less inclined to use the bridge.
3. *Traffic Impacts*
   No traffic impacts.
4. *Connectivity*
   Direct connection to proposed bikeway route at Virginia Street on the west side and USS Alabama Battleship Memorial Park on the east side of the Mobile River.
5. *Estimated Construction Cost*
   $70.3M. This estimate includes construction on the new bridge to facilitate bicycle and pedestrian uses and for route described above.
6. *Constructability*
   A 12-foot shared-use path would be constructed on the north side of the bridge. The path would start at the Virginia St. ramp, go up the new high level bridge and across the main span unit, then back down the high level bridge on the east side of the river. and land near Addsco Road. It would then proceed along US 90/98 adjacent to the roadway until it reached the entrance to Battleship Park.

7. *Viewshed*
   The north side option provides for north facing views of downtown Mobile, Mobile Bay and Mobile River. Ramps would create a secondary level of visual clutter on the east side of the river due to additional piers and superstructure for approach ramp.

New Mobile River Bridge – South Side Alternative
(As presented at Bike / Ped Workshop)
This route begins at Virginia Street, progresses up the new bridge crossing the river (see Figure 5 - Cross Section for Mobile River Bridge South Side Alternative), down the bridge on the east side of the mobile river, along the south side of US 90/98 and ending at the entrance to the Battleship Memorial Park. The total length of this route is 2.8 miles and has a maximum grade of 4%.

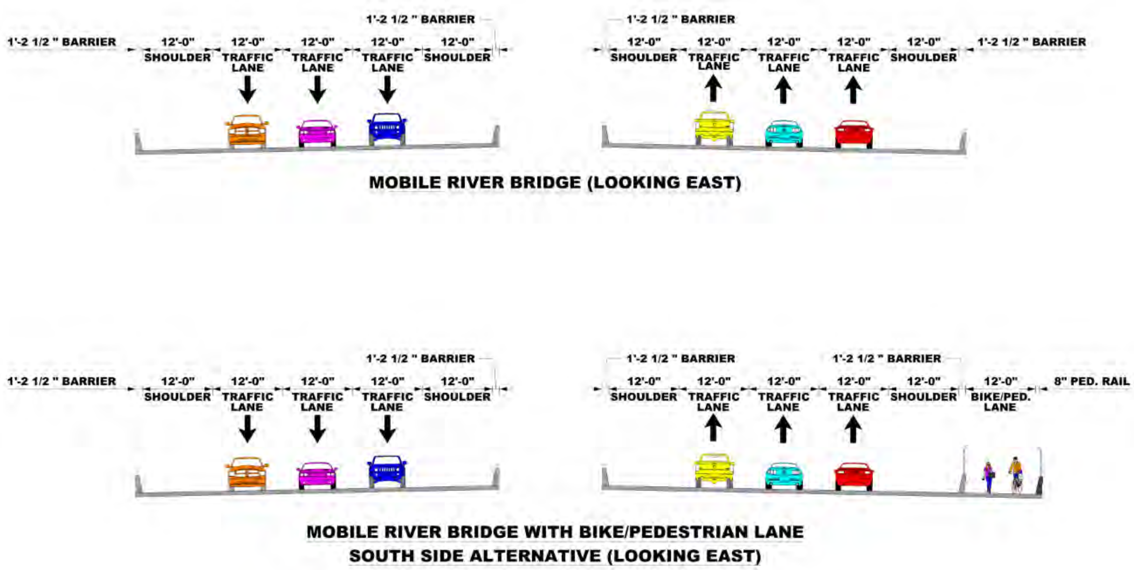


Figure 5 - Cross Section for Mobile River Bridge South Side Alternative

1. *User Safety*
   Safety features would need to address overall height of the pathway; proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. A two-way shared-use path would be separated from traffic by a wall or barrier. There are possible security issues, as the Mobile County Jail is located just below bridge. A wall or cover may be needed to impede or limit viewing
2. *User Functionality*
   A 12-foot (minimum), two-way, shared-use path would provide enough width to comfortably accommodate pedestrians and bicyclist (including passing movements). AASHTO recommends 10 to 14 feet for shared-use paths. The Mobile River Bridge would primarily accommodate intense users such as joggers, runners and cyclists. Due to the ascent/decent distance and grade of the bridge, casual users such as walkers and recreational riders may be less inclined to use the bridge.
3. *Traffic Impacts*
   No traffic impacts.

4. *Connectivity*
   Direct connection to proposed bikeway route at Virginia Street on the west side and Battleship Park on the east side of the Mobile River.
5. *Estimated Construction Cost*
   $64.0M. This estimate includes construction on the new bridge to facilitate bicycle and pedestrian uses and for route described above.
6. *Constructability*
   The path would start at the Virginia Street ramp, go up the new high level bridge and across the main span unit, then back down the high level bridge on the east side of the river. The path would then transition to a separate structure and proceed down with a landing near Addsco Road.
7. *Viewshed*
   The south side option provides for south facing views of the Pinto Island industrial areas, Mobile Bay and Mobile River. The approach view on the west side of the river includes the Mobile County Metro Jail. Ramps would create a secondary level of visual clutter on the east side of the river due to additional piers and superstructure for the approach ramp.

New Mobile River Bridge – North and South Side Alternative
(As presented at Bike / Ped Workshop)
The New Mobile River Bridge North and South Side Alternative combines both alternatives and offers two separate paths on each side of the bridge (see Figure 6 - Cross Section for Mobile River Bridge North and South Side Alternative).

1. *User Safety*
   Safety components are combined from both north side and south side alternatives.
2. *User Functionality*
   User functionality is combined from both north and south side alternatives.
3. *Traffic Impacts*
   No traffic impacts.
4. *Connectivity*
   Connectivity is combined from both north and south side alternatives.
5. *Estimated Construction Cost*
   $93.4M. This estimate includes construction on the new bridge to facilitate bicycle and pedestrian uses and for route described above.
6. *Constructability*
   Constructability of this alternative is a combination of the north and south alternatives except that the shared-use path on both sides of the structure would be 8 feet wide.
7. *Viewshed*
   Viewshed is combined from both north and south side alternatives.

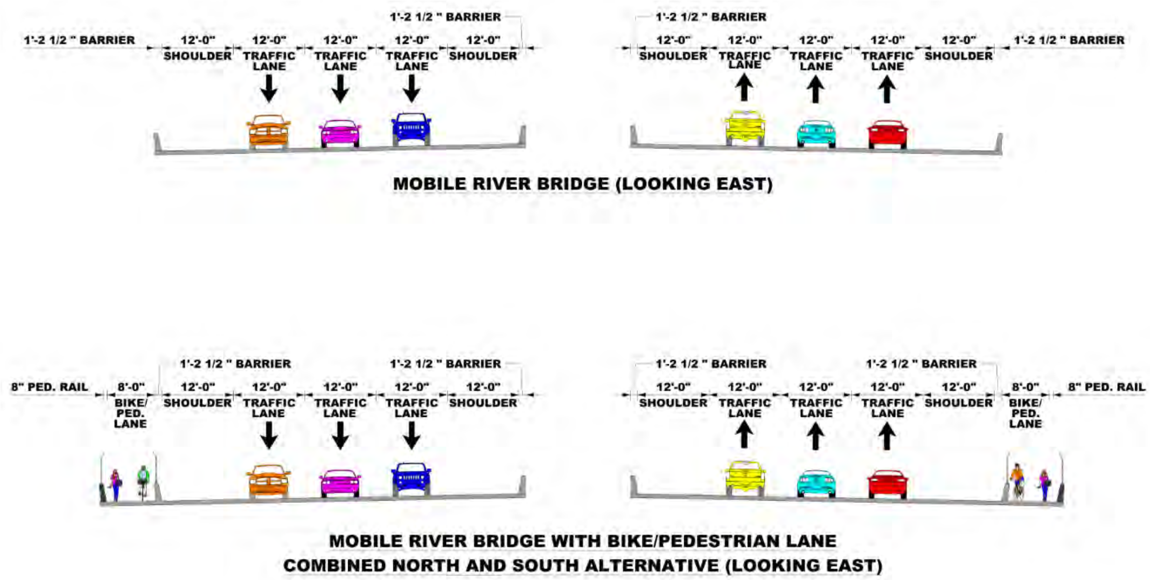


Figure 6 - Cross Section for Mobile River Bridge North and South Side Alternative.

The following preferred alternatives were developed and evaluated following input from the public and Mobile and Baldwin County MPO BPAC meetings.

D. *Preferred Alternative: Cochrane-Africatown USA Bridge to I-165 via Bay Bridge Road*

The preferred Cochrane-Africatown USA to I-165 via Bay Bridge Road will provide a separated shared bike/ped path on one side of Bay Bridge Road to the Cochrane Bridge. Cochrane Bridge would have a shared bike/ped path on each side. To provide access across the Mobile River via the Cochrane Bridge, the bridge will be retrofitted to allow for the construction of protective barrier walls and bike/ped fencing and other protective measures for the full length of the bridge. The existing traffic lanes and shoulders will be reapportioned to allow for a shared-used path on the eastbound and westbound sides of the bridge. At US 90 and east abutment of the Cochrane Bridge, the bike/ped path will be extended along the roadway until they intersect with wit the intersection with Vulcan Materials business entrance.

1. *User Safety*
   Safety features will need to address overall height of the pathway on the bridges, proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. This alternative includes 30 to 45 mph roadway speeds. A two-way shared-use path is separated from traffic by a wall or barrier on US 90 (Bay Bridge Road) Bridge. Designated sidewalks and bike lanes (non-buffered) planned along Old Spanish Trail (US 90) to separate bicycle users and pedestrians from motor vehicles.
2. *User Functionality*
   For the Cochrane Bridge crossing, the cross section and laneage will be reapportioned to allow for an 8-foot bike/ped lane on each side of the bridge for eastbound and westbound movements. The remaining sections of this alternative will provide a 12-foot, two-way shared-use path or 8-foot separated bike/ped lanes.
3. *Traffic Impacts*
   A reduction in the shoulder width on the Cochrane Bridge and US 90 (Bay Bridge Road) Bridge will be required. No traffic analysis performed to validate impact.

4. *Connectivity*
   This alternative is consistent with local and regional planning efforts shown in the *Mobile County Bicentennial Bicycle and Pedestrian Master Plan* and the *Parks and Recreation Master Plan*. Additionally, US 90 is part of the U.S. Bicycle Route System (USBRS), a national network of bicycle routes, which connects urban, suburban and rural areas using roads, trails, and other facilities appropriate for bicycle travel.
5. *Estimated Construction Cost*
   $5.9 M. This estimate includes improvements to convert the Cochrane Bridge to facilitate bicycle and pedestrian uses and for route described above.
6. *Constructability*
   For the Cochrane Bridge and the Bay Bridge Road (Bridge), construction of a bike/ped barrier wall and restriping would be required. For the approach roadways, sidewalk construction, restriping, and signage would be required. A possible reduction in lane widths may be required for the approach roadways as well.
7. *Viewshed*
   The Cochrane-Africatown USA Bridge provides views of Mobile and the Mobile River.

E. *Preferred Alternative: Cochrane-Africatown USA Bridge Future Phases*

Future phases of the Cochrane-Africatown USA crossing will include the extension of the path (from the Bay Bridge Road and I-165 terminus) to Beauregard Street in downtown Mobile via surface streets, such as Conception Street or Telegraph Road and extension the path to the USS ALABAMA Battleship Memorial Park (from the east Cochrane Bridge terminus).

1. *User Safety*
   The surface street connection alternatives include Conception Street and Telegraph Roads. Significant improvements to these roads (widths, drainage, rail road crossings, business entrances, etc.) would be required to achieve safe conditions for these connections. For Old Spanish Trail (US 90), designated sidewalks and bike lanes (non-buffered) would be required to separate bicycle users and pedestrians from motor vehicles.
2. *User Functionality*
   Travel distances will preclude pedestrians in the downtown area or those coming from Battleship Park from using these alternatives.
3. *Traffic Impacts*
   Due the amount of preliminary engineering performed for consideration of Conception Street or Telegraph Road, traffic impacts are unknown at this time. For the Old Spanish Trail (US 90) phase, minimal traffic impacts are anticipated to the business entrances along this section.
4. *Connectivity*
   This alternative is consistent with local and regional planning efforts shown in the *Mobile County Bicentennial Bicycle and Pedestrian Master Plan* and the *Parks and Recreation Master Plan*. Additionally, US 90 is part of the U.S. Bicycle Route System (USBRS), a national network of bicycle routes, which connects urban, suburban and rural areas using roads, trails, and other facilities appropriate for bicycle travel.
5. *Estimated Construction Cost*
   $5.1 M. This estimate includes improvements Telegraph Road and Old Spanish Trail (US 90), to facilitate bicycle and pedestrian uses and for route described above.
6. *Constructability*

For the surface street improvements to either Conception Street or Telegraph Road, additional width will be required as well as improvements to drainage, rail road crossings, business entrances, etc.). For Old Spanish Trail (US 90), adequate right of way exists for the construction of bike lanes (non-buffered). The potential for utility relocations exists for both Conception Street and Telegraph Road as the pass through very industrialized areas. For Old Spanish Trail (US 90), relocation of 18 fire hydrants is anticipated.

7. *Viewshed*
   The future extensions primarily exist in very industrialized areas.

F. *Preferred Alternative: Mobile River Bridge Path to Belvedere*

As part of the Mobile River Bridge Project, a Belvedere (i.e. overlook that provides a space for people to stop, rest, and enjoy the view) on the bridge at the west main tower. Access to the Belvedere will be provided via an elevator and stair tower located at the west main span anchor pier on the west side of the Mobile River.

1. *User Safety*
   Safety features would need to address overall height of the pathway; proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. A two-way shared-use path would be separated from traffic by a wall or barrier. The path and belvedere will be accessible be elevator and stair tower.
2. *User Functionality*
   A 12-foot (minimum), two-way, shared-use path would provide enough width to comfortably accommodate pedestrians. With access provided via elevator, user functionality is very good.
3. *Traffic Impacts*
   There are no anticipated traffic impacts with this alternative.
4. *Connectivity*
   This alternative is consistent with local and regional planning efforts shown in the *Mobile County Bicentennial Bicycle and Pedestrian Master Plan* and the *Parks and Recreation Master Plan due to a potential connection to the elevator/stair tower via Water Street*.
5. *Estimated Construction Cost*
   $22.4 M.
6. *Constructability*
   Construction of the pathway and belvedere as part of the bridge can be easily accommodated and is common within the industry. The stair tower and elevator is commonplace for vertical construction methods and can also be easily accommodated.
7. *Viewshed*
   Extensive views of downtown Mobile, Mobile Bay and surrounding areas.

G. Preferred Alternative: Bankhead Tunnel

ALDOT has previously closed the Bankhead Tunnel to vehicular traffic for a few hours on the weekends to allow bicyclists and pedestrians to use the tunnel to cross the Mobile River. ALDOT will continue this program as long as there is interest from the community and availability to close the tunnel without major disruptions to traffic. This route starts at Conception Street, goes through the Bankhead Tunnel and terminates at US 90. It is approximately 0.7 miles long and has a 6% maximum grade.

1. *User Safety*

Portions of the tunnel's ascent/descent slope are approximately 6%. AASHTO recommends a slope no greater than 5% as this can cause some bicycle users to exceed safe speeds. To address this issue, signage and/or a message system regarding speed, slope, and direction of travel could be used to warn users. Since the tunnel will remain open to vehicles (except when closed periodically for bike/ped), no permanent modifications are anticipated to the tunnel.

2. *User Functionality*
   The tunnel is the most direct alternative for moving bike/ped users across the Mobile River. Users will have access to public accommodations at Mardi Gras Park and USS Alabama Battleship Memorial Park on each end of this alternative. The tunnel is 21 feet wide, and there is adequate width to accommodate bicycle users and pedestrians.
3. *Traffic Impacts*
   For the Bankhead Tunnel Alternative, vehicular traffic would be prohibited while open as a bike/ped facility. Traffic analysis was not performed to determine the impact of periodic closing the Bankhead Tunnel.
4. *Connectivity*
   The purpose of the tunnel route is to provide direct access across the Mobile River. There is no existing or planned bicycle route on this roadway.
5. *Estimated Construction Cost*
   $0M. Since this alternative allows for temporary closure, there are not permanent improvements anticipated to convert the Bankhead Tunnel to facilitate bicycle and pedestrian uses and for the route described above.
6. *Constructability*
   No permanent construction activities anticipated. ALDOT will continue to provide operational (signage, traffic control, etc.) support for the temporary closures.
7. *Viewshed*
   The Bankhead Tunnel is a historic and unique structure. Repurposing it from an auto-centric corridor to a bicycle and pedestrian corridor would still allow it to be utilized and enjoyed by the residents and tourists of Mobile. This alternative would create minimal impacts to the viewshed of the river from downtown and integrates the historic tunnel into the fabric of the downtown experience.

H. Preferred Alternative: Option 1 – Full Shared Use Path on Mobile River Bridge

Option 1 would provide a minimum 12-foot-wide shared use path along the high level approaches and main span bridge crossing the Mobile River. The path would begin between Virginia Street and Texas Street on the west side of Mobile River and end near US-90/US-98 on the east side of Mobile River. The path would be located on the same side as the Mobile River Bridge Belvedere and would provide a connection to the belvedere from the path. The total length of this route is 2.8 miles and has a maximum grade of 4%.

1. *User Safety*
   Safety features would need to address overall height of the pathway; proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. A two-way shared-use path would be separated from traffic by a wall or barrier.
2. *User Functionality*
   A 12-foot (minimum), two-way, shared-use path would provide enough width to comfortably accommodate pedestrians and bicyclist (including passing movements). Option 1 would primarily accommodate intense users such as joggers, runners and

cyclists. Due to the ascent/decent distance and grade of the bridge, casual users such as walkers and recreational riders may be less inclined to use the bridge but in combination with the base project requirement (Mobile Rive Bridge Path and Belvedere) this alternative can accommodate most users.

3. *Traffic Impacts*
   No traffic impacts as this option separates.
4. *Connectivity*
   Direct connection to proposed bikeway route at Virginia Street on the west side and Battleship Park on the east side of the Mobile River. This alternative is consistent with local and regional planning efforts shown in the *Mobile County Bicentennial Bicycle and Pedestrian Master Plan* and the *Parks and Recreation Master Plan* due to a potential connection to the elevator/stair tower via Water Street (Mobile River Bridge Path and Belvedere base requirement) and Virginia Street (Option 1).
5. *Estimated Construction Cost*
   $55.6M. This estimate includes construction on the new bridge to facilitate bicycle and pedestrian uses and for route described above (Option 1 only)
6. *Constructability*
   The path would start at the Virginia Street ramp, go up the new high level bridge and across the main span unit, then back down the high level bridge on the east side of the river. Construction of the shared uses path as part of the bridge and/or as a separate structure can be easily accommodated and is common within the industry.
7. *Viewshed*
   The option provides for views of the Mobile Bay and Mobile River. The approach view on the west side of the river includes the Mobile County Metro Jail. Ramps would create a secondary level of visual clutter on the east side of the river due to additional piers and superstructure for the approach ramp.

I. ***Preferred Alternative: Option 2 – Elevators/Stairs on Both Sides of Mobile River with Connecting Shared Use Path***

Option 2 would provide an elevator and stair tower on the east side of Mobile River. A 12-foot-wide shared use path from the Mobile River Bridge Belvedere (base requirement) would connect to the elevator and stair tower on the east side of Mobile River. The belvedere could be moved to the center of the main span bridge. The total length of this route is 0.4 miles and has a maximum grade of 3.2%.

1. *User Safety*
   Safety features would need to address overall height of the pathway; proximity to vehicular traffic and potential for high wind events. These issues have been addressed on other similar structures through the use of walls and fencing. A two-way shared-use path would be separated from traffic by a wall or barrier. The path and belvedere will be accessible be elevator and stair tower.
2. *User Functionality*
   A 12-foot (minimum), two-way, shared-use path would provide enough width to comfortably accommodate pedestrians. With access provided via elevator, user functionality is very good.
3. *Traffic Impacts*
   There are no anticipated traffic impacts with this alternative.
4. *Connectivity*

This alternative is consistent with local and regional planning efforts shown in the *Mobile County Bicentennial Bicycle and Pedestrian Master Plan* and the *Parks and Recreation Master Plan due to a potential connection to the elevator/stair tower via Water Street*. It also provides connection on the east side of Mobile River near Addsco Road.

5. *Estimated Construction Cost*
   $29.7 M. This estimate includes construction on the new bridge to facilitate bicycle and pedestrian uses and for route described above (Option 1 only).
6. *Constructability*
   Construction of the pathway and belvedere (base requirement) as part of the bridge can be easily accommodated and is common within the industry. The stair tower and elevator is commonplace for vertical construction methods and can also be easily accommodated.
7. *Viewshed*
   Extensive views of downtown Mobile, Mobile Bay, Battleship Park and surrounding areas.

Appendix A:

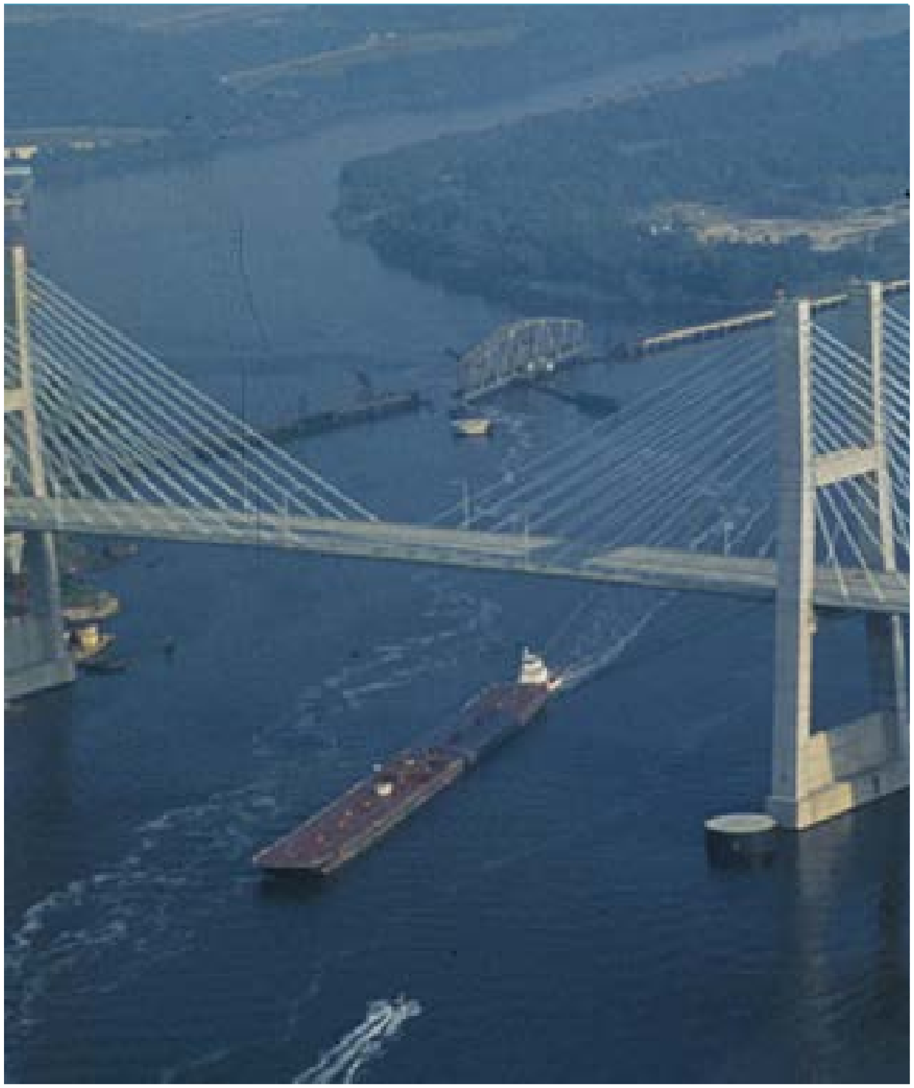
October 27, 2016

Public Meeting
PowerPoint
Presentation

I-10 Mobile River Bridge and Bayway Widening

Bicycle and Pedestrian Workshop

October 27, 2016

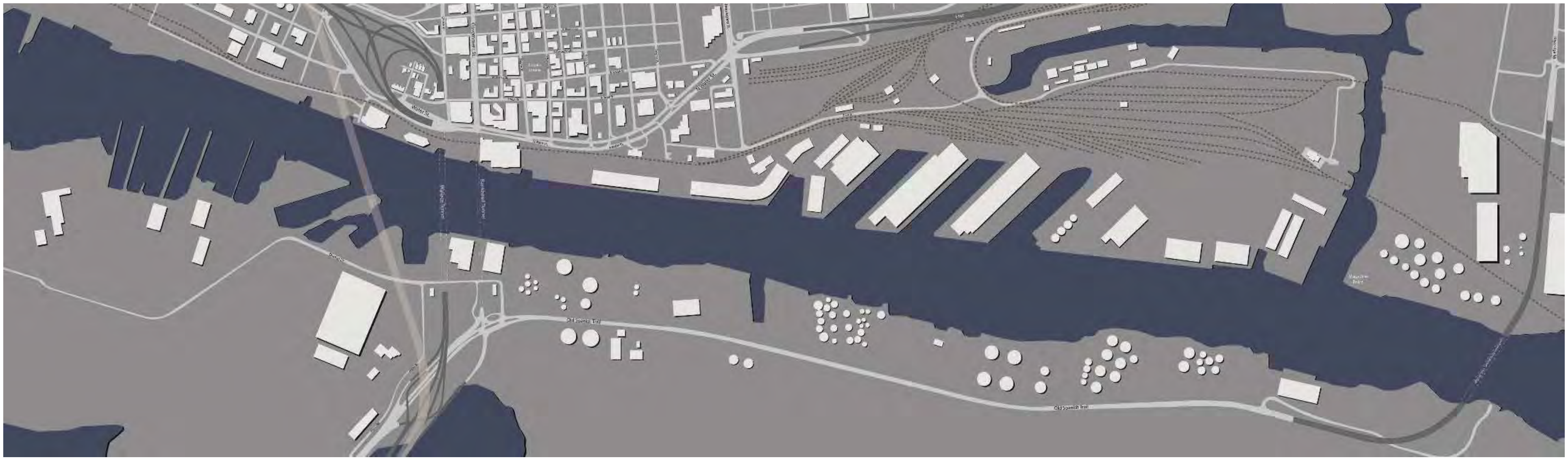


WORKSHOP AGENDA

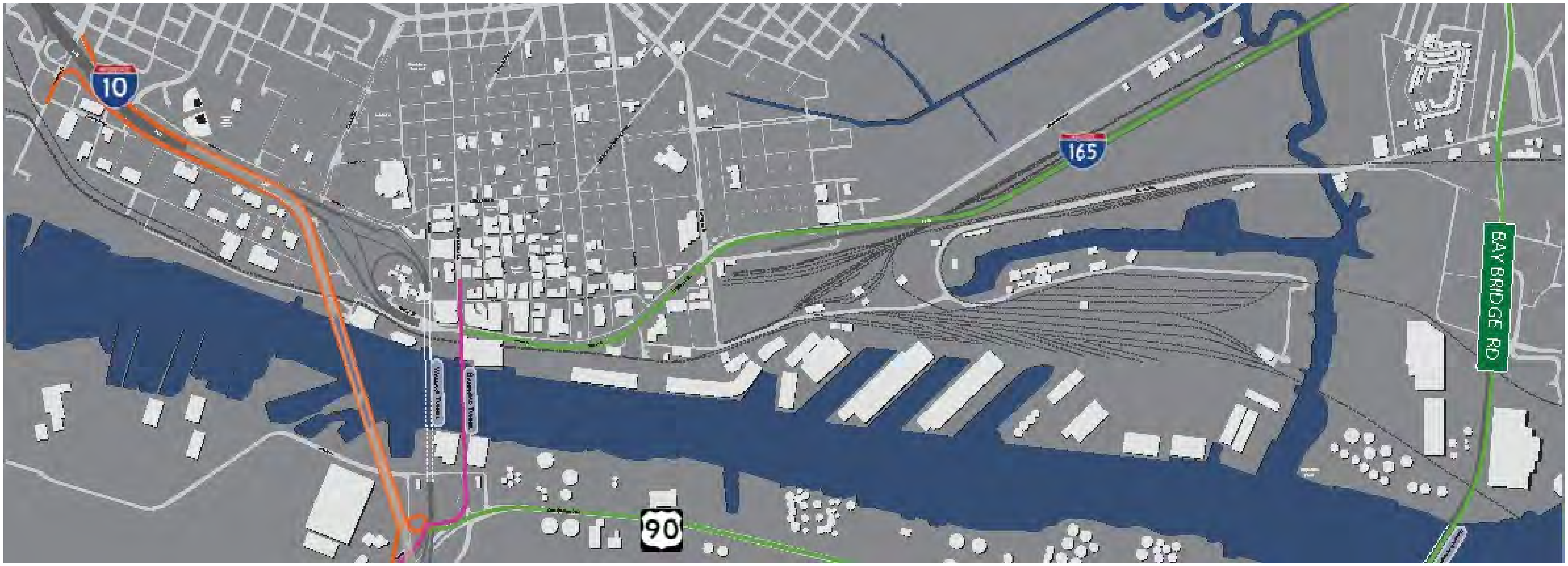
01 **Welcome**

02 **Bicycle / Pedestrian Alternatives Overview**

03 **Workshop Process**



01 Welcome



02 Bicycle / Pedestrian Alternatives Overview

Bicycle / Pedestrian Alternatives Overview

- **Bike / Ped Study part of the Draft Environmental Impact Statement commitments made by ALDOT**

Pedestrian and Bicycle Facilities:

<u>Proposed Accommodations</u>: ALDOT is committed to providing pedestrian and bicycle facilities across the Mobile River. This may be via Cochran Bridge or Bankhead Tunnel.

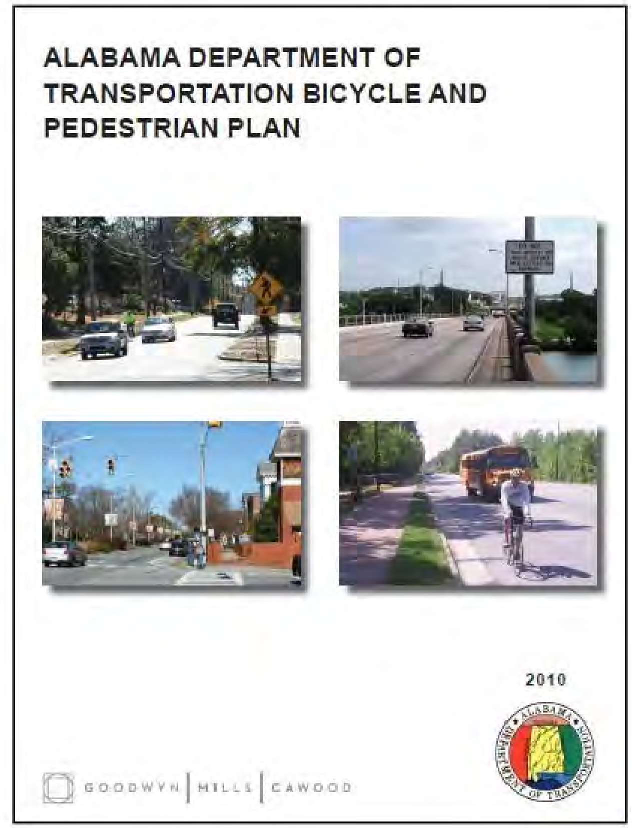
<u>Crepe Myrtle Trail and Eastern Shore National Recreation Trail/I-10 Scenic Underpass Trail</u>: Piers for the proposed bridge will be placed to avoid impacting the Crepe Myrtle Trail and the Easter Shore National Recreation Trail/I-10 Scenic Underpass Trail. Access to the I-10 Scenic Underpass Trail will be maintained.

Alternatives Under Study

1. ***Bankhead Tunnel Alternatives***
2. ***Cochrane Bridge Alternatives***
3. ***New Mobile River Bridge Alternatives***

Previous Studies - Sources

- Alabama Department of Transportation Bicycle and Pedestrian Plan, 2010
- Mobile County Bicentennial Bicycle and Pedestrian Master Plan, October 21, 2011
- Eastern Shore Metropolitan Planning Organization (MPO) Bicycle and Pedestrian Transportation Concept, February 2015

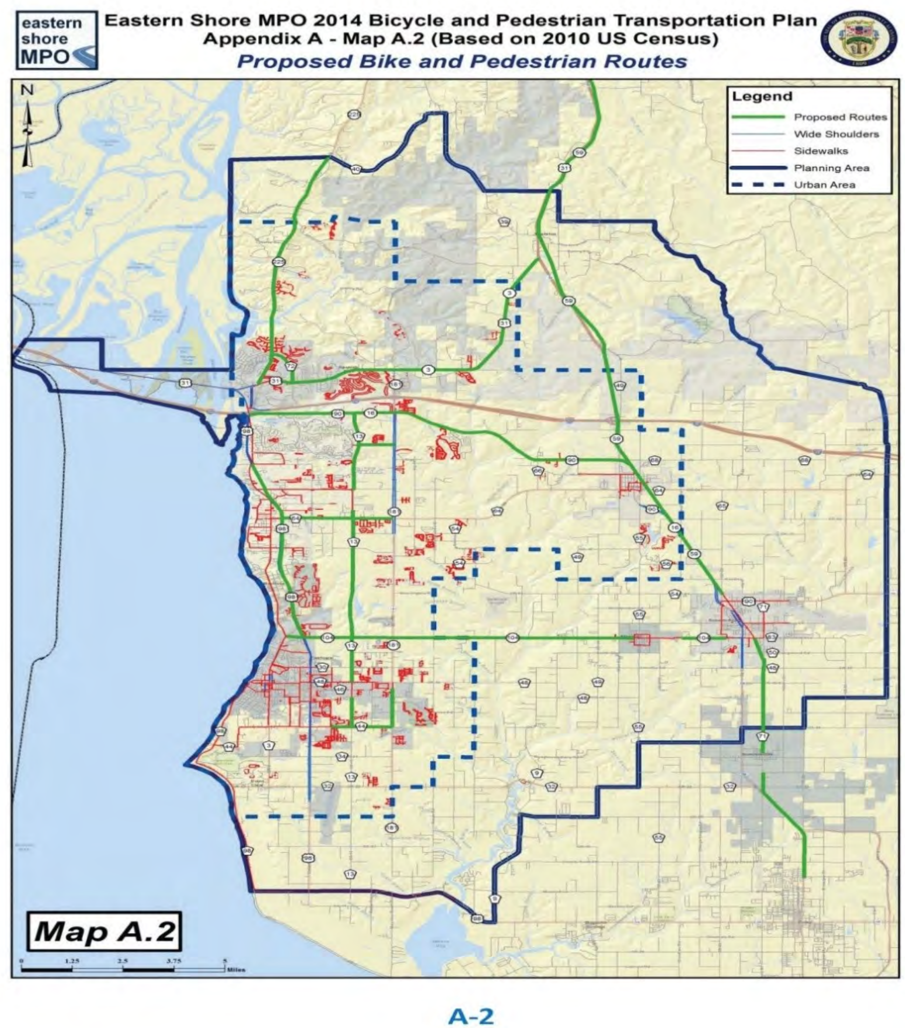


Mobile County Bicentennial Bicycle and Pedestrian Master Plan

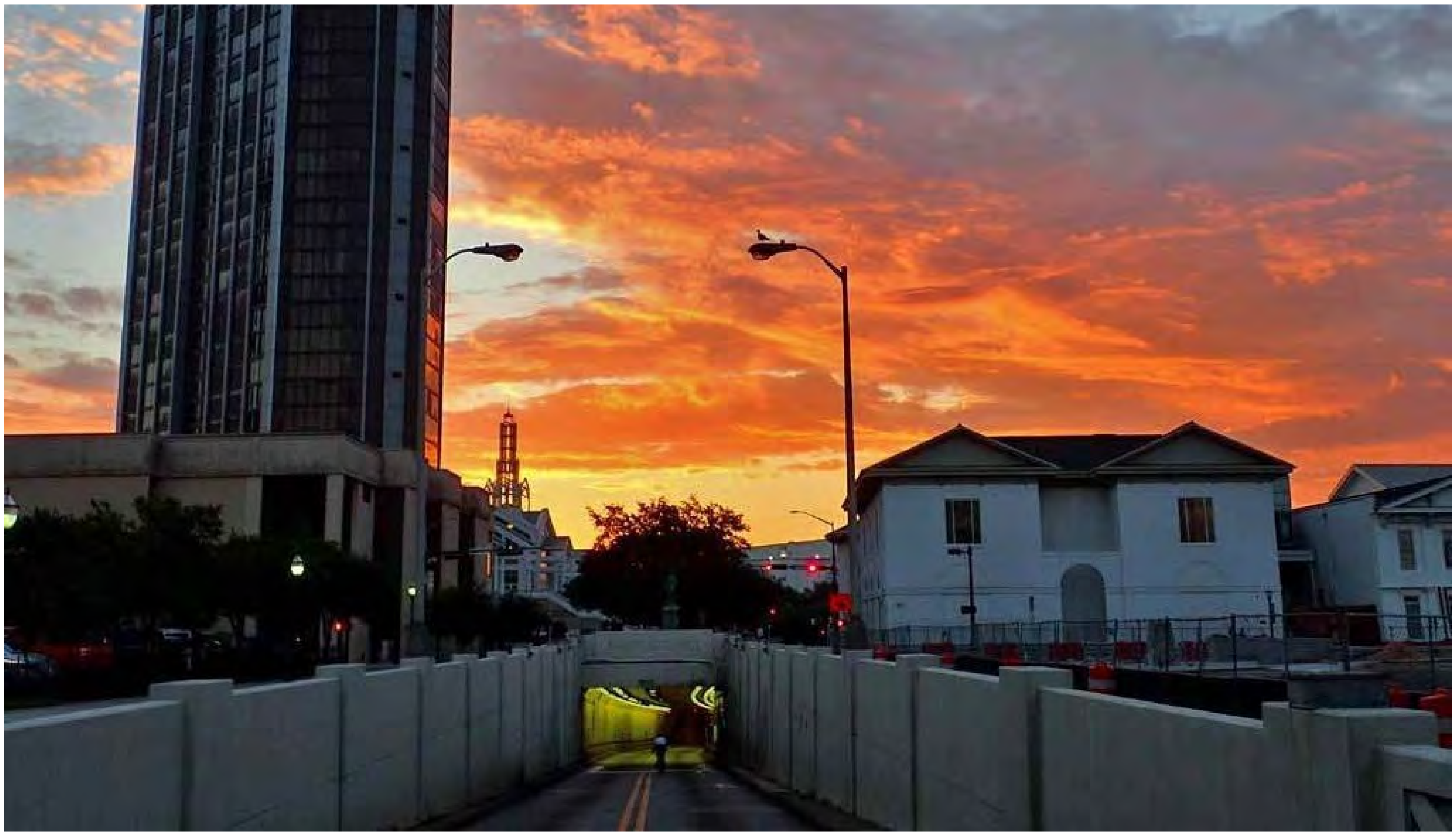
- Regional Plan
- Proposed Bikeways

Eastern Shore MPO Bicyc

- Regional Plan
- Proposed Routes



Bankhead Tunnel Option



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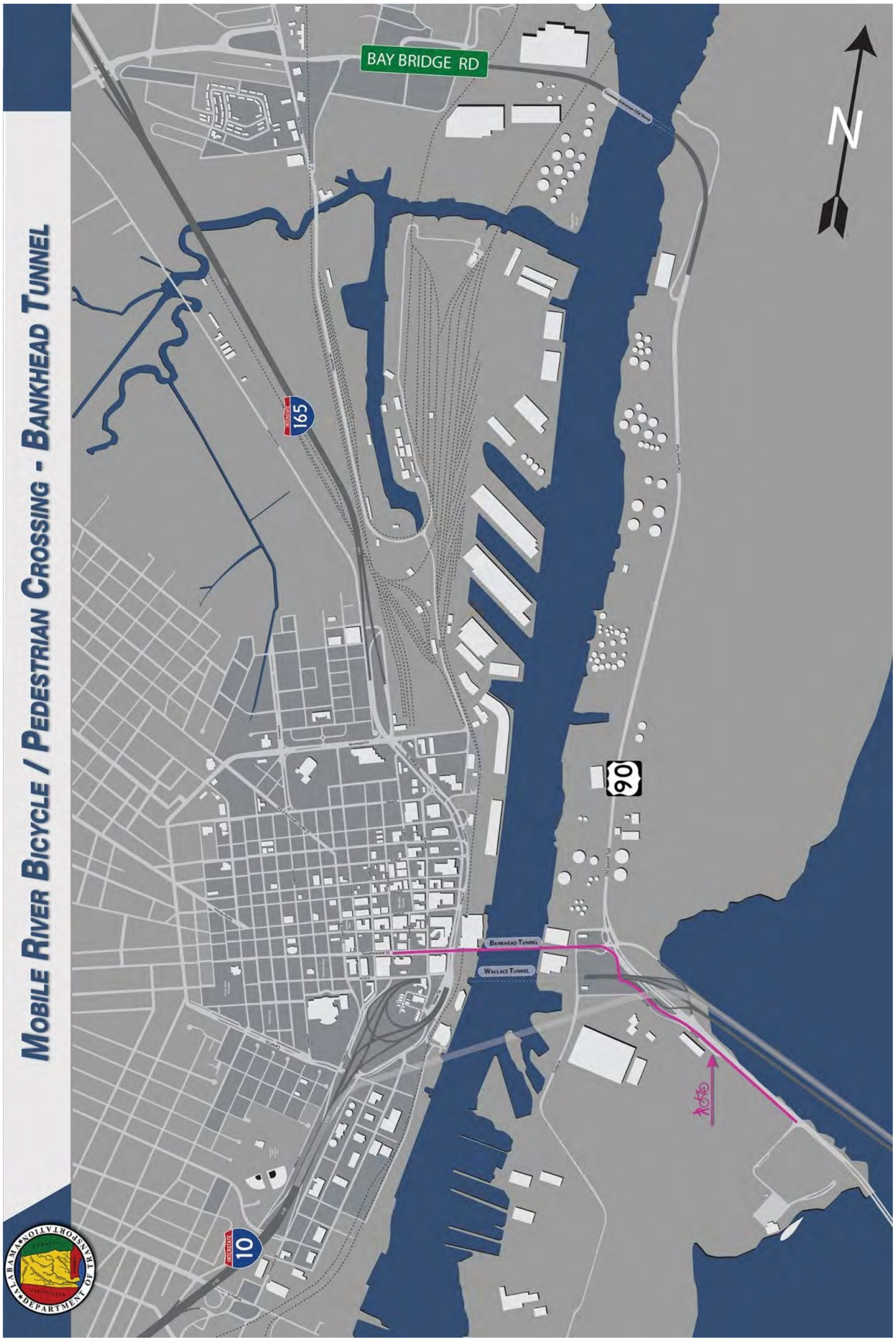
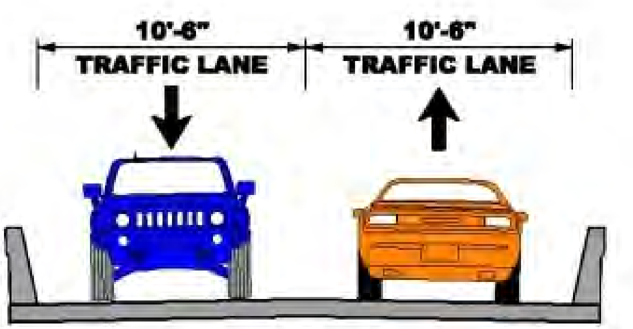
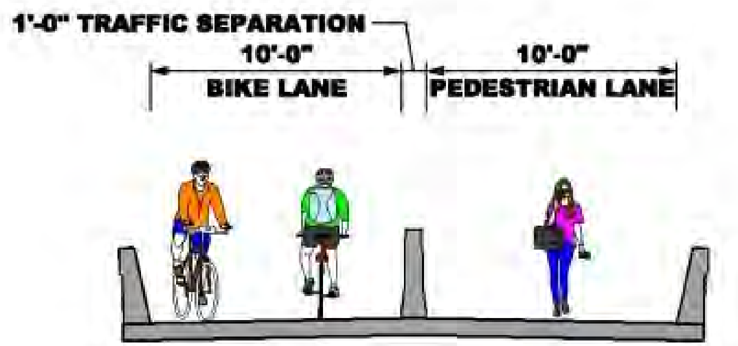


Mobile River Bicycle / Pedestrian Crossing - Bankhead Tunnel
BAY BRIDGE RD
N
165
90
10
Bankhead Tunnel
Wallace Tunnel

Bankhead Tunnel Option – Cross Section

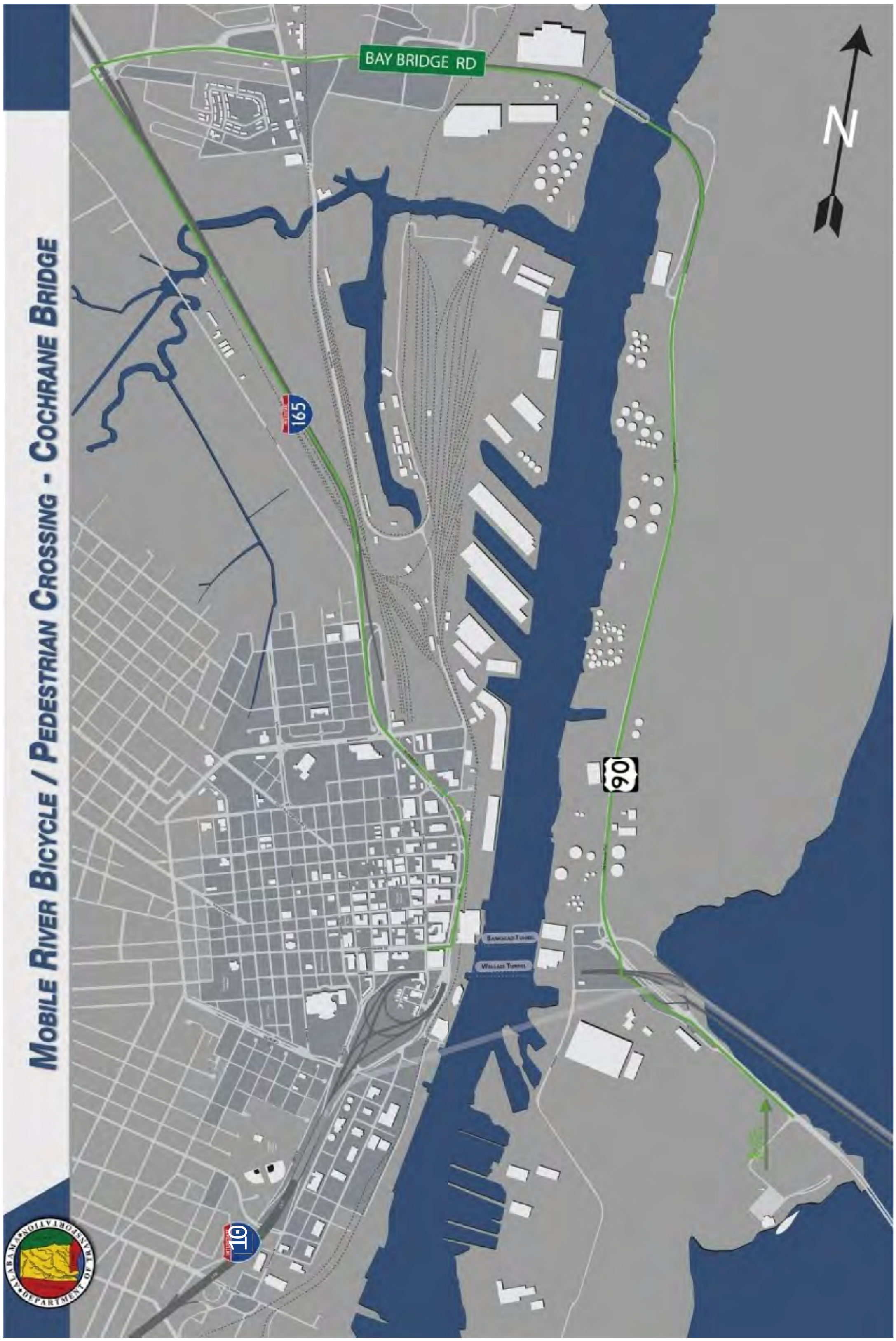


EXISTING BANKHEAD TUNNEL

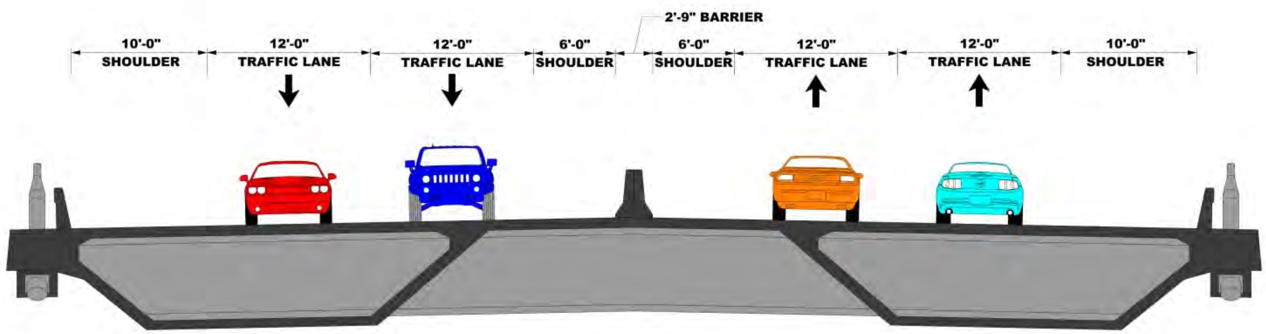


PROPOSED BANKHEAD TUNNEL

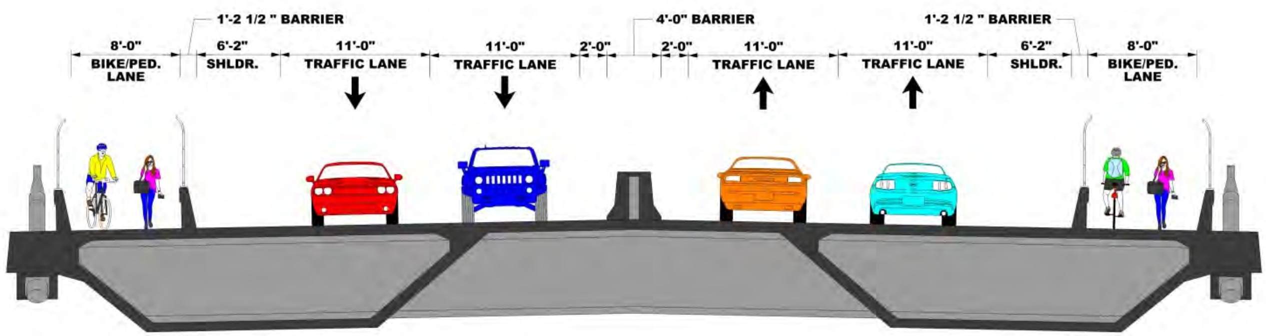
Cochrane Bridge / I-165 Alternative


Mobile River Bicycle / Pedestrian Crossing - Cochrane Bridge
BAY BRIDGE RD
165
90
10
N

Cochrane Bridge / I-165 Alternative – Cross Section

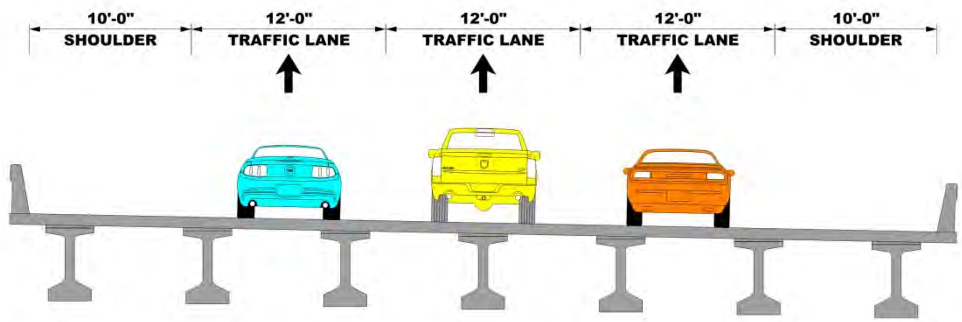


EXISTING COCHRANE BRIDGE

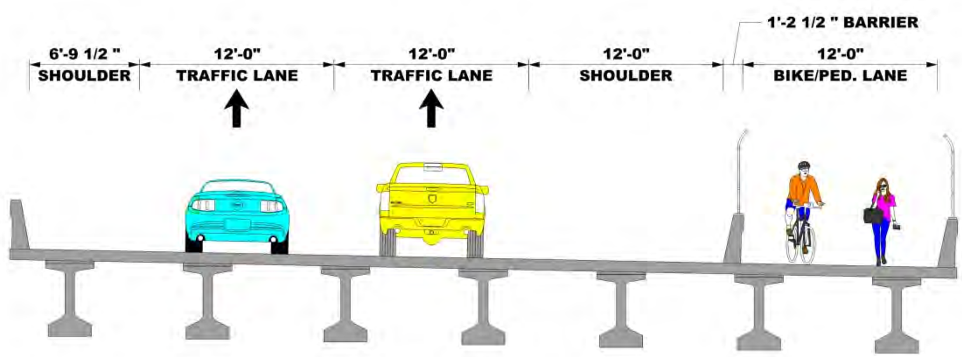


PROPOSED COCHRANE BRIDGE

Cochrane Bridge / I-165 Alternative – Cross Section



EXISTING SB I-165 LOOKING SOUTH



PROPOSED SB I-165 LOOKING SOUTH

New Mobile River Bridge Alternatives

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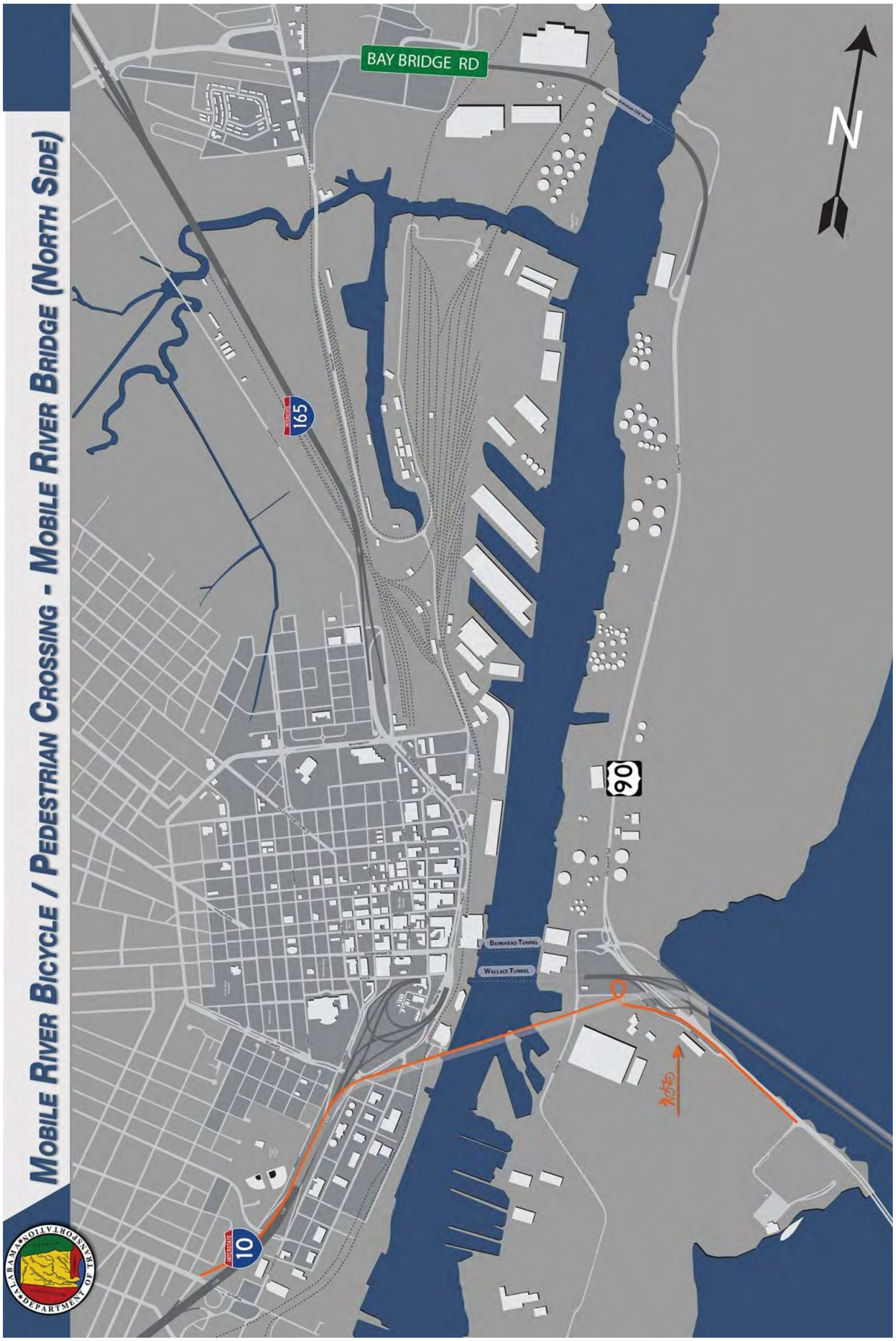
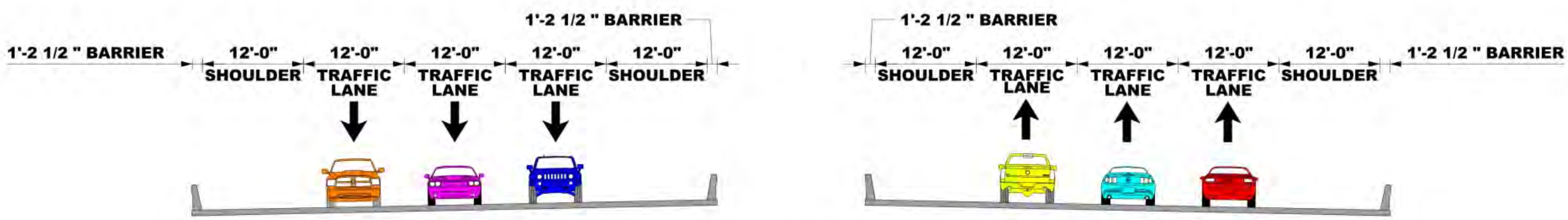
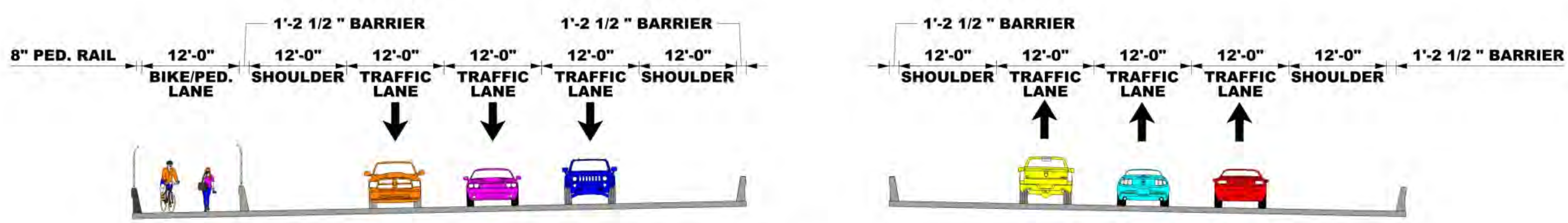


Mobile River Bicycle / Pedestrian Crossing - Mobile River Bridge (North Side)
BAY BRIDGE RD
N
165
90
Bankhead Tunnel
Wallace Tunnel
10

New Mobile River Bridge – North Side Alternative Cross Section

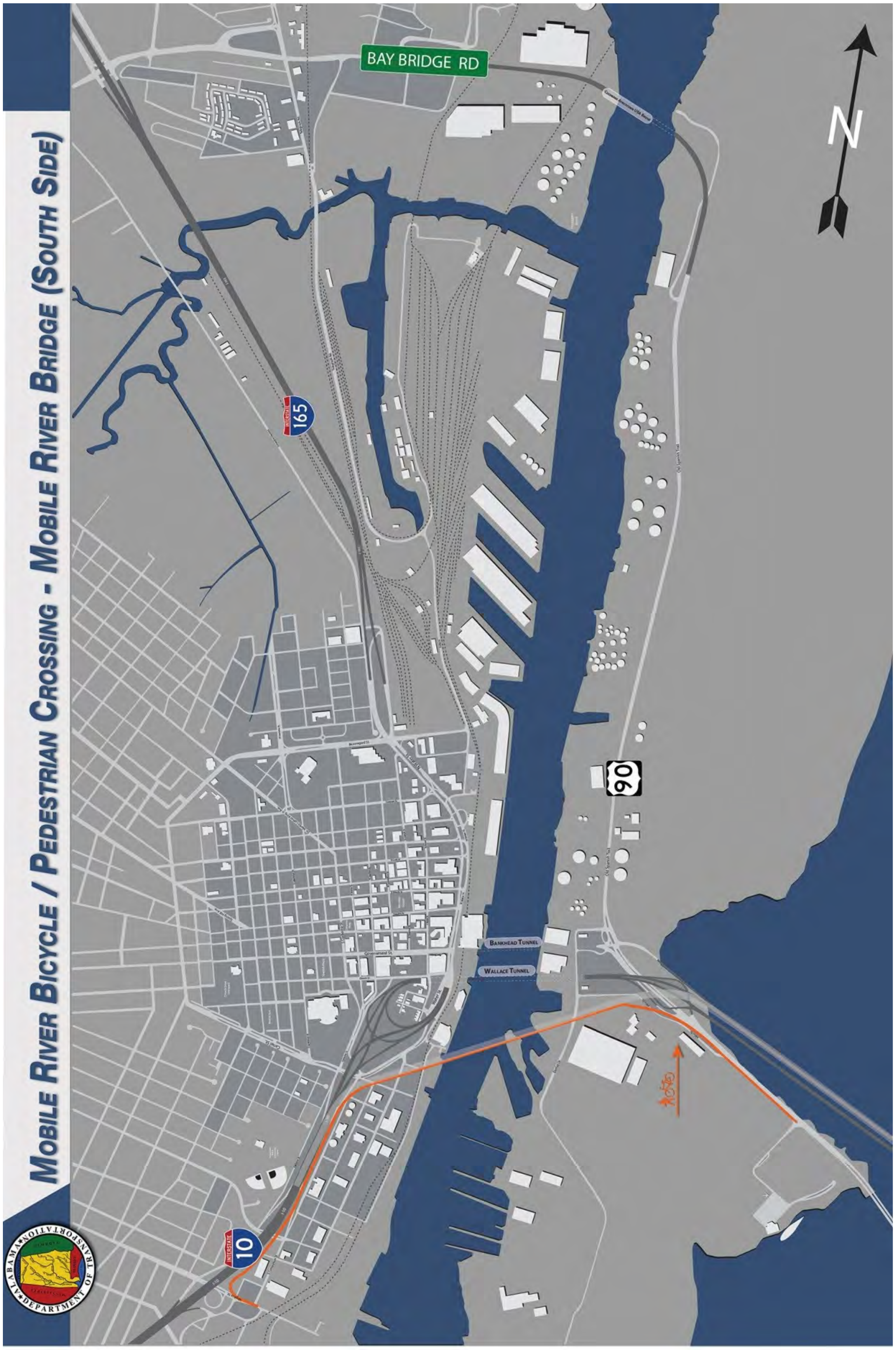


MOBILE RIVER BRIDGE (LOOKING EAST)



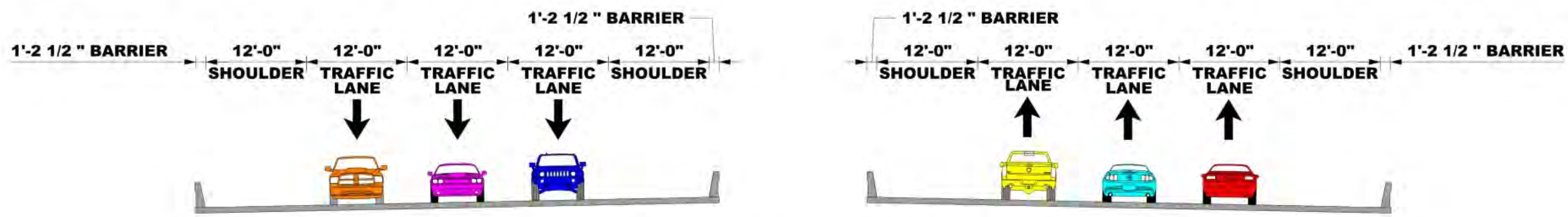
MOBILE RIVER BRIDGE WITH BIKE/PEDESTRIAN LANE
NORTH SIDE ALTERNATIVE (LOOKING EAST)

[redacted]

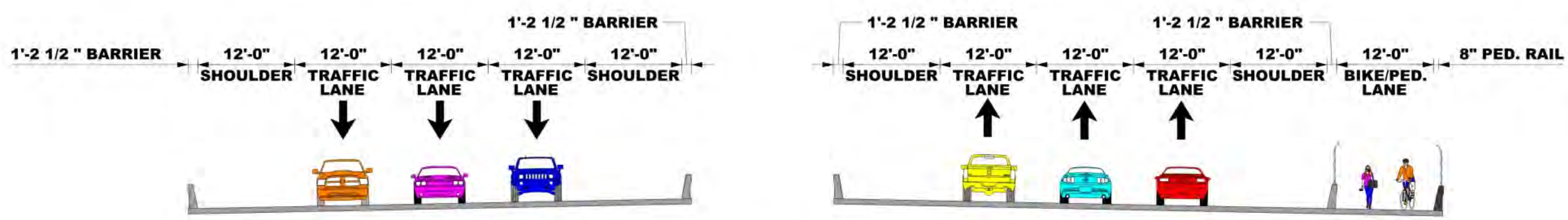


Mobile River Bicycle / Pedestrian Crossing - Mobile River Bridge (South Side)
BAY BRIDGE RD
N
165
90
Bankhead Tunnel
Wallace Tunnel
10

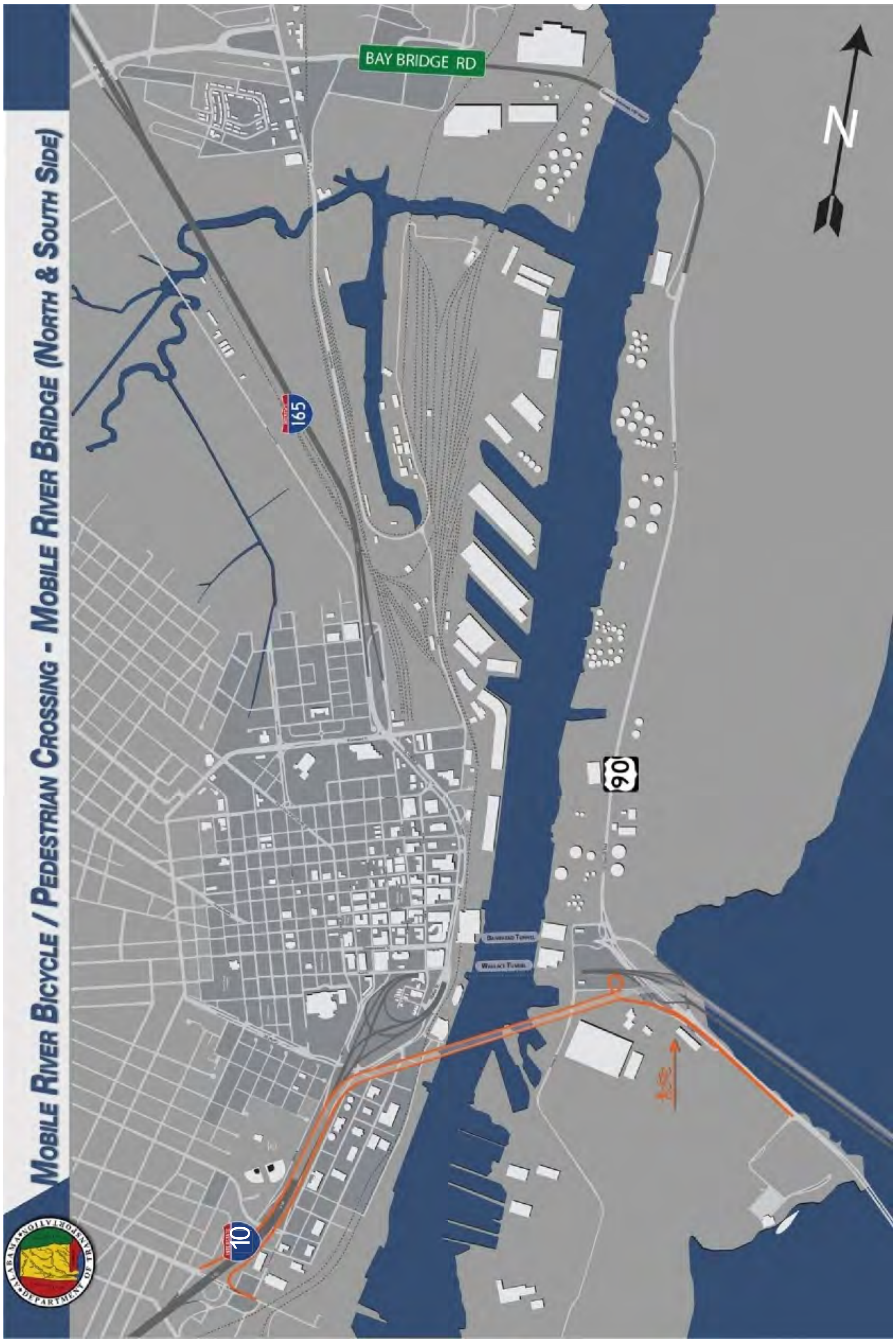
New Mobile River Bridge – South Side Alternative Cross Section



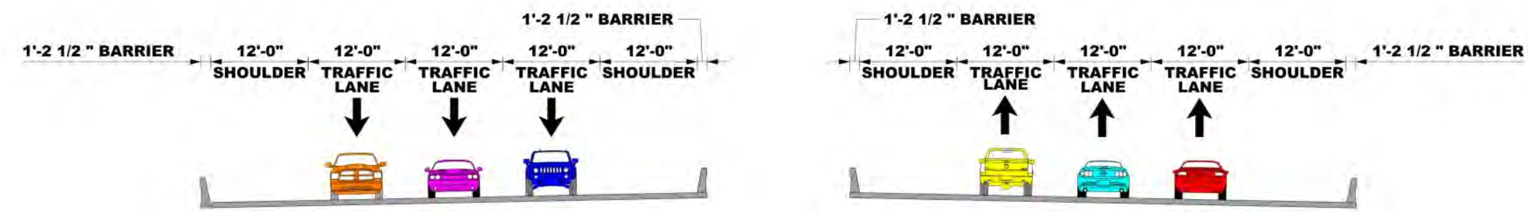
MOBILE RIVER BRIDGE (LOOKING EAST)



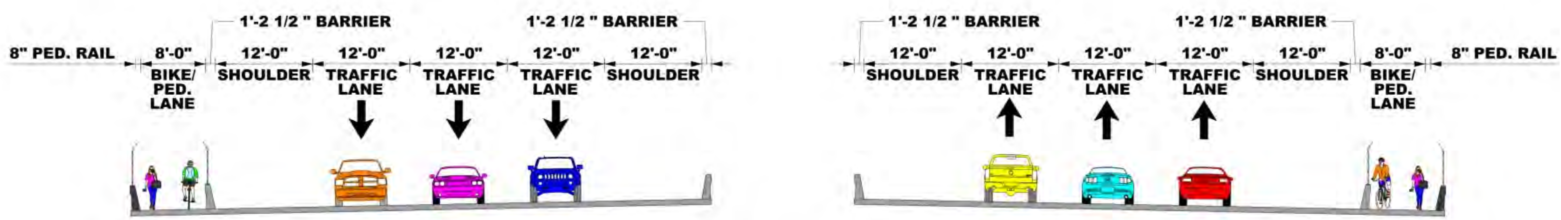
MOBILE RIVER BRIDGE WITH BIKE/PEDESTRIAN LANE
SOUTH SIDE ALTERNATIVE (LOOKING EAST)


MOBILE RIVER BICYCLE / PEDESTRIAN CROSSING - MOBILE RIVER BRIDGE (NORTH & SOUTH SIDE)
BAY BRIDGE RD
165
90
10
N

New Mobile River Bridge – North and South Sides Cross Section

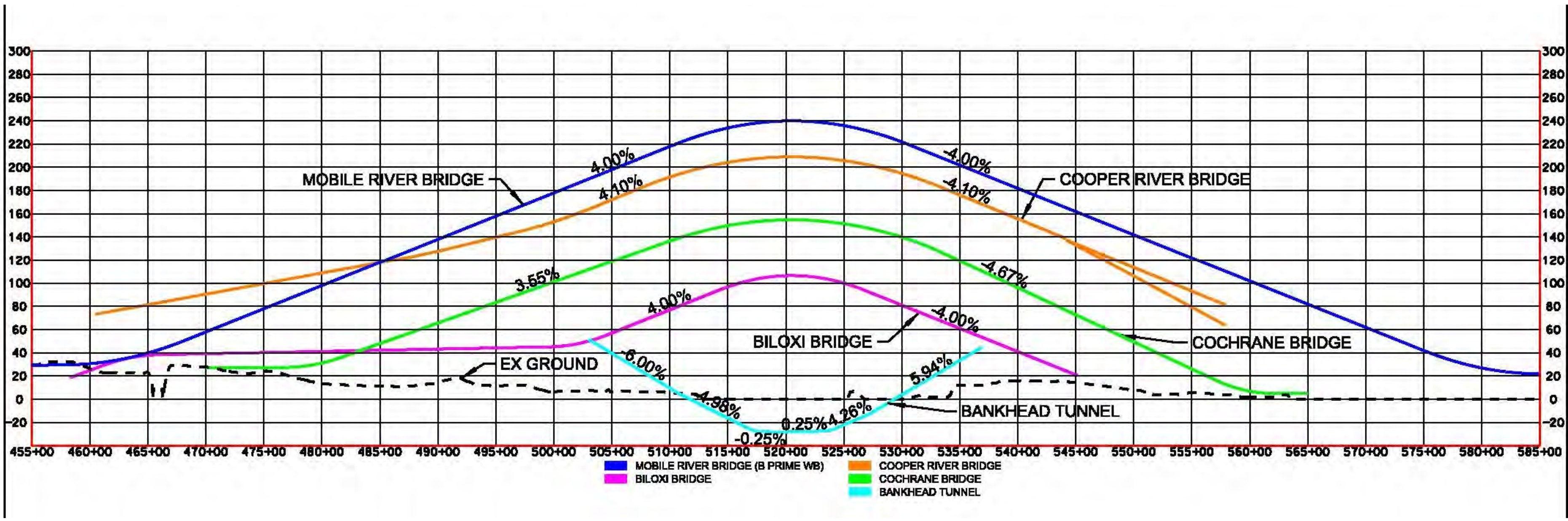


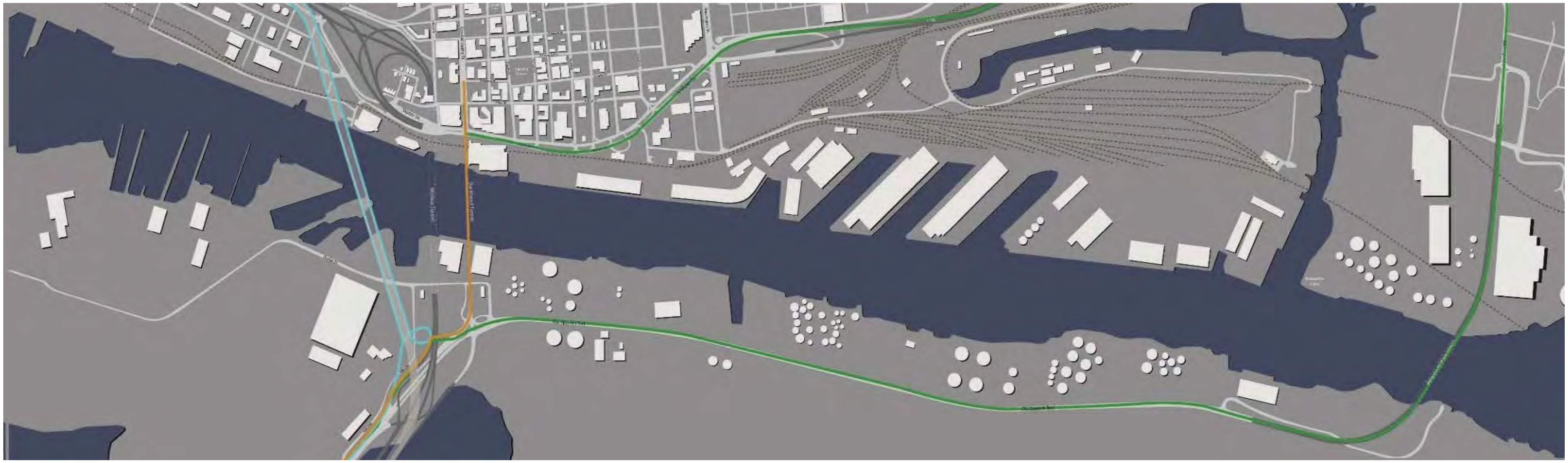
MOBILE RIVER BRIDGE (LOOKING EAST)



MOBILE RIVER BRIDGE WITH BIKE/PEDESTRIAN LANE
COMBINED NORTH AND SOUTH ALTERNATIVE (LOOKING EAST)

Mobile River Crossing – Grade Comparisons

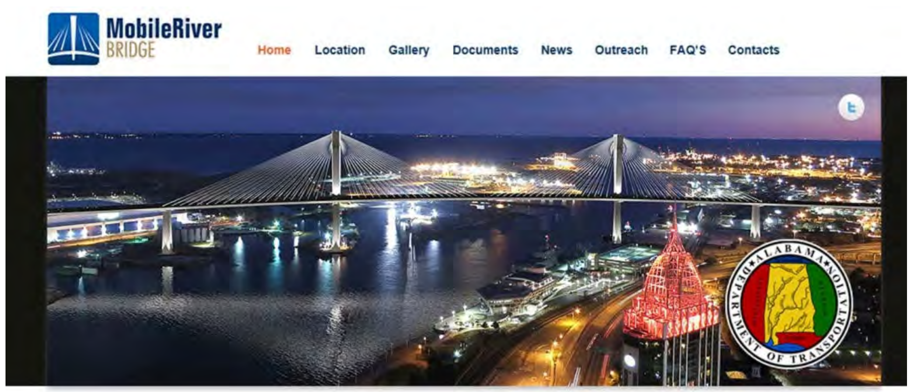


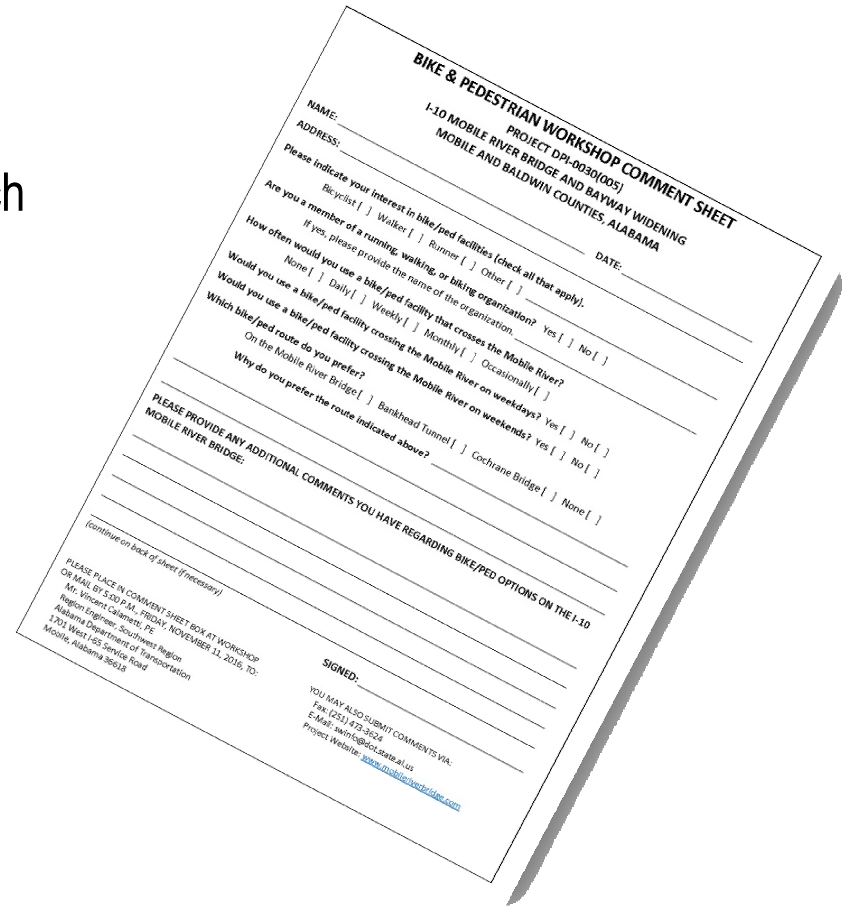


03 Workshop Process

Workshop Process

1. Comment forms
2. 3 Stations for each alternative, 20 min. each
3. Open discussion with station leaders
4. Record comments and preferences on comment forms and drop off before you leave or visit: www.mobileriverbridge.com





BIKE & PEDESTRIAN WORKSHOP COMMENT SHEET
PROJECT DPI-0030(005)
I-10 MOBILE RIVER BRIDGE AND BAYWAY WIDENING
MOBILE AND BALDWIN COUNTIES, ALABAMA

NAME:
ADDRESS: DATE:

Please indicate your interest in bike/ped facilities (check all that apply):
Bicyclist [ ] Walker [ ] Runner [ ] Other [ ]
Are you a member of a running, walking, or biking organization? Yes [ ] No [ ]
If yes, please provide the name of the organization.
How often would you use a bike/ped facility that crosses the Mobile River?
None [ ] Daily [ ] Weekly [ ] Monthly [ ] Occasionally [ ]
Would you use a bike/ped facility crossing the Mobile River on weekdays? Yes [ ] No [ ]
Would you use a bike/ped facility crossing the Mobile River on weekends? Yes [ ] No [ ]
Which bike/ped route do you prefer?
On the Mobile River Bridge [ ] Bankhead Tunnel [ ] Cochrane Bridge [ ] None [ ]
Why do you prefer the route indicated above?

PLEASE PROVIDE ANY ADDITIONAL COMMENTS YOU HAVE REGARDING BIKE/PED OPTIONS ON THE I-10 MOBILE RIVER BRIDGE:

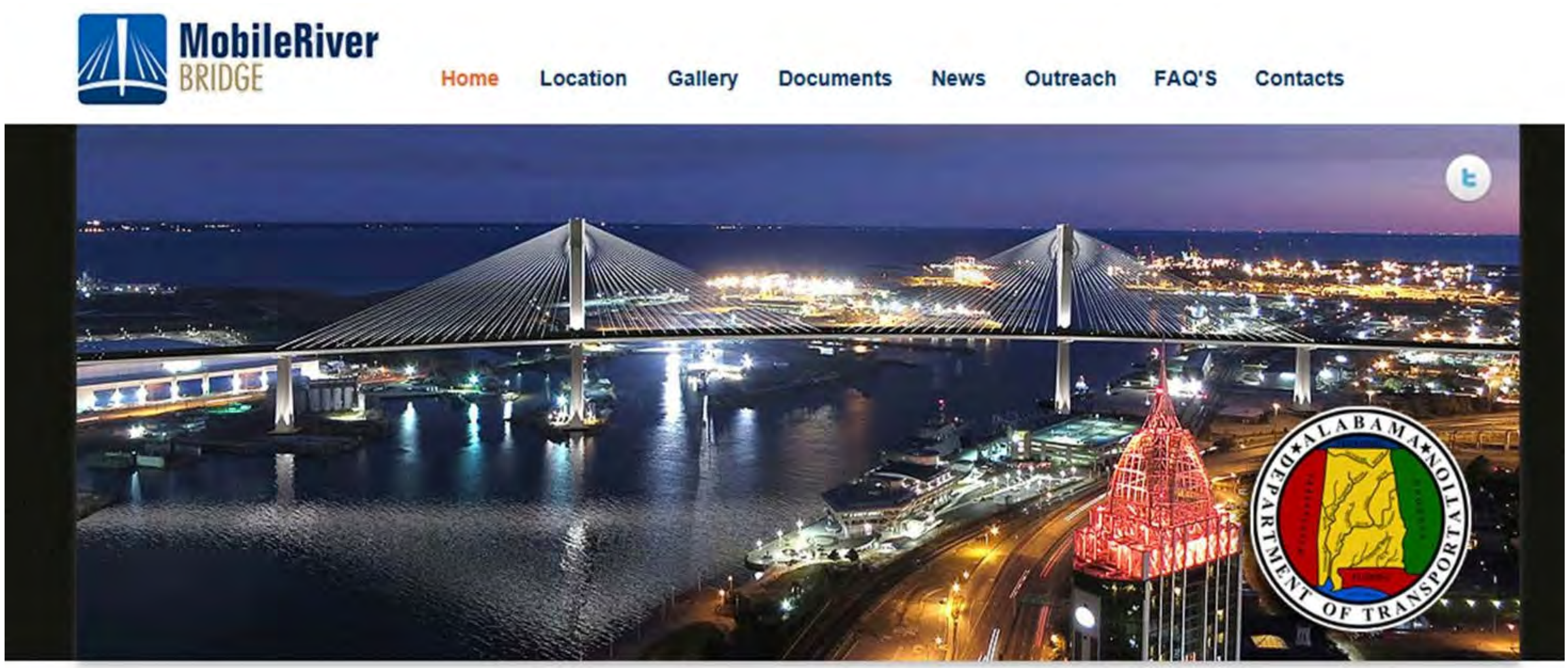
(continue on back of sheet if necessary)

PLEASE PLACE IN COMMENT SHEET BOX AT WORKSHOP OR MAIL BY 5:00 P.M., FRIDAY, NOVEMBER 11, 2016, TO:
Mr. Vincent Calametti, PE
Region Engineer, Southwest Region
Alabama Department of Transportation
1701 West I-65 Service Road
Mobile, Alabama 36618

SIGNED:

YOU MAY ALSO SUBMIT COMMENTS VIA:
Fax: (251) 473-3624
E-Mail: swinfo@dot.state.al.us
Project Website: www.mobileriverbridge.com

www.mobileriverbridge.com



Appendix B:

Bike/Ped Alternatives
Presented at
October 27, 2016
Public Meeting

MOBILE RIVER BICYCLE / PEDESTRIAN CROSSING OPTIONS

ALABAMA DEPARTMENT OF TRANSPORTATION
I-10 MOBILE RIVER BRIDGE
AND BAYWAY PROJECT
PROJECT No. DPI-0030 (005)
MOBILE AND BALDWIN COUNTIES, ALABAMA

thompson ENGINEERING

MOTT MACDONALD

HDR

LEGEND

- I-65 / Cochrane Bike/Ped Route
- Bankhead Tunnel Bike/Ped Route
- Mobile River Bridge Bike/Ped Route

BICYCLE / PEDESTRIAN ALTERNATIVES FROM OCTOBER 2016 PUBLIC WORKSHOP

PROJECT NO.:	DATE:
15-1101-0300	NOVEMBER 2018

Appendices C through H have been omitted.

Appendix I:

Bicycle and Pedestrian Preferred Alternative Map

ALABAMA DEPARTMENT OF TRANSPORTATION
I-10 MOBILE RIVER BRIDGE
AND BAYWAY PROJECT
PROJECT No. DPI-0030 (005)
MOBILE AND BALDWIN COUNTIES, ALABAMA

DEPARTMENT OF TRANSPORTATION

thompson

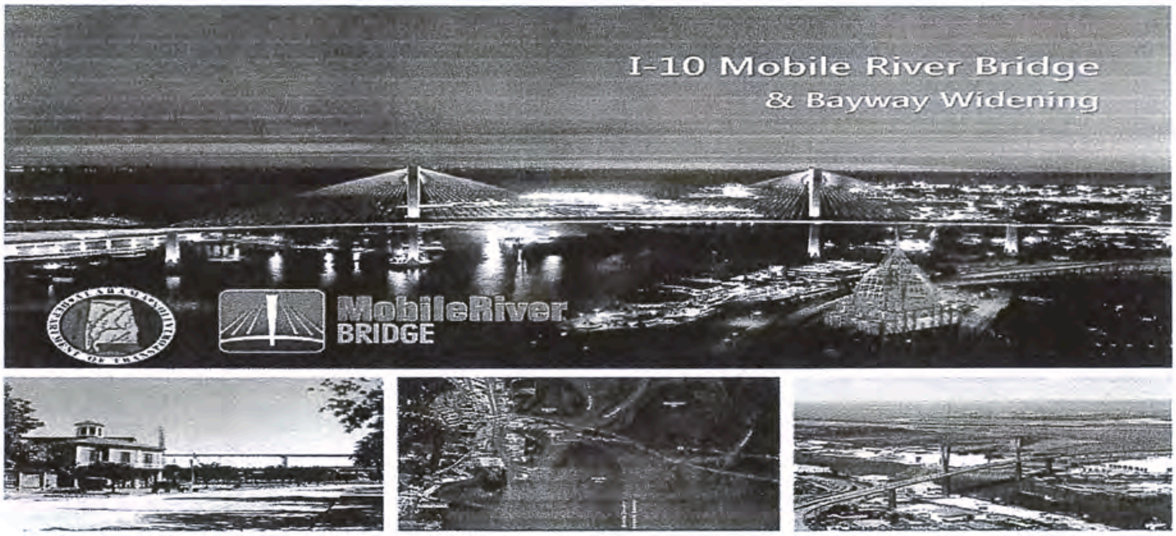
MOTT MACDONALD

HDR

BICYCLE / PEDESTRIAN
PREFERRED ROUTE

PROJECT NO.:	DATE:
15-1101-0300	NOVEMBER 2018

Petition Received from Africatown Community



I, the undersigned, support the Mobile River Bicycle/Pedestrian Crossing **AFRICATOWN-COCHRANE BRIDGE Option.** This option proves to be the **most feasible** as it relates to **safety** and the **growth and development of the area**. Also, provides a **safe and accommodating amenities for families and the general public.**

Name	Address	Phone or Email

{REDACTED}

Africatown CDC

APPENDIX C

Hazardous Materials

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 Coliseum Boulevard, Montgomery, Alabama 36130-3050

Bureau of Materials and Tests
3700 Fairground Road, Montgomery, Alabama 36110
Phone (334) 206-2200 FAX (334) 264-6263

Robert Bentley
Governor

John R. Cooper
Transportation Director

March 29, 2017

Ms. Natasha Clay
ALDOT Design Bureau
1409 Coliseum Boulevard
Montgomery, AL 36130

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

Dear Ms. Clay:

Information received for this project identified thirteen (13) potentially hazardous material sites within the limits of the above referenced project. Bureau of Materials and Tests Hazardous Materials Section visited the project area on March 5, 2015 and determined that twelve (12) of the sites would warrant further investigation. Hazardous Materials personnel met with our consultant Thompson Engineering onsite to conduct a preliminary investigation at these sites from May 18, 2015 to May 22, 2015, December 12, 2016, and December 14, 2016. The following are the results of the investigation:

Site #1 – Austal Facility

This site is currently operating as a ship manufacturing facility, and contains several underground storage tanks (USTs). The most recent right-of-way (ROW) maps received show that additional ROW will be acquired from this site; however, it appears this will only impact the parking lot and not the building or USTs. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b, c & d)** and **2 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment of no further action for this site.

Site #2 – Harrison Brothers Property

This site is currently abandoned and formerly operated as a ship repair facility/yard. It is noted that this site once operated impoundments which were utilized to store ballast water from ships during repair. The most recent ROW maps received show that additional ROW will be acquired from this site, specifically from the impoundment areas. Environmental records indicate that there was a release of an unknown quantity of diesel fuel at this site in 1991. There were no USTs or aboveground storage tanks (ASTs) identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b, c & d)** and **2 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment that limited soil and groundwater impacts are present at this site. However, to determine the impact due to construction activities, our office will need to re-evaluate this site once plans are developed. It is our opinion that there are no major contamination issues related to this site.

Site #3 – Austal (Former Mobile Abrasives) Property

This site is currently operating as a pier and vessel completion yard and previously operated as a sandblasting and abrasive facility, a fabricated pipe and pipe fitting manufacturing facility, and a scrap metal operation. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at this site but there was an AST containing diesel fuel at the site previously which has been removed. Due to concrete rubble present on the site, it was not possible to obtain groundwater samples. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil analysis can be found in Table **1 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment that limited soil impacts are present at this site. It was not possible to sample the groundwater at this site, therefore groundwater impacts here are unknown. However, to determine the impact due to construction activities, our office will need to re-evaluate this site once plans are developed. It is our opinion that there are no major contamination issues related to this site.

Site #4 – ALDOT (Former Bender) Property

This site is currently abandoned and formerly contained an office building which was used by Bender Shipbuilding. This site was cleared in a letter dated June 11, 2012 along with the site across the street which was the shipbuilding and maintenance site for Bender Shipbuilding. The clearance letter showed no environmental remediation costs. A preliminary investigation was conducted at the Bender site across the street for the previous clearance but not at this site. This site was acquired by ALDOT after the previous clearance. There were no USTs identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report
- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b, c & d)** and **2 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.
- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment that groundwater impacts are not present but that limited soil impacts are present at this site. However, to determine the impact due to construction activities, our office will need to re-evaluate this site once plans are developed. It is our opinion that there are no major contamination issues related to this site.

Site #5 – Buffalo Property

This site consists of two lots with one on the west side of Old Water Street and one on the east side of the street. The western site is currently abandoned and formerly contained the Complete Equipment which was a construction equipment rental business. The eastern site is also abandoned and previously operated as a shipbuilding and maintenance facility for Buffalo Marine. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report
- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b, c & d)** and **2 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.
- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment that limited soil and groundwater impacts are present at this site. However, to determine the impact due to construction activities, our office will need to re-evaluate this site once plans are developed. It is our opinion that there are no major contamination issues related to this site.

Site #6 – J&U Properties

This site consists of two lots on the northeast corner of the intersection of Canal Street and Saint Emmanuel Street. The western lot is abandoned and the eastern lot is currently operating as a bail bonds business. The previous uses for these lots is unknown. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report
- **Results** of all Soil analysis can be found in Tables **1 (a, b & c)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.
- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment of no further action for this site.

Site #7 – GP Investments Property

This site is currently occupied by an office building used by an attorney. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report
- **Results** of all Soil analysis can be found in Tables **1 (a, b & c)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.
- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment of no further action for this site.

Site #8 – Nellena & Stokley Property

This site is currently occupied by a bail bonds business and previously operated as a service station. The most recent ROW maps received show that additional ROW will be acquired from this site. The current owner stated that the USTs were removed twenty years ago but it appears that the fuel lines remain in place. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report
- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b & c)** and **2 (a, b & c)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment of no further investigation for this site. A closure assessment may need to be conducted for the remaining fuel lines which our office will determine once plans are developed. It is our opinion that there are no major contamination issues related to this site.

Site #9 – Irwin (Former Rogers) Property

This site is currently occupied by a bail bonds business. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil analysis can be found in Tables **1 (a, b & c)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment of no further action for this site.

Site #10 – Hardee Property

This site is currently occupied by an automobile towing lot and junk yard and also contains a cellular phone antenna tower. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at this site. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b, c & d)** and **2 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment of no further action for this site.

Site #11 – C.E. LLC Property

This site consists of several lots located on the northwest block of the intersection of Royal Street and Canal Street. The only active site is an automobile repair junk yard and towing lot on the southwest corner of the block. The southeast portion of the block formerly contained National Linen Service, a clothing business which manufactured uniforms. This property was later purchased by Complete

Equipment, a construction equipment rental business. The owner of Complete Equipment stated that the site previously contained USTs which have been removed and the contaminated soil was remediated before he purchased the property. The north-most site was previously owned by Bender Shipbuilding and used for storage and office space. The most recent ROW maps received show that additional ROW will be acquired from this site. There were no USTs identified at any of the properties. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b, c & d)** and **2 (a, b, c & d)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment that limited soil and groundwater impacts are present at this site. However, to determine the impact due to construction activities, our office will need to re-evaluate this site once plans are developed. It is our opinion that there are no major contamination issues related to this site.

<u>Site #12 – Shell Station Properties</u>

This site is currently operating as a service station. There were four (4) USTs identified at this site. The most recent ROW maps received show that additional ROW will be acquired from this site but the USTs will not be impacted by ROW acquisition or construction activities. A subsurface investigation was warranted at this site with the results of this investigation noted below:

- **Summary or Field Activities** can be found in Section **1.2** of the attached Preliminary Investigation Report

- **Results** of all Soil and Groundwater analysis can be found in Tables **1 (a, b & c)** and **2 (a, b & c)**, as well as, summarized in Section **1.3** "Results" of the attached Preliminary Investigation Report.

- **Conclusions** and **recommendations** can be found in Sections **1.4** "Conclusions" and **1.5** "Recommendations" of the attached Preliminary Investigation Report.

Our office has reviewed these above referenced sections of Thompson Engineering's Preliminary Investigation report and agrees with Thompson's assessment that limited soil and groundwater impacts are present at this site. However, to determine the impact due to construction activities, our office will need to re-evaluate this site once plans are developed. It is our opinion that there are no major contamination issues related to this site.

<u>Site #13 - Mobile County Metro Jail</u>

This site is currently operating as a jail for Mobile County. The most recent ROW maps received show that additional ROW will be acquired from this site. The site contains several USTs containing diesel and gasoline. The site does appear on ADEM's list of leaking underground storage tanks for an incident in 2003, but a No Further Action letter has been issued. The facility and USTs will not be impacted by ROW acquisition or construction activities; therefore, no further investigation was warranted. Based on all available information, there should not be any hazardous material problems at this site. **Based on the above referenced information, this site is environmentally cleared for construction with no known environmental remediation costs.**

Final Project Conclusions:
Based on the above referenced information obtained during the site surveys and investigations, our office agrees there are limited areas of soil and/or groundwater impacts which will require consideration during construction. However, until plans are developed showing detail of impacts from bridge foundations, drainage, undercutting, etc. it cannot be accurately determined how much of an impact there will be for this project. With that said, this potential cost of remediation should not be of any concern to the proposed alignment of this project or the acquisition of the proposed parcels for ROW. A worst-case cost (if all sites were to require some remediation) should be in the range of **$100,000** to **$200,000.**

If there is an alignment or design change, please contact this office for a re-evaluation of the project area. If you have any questions, please contact David Gatlin at (334) 206-2275.

Sincerely,

Scott George, P.E.
State Materials and Tests Engineer

By: ______________________
Adam S. Anderson, P.E.
Asst. State Materials and Tests Engineer
Environmental Analysis & Compliance Division

SG/ASA/dkg

cc: Mr. Vincent E. Calametti, P.E., Southwest Region Engineer
File

thompson
ENGINEERING

MEMORANDUM

TO:	Steve Flukinger Steve O'Hearn
FROM:	Melissa Montgomery
DATE:	January 16, 2017
SUBJECT:	Preliminary Investigation Summary of Results I-10 Mobile River Bridge Mobile, Mobile County, Alabama ALDOT Project No.: DPI-0030 (005) Thompson Engineering Project No.: 15-1101-0043

Thompson Engineering, Inc. (Thompson Engineering) has completed the Preliminary Investigation field activities at twelve (12) facilities identified by ALDOT as potential hazardous materials sites (Figure 1). This letter is provided as a summary of the soil and groundwater analytical findings at each of the 12 facilities. The Preliminary Investigation Report will be submitted by the end of January 2017 and will include specific site information, field methodologies, soil boring logs and temporary well construction details, complete analytical results, conclusions, etc.

- **Austal Facility**
  Two soil (2) and groundwater samples were collected at this site. VOCs, SVOCs, and PCBs were reported as non-detect in both soil and groundwater samples. Detectable concentrations of metals in soil and groundwater were reported at levels below ADEM and EPA regulatory screening values.

- **Harrison Brothers Property**
  Twenty-seven (27) soil samples and seven (7) groundwater samples were collected at this site. All soil samples collected for SVOCs and all groundwater samples collected for VOCs, SVOCs, and PCBs were reported as non-detect. Some metals specifically arsenic and chromium in soil and lead, nickel, and zinc in groundwater have detectable concentrations above EPA and ADEM industrial/commercial regulatory screening values. The detected arsenic values in soils are within the range historically reported in Mobile County, Alabama. Chromium concentrations in soil exceeded the ADEM commercial screening level at one sampling location. Detectable concentrations of metals in groundwater were reported at levels below ADEM and EPA regulatory screening values.

- **Austal (Former Mobile Abrasives) Property**
  Two (2) soil samples were collected at this site. No groundwater samples were collected. VOCs, SVOCs, and PBCs were reported as non-detect in both soil samples collected.

Arsenic and chromium in soil have detectable concentrations above EPA and/or ADEM industrial/commercial regulatory screening values. The arsenic and chromium levels in one sample exceeded typical "background" levels observed in Mobile County, Alabama. It is Thompson Engineering's opinion that the soils sampled may not have been native but instead composed of sandblasting material.

- **ALDOT (Former Bender) Property**
  Two (2) soil samples and one (1) groundwater sample were collected at this site. SVOCs in both soil samples collected and VOCs, SVOCs, and PCBs in the groundwater sample collected were reported as non-detect. PCB-1260, arsenic, and lead in one soil sample have detectable concentrations above EPA and/or ADEM industrial/commercial regulatory screening values. The detected arsenic value in soil is within the range historically reported in Mobile County, Alabama; however, the level of lead in one sample exceeded typical "background" levels observed in Mobile County, Alabama. The presence of PCB-1260 and the high level of lead indicates on-site contamination is present in the soil. Detectable concentrations of metals in groundwater were reported at levels below ADEM and EPA regulatory screening values.

- **Buffalo Properties**
  Four (4) soil and groundwater samples were collected at this site. SVOCs and PCBs in all four soil samples collected and VOCs, SVOCs, and PCBs in all four groundwater samples collected were reported as non-detect. Some metals specifically arsenic in soil and lead in groundwater have detectable concentrations above EPA and ADEM industrial/commercial regulatory screening values. The detected arsenic values in soils are within the range historically reported in Mobile County, Alabama. The groundwater results suggest that elevated turbidity, i.e., fines and sediment inherent to the sample, contribute to a portion of the data results and not entirely the dissolved fraction of inorganics in groundwater.

- **J&U Properties**
  Three (3) soil samples were collected at this site. No groundwater samples were collected. VOCs and SVOCs were reported as non-detect in all three soil samples collected. Arsenic was detected above EPA and ADEM industrial/commercial regulatory screening values in one soil sample. The detected arsenic value in soil was within the range historically reported in Mobile County, Alabama.

- **GP Investments Property**
  One (1) soil sample was collected at this site. No groundwater samples were collected. VOCs and SVOCs were reported as non-detect in the soil sample collected. Detectable concentrations of metals in soil were reported at levels below ADEM and EPA regulatory screening values.

- **Nellena and Stokley Property**
  Four (4) soil samples and one (1) groundwater sample were collected at this site. SVOCs were in all four soil samples collected and SVOCs and VOCs in the groundwater sample were reported as non-detect. Arsenic in soil had detectable concentrations above EPA and ADEM industrial/commercial regulatory screening values. The detected arsenic values in

soil are within the range historically reported in Mobile County, Alabama. Detectable concentrations of metals in groundwater were reported at levels below ADEM and EPA regulatory screening values.

- **Irwin (Former Rogers) Property**
  One (1) soil sample was collected at this site. No groundwater samples were collected. VOCs and SVOCs were reported as non-detect in the soil sample collected. Detectable concentrations of metals in soil were reported at levels below ADEM and EPA regulatory screening values.

- **Hardee Property**
  Three (3) soil samples and one (1) groundwater sample were collected at this site. VOCs, SVOCs, and PCBs were reported as non-detect in the soil and groundwater samples collected. Arsenic in soil has detectable concentrations above EPA and ADEM industrial/commercial regulatory screening values. The detected arsenic values in soil are within the range historically reported in Mobile County, Alabama. Detectable concentrations of metals in groundwater were reported at levels below ADEM and EPA regulatory screening values.

- **C.E., LLC Property**
  Eleven (11) soil samples and six (6) groundwater samples were collected at this site. SVOCs and PCBs in the soil samples collected and VOCs, SVOCs, and PCBs in the groundwater samples collected were reported as non-detect. Some metals specifically arsenic in soil and arsenic and lead in groundwater have detectable concentrations above EPA and ADEM industrial/commercial regulatory screening values. The detected arsenic values in soils are within the range historically reported in Mobile County, Alabama. The groundwater results suggest that elevated turbidity, i.e., fines and sediment inherent to the sample, contribute to a portion of the data results and not entirely the dissolved fraction of inorganics in groundwater.

- **Shell Station Property**
  Four (4) soil samples and one (1) groundwater sample were collected at this site. Some VOCs specifically ethylbenzene, m-xylene & p-xylene, and total xylenes had detectable concentrations above EPA and/or ADEM industrial/commercial regulatory screening values in soil. VOCs specifically benzene and o-xylene and SVOCs specifically 1 and 2-methylnaphthalenes and naphthalene had detectable concentrations above EPA and ADEM tap water regulatory screening values. Arsenic in soil and groundwater had detectable concentrations above EPA and ADEM industrial/commercial regulatory screening values. The detected arsenic values in soil are within the range historically reported in Mobile County, Alabama. The detectable concentration of arsenic in groundwater may be a result of the elevated turbidity, i.e., fines and sediment inherent to the sample, contribute to a portion of the data results and not entirely the dissolved fraction of inorganics in groundwater

ALABAMA DEPARTMENT OF TRANSPORTATION
ALDOT PROJECT NO.: DPI-0030(005)
I-10 MOBILE RIVER BRIDGE
MOBILE, MOBILE COUNTY, ALABAMA

thompson ENGINEERING

FIGURE 1
VICINITY MAP

LEGEND

- 1 - Austal Facility
- 2 - Harrison Brothers Property
- 3 - Austal (Former Mobile Abrasives) Property
- 4 - ALDOT (Former Bender) Property
- 5 - Buffalo Property
- 6 - J & U Properties
- 7 - GP Investments Property
- 8 - Nellena & Stokley Property
- 9 - Irwin (Former Rogers) Property
- 10 - Hardee Property
- 11 - C.E. LLC Properties
- 12 - Shell Station Properties
- Parcel Line
- Project Limit

N W E S

1:9,000

400 0 400 Feet

1 inch = 750 feet

City of Mobile 2010 Imagery - 1Ft. Resolution
*Mobile County Revenue Commissioner Parcel Lines, April 2012 - NOT A SURVEY

PROJECT NO.:	DATE:
15-1101-0043	JANUARY 2017

P:\2015\1101\15-1101-0043 ALDOT - Mobile River Bridge - S Oldham\GIS\MXD\OVERALL_FIG1_LND(11x17).mxd

APPENDIX D

Preliminary Project Relocation Analysis

FORM ROW-RA-1
Revised 3/01

ALABAMA DEPARTMENT OF TRANSPORTATION
PRELIMINARY PROJECT RELOCATION ANALYSIS

(To be prepared prior to Corridor Public Hearing)

Project No.	ST-049-I10-006	County: Mobile/Baldwin
Description	I-10 Mobile River Bridge and Bayway Corridor Preservation	Alternate No. Alternate B' (Updated)

DISPLACEMENT AND REPLACEMENT HOUSING INVENTORY ESTIMATE

ESTIMATED NUMBER DISPLACEES						INCOME LEVEL			
				Minority					Over
Type of Displacees	**Owners**	**Tenants**	**Total**	**Own.**	**Ten.**	***0-15**	**15-30**	**30-50**	**50**
Individuals and Families									
Businesses	19	7	**26**		**1**				
Farms									
Non-Profit Organizations									
Signs	4	5	9						

OWNERS **VALUE OF DWELLING**

DISPLACED DWELLINGS	***0-40**	**40-60**	**60-80**	**80-100**	**Over 100**
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					
AVAILABLE DWELLINGS					
1 -3 BEDROOMS					
4 - OVER BEDROOMS					

TENANTS **MONTHLY RENTAL RATE**

DISPLACED UNITS	**$0-150**	**$151-300**	**$301-400**	**$401-500**	**$501 +**
1 - 3 BEDROOMS					
4 - OVER BEDROOMS					
AVAILABLE UNITS					
1 -3 BEDROOMS		**5**	**2**	**7**	**10**
4 - OVER BEDROOMS					

Items numbered 1 through 7 on the back of this form must be answered and explained. Number the corresponding responses and attach additional pages as needed.

I certify that the above is a realistic estimate.

Date: 11/15/18 Signed: Paul J Coleman Title: Division Relocation Officer

(Submit in duplicate to Bureau of Right of Way)
Attached: Narrative Explanations
*Denotes Thousands
**DSS dwellings currently available.

The information listed below must be furnished as a narrative analysis to the extent appropriate for the project and in accordance with 49 CFR 24.205 and Paragraph G, Section I, of the State's Relocation Assistance Manual.

1. An estimate of the number of households to be displaced, including the family characteristics (e.g. minority, ethnic, handicapped, elderly, large family, income level and owner/tenant status). However, where there are very few displacees, information on race, ethnicity and income levels should not be included in the EIS to protect the privacy of those affected.

2. A discussion comparing available (decent, safe and sanitary) housing in the area with the housing needs of the displacees. The comparison should include: (1) price ranges, (2) sizes (number of bedrooms), and (3) occupancy status (owner/tenant).

3. A discussion of any affected neighborhoods, public facilities, non-profit organizations and families having special composition (e.g. ethnic, minority, elderly, handicapped or other factors) which may require special relocation considerations and the measures proposed to resolve these relocation concerns.

4. A discussion of the measures to be taken where the existing housing inventory is insufficient, does not meet relocation standards or is not within the financial capability of the displacees. A commitment to last resort housing should be included when sufficient comparable replacement housing may not be available.

5. An estimate of the numbers, descriptions, types of occupancy (owner/tenant) and sizes (number of employees) of businesses and farms to be displaced. Additionally, the discussion should identify: (1) sites available in the area to which the affected businesses may relocate. (2) likelihood of such relocation, and (3) potential impacts on individual businesses and farms caused by displacement or proximity of the proposed highway if not displaced.

6. A discussion of the results of contacts, if any, with local governments, organizations, groups and individuals regarding residential and business relocation impacts, including any measures or coordination needed to reduce general and/or specific impacts. These contacts are encouraged for projects with large numbers of relocatees or complex relocation requirements. Specific financial and incentive programs or opportunities beyond those provided by the Uniforms Relocation Act) to residential and business relocatees to minimize impacts may be identified, if available through other agencies or organizations.

7. A statement that: (1) 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 by the Surface Transportation & Uniform Relocation Assistance Act of 1987, and (2) relocation resources are available to all residential and business relocatees without discrimination.

Narrative Analysis (Alternate B' update)

Project Number: ST-049-I10-006
I-10 Mobile River Bridge and Bayway Corridor Preservation
Mobile/Baldwin Counties

Following are **updated** responses to the question posed on the Form ROW-RA-1 for Alternate B':

Question #1:
No residential relocations are anticipated for Alternate B'.

Question #2:
The City of Mobile has a large and varied pool of possible residential replacement housing. Replacement housing should not be difficult to acquire, if needed.

Question #3:
There will be one public facility displaced. Mobile County Public Works Department has an Equipment Maintenance Department which maintains all county vehicles (approx. 800 vehicles). The site has several buildings that are equipped with 14 service bays, 9 lifts, a paint booth, gas tanks and several offices. The project does not affect any buildings but denied access extends across the current access and will require relocation of the access.

This project is situated in an area along the Mobile River that is industrial. Businesses in the area are mostly related to the shipping industry and its needs. The bonding companies included are unique to the criminal justice activities at the nearby Metro Mobile County Jail. The jail is not expected to be relocated.

The real estate market in the downtown area of Mobile offers a wide range of properties for business relocations. Business closures have left a fairly large number of vacancies. Consultation with the Mobile Area Chamber of Commerce representatives indicated possible replacement sites for businesses are available, with river frontage being at a premium. Additional coordination time may be required for relocation of river front sites. Businesses such as Southern Fish & Oyster will require deep-water waterfront sites. A windshield survey of the industrial area surrounding the proposed project and the waterfront area along the Mobile River, as far north as Chickasaw, and south as Dauphin Island revealed some sites available (for sale) with deep-water frontage.

Question #4:
As mentioned in response to Question #3, additional lead-time will be required. Also, protective buying for some of the larger businesses that are unique to the riverfront may be appropriate as these properties come available.

Question #5:
Alternate B' will require the following business relocation:

1) Coastal Security Taskforce – Owner
2) Bandit Bail Bonds – Owner
3) Bail Out Bonding, LLC – Tenant – 6 Full-time employees
4) Delta Bail Bonds – Owner – 2 Full-time employees – Non-Minority
5) Hurricane Bail Bonds, LLC – Owner – 4 Full-time employees
6) James Bond Bail Bonds – Owner
7) Outlaw Bail Bonds – Owner – 5 Part-time employees
8) Jason Darley, Attorney at Law – Tenant – 4 Full-time employees
9) Greene & Phillips – Owner
10) Johnathan Mabire, Attorney at Law – Tenant
11) Blackwell's Towing – Tenant – 4 Full-time employees
12) Hero's Towing – Tenant
13) Mobile County – Owner – 13 Full-time employees

14) Virginia Street Shell – Owner – 4 Full-time employees
15) Wal-Tech Valve – Owner – 35 Part-time employees
16) Prism Systems, Inc. – Owner
17) Carnival Artist's – Owner - 2 Full-time employees
18) Jubileescape Properties, LLC – Owner
19) CE, LLC – Owner
20) Southern Fish & Oyster Company – Owner
21) Austal USA, LLC – Owner
22) Tomly Barge Company – Owner – Non-Minority
23) Maritech Marine & Ind. Services, Inc. – Tenant – 3 Full-time/1 Part-time employees – Minority
24) AW Williams Inspection Co. – Owner
25) CT Realty Co. – Owner – 5 Part-time employees
26) Lamar Advertising – Tenant
    Permit No. OA-9-1-435
    Permit No. OA-9-1-124
    Permit No. OA-9-1-125

Coastal Security, and Bandit, Bail Out, Delta, Hurricane, James Bond and Outlaw bail bonding companies along with **Jason Darley, Esq., Greene & Phillips and Johnathan Mabire, Esq.**, law firms, are all businesses uniquely associated with the nearby Metro Mobile County Jail Complex and will require the acquisition of these businesses. The Metro Mobile County Jail Complex is located in a developed commercial/industrial area with vacant parcels available. There may be some minor difficulty in finding replacement properties suitable for their needs in the immediate area adjacent to the Metro Mobile County Jail Complex which these businesses service.

Blackwell's Towing rents the land and metal building basically for storage of wrecked cars from the interstate and tunnel in which he works. He indicated it was critical for him to be located in this immediate area due to the fact that the Mobile Police rotate wrecker services and utilize ones closest to the tunnel and bayway for their rotation.

Hero's Towing leases land for storage for wrecked vehicles.

Mobile County Public Works Department operates an its Equipment Maintenance Department that maintains all county vehicles (approx. 800 vehicles). There are 14 service bays, 9 lifts, a paint booth, gas tanks and several offices. Several buildings located onsite. The acquisition is small and does not affect any buildings but the proposed project requires denied access across the entire front of this property, therefore leaving the property without access.

Virginia Street Shell is a convenience store with relatively new owner and management. The proposed acquisition will acquire 2 gas pump islands with 4 pumps and cover, underground tanks, parking and access on Virginia Street due to the denied access across the frontage of the property. The new owner has plans to re-line the underground storage tanks at a cost of $100,000.

Wal-Tech Valve is a safety valve sales and repair shop. The equipment used requires inspections and certifications. This location has numerous lathe machines that weigh several tons, a boiler, 5 crane/lifts which require engineering studies when installed to ensure they can withhold their strengths. One Machine called a Bullard weighs 48,000 lbs and requires an engineered designed special depth slab foundation. All lathe machines are continuously checked and leveled to ensure they work with precise accuracy. This location also has a CO2 room. Finding a site available could be difficult and would require modifications to meet their requirements. It will be near impossible to move this business without them shutting down for a period of time and possible customer loss could result. Owners indicate relocation could take 12 to 18 months. **<u>Moving cost for this company will be highly specialized and extremely expensive</u>**!!! There will need to be different specialist brought in to plan and move all the different types of equipment in this operation. Also, engineering studies will need to be made at the replacement site to re-install this equipment.

Prism Systems, Inc. is a highly technical software and automation company that sits on two non-adjacent parcels. Both offices are located within a Hub Zone which allow the business to compete for Federal Contracts. The Main Office on one parcel and the Lab office on the other. The owners had recently purchased the Lab building within the last couple of years and spent in excess of 1 million dollars to upgrade and retrofit that building to suit their business. Fiber optic lines run from the Lab building to his Main office building and all of the computer servers for his main office are located in the Lab building. The Lab building will be within the acquisition. The main building will not be within the acquired area, however, most of the parking will be acquired for the right of way and will likely render the office building in violation to city codes for parking, which may require relocation of the Main Office portion of the business as well.

Carnival Artist's build and store Mardi Gras float structures at this location. A suitable replacement location will require the building to have height, unobstructed floor space, large doors and location adjacent to downtown.

Jubileescape Properties, LLC is a landscape design, maintenance and installation business. This office/warehouse facility consists of the business office, design offices, equipment and inventory storage. The office/warehouse building will be acquired in the acquisition and the owner will have a remainder that may be suitable for rebuilding, but this action will reduce the amount of inventory storage area the owner currently has.

CE, LLC owns the buildings previously owned and used by Benders Ship Building and are now primarily vacant metal and concrete buildings with personal property stored in the buildings including a large generator that would require a special mover. Hero's Towing also leases property to store cars.

Southern Fish & Oyster Company is a 4th generation family owned company in business for more than 80 years, has been in the fresh seafood business at this location for more than 50 years. At this waterfront location, fishing vessels can pull right up to the door of the business. The type of business and current land use at this site requires the business to have river frontage or be in very close proximity to the river. The State currently owns river frontage as a protective purchase and after the property for the project is purchased could have surplus property available to accommodate the business river frontage. The building is housed with coolers that are built in and realty, but there are numerous refrigerators, freezers, packing supplies and office supplies that will need to be relocated and does not appear, at this time, to be any specialized moving specialist required.

Austal USA, LLC is a ship building company that designs, manufactures and repairs all types of water vessels. Austal currently has several Navy contracts. The prosed acquisition will involve mainly a large parking area and the only permanent structure that will be affected is a guard shack at the entrance to parking. Relocation of personal property may be needed. The loss of parking will be addressed as a cost to cure during the appraisal assignment.

Tomly Barge Company This site is currently for lease. There are some personal property items that will need to be relocated. Several large storage containers, old barge/ship parts, and a mobile home exist that could be considered personal property. Does not appear to be an active business on this site. A specialized moving specialist may be required to move the storage containers and large old barge/ship parts.

Maritech Marine & Ind. Services, Inc. is an industrial process supplier. The proposed acquisition includes small medal buildings and a Modular Office building. Maritech currently has a 3 to 5-year lease with the land owner and prefers to relocate to the same general area of Interstate 10. Maritech indicates that downtime isn't desired and would cost the business revenue. Forklifts, bobcat, storage container and other work equipment may require outside specialist to relocate.

AW Williams Inspection Co. is a material testing company specializing in testing and inspecting timber. The business once tested steel and concrete and the building is housed with a Brake Test Machine that has a specialized foundation. The owner indicated that to remove this machine the building would have to be torn down. There is also a specialized laboratory that is equipped with an exhaust system that would require relocation.

CT Realty Co. leases building to HKA Enterprises which is an industrial training and staffing company. The building is housed with industrial training equipment with several work areas. Equipment needing to be relocated are welding and fabricating machines, lathe, and press, all of which are hard-wired into the building's electrical system. The tenant indicated that movement of all equipment would require an electrician and the use of a couple flatbed trucks.

Lamar Advertising leases three different properties with outdoor advertising billboards on them.

Question #6:
Discussions with local business persons, residents and government officials indicate all are aware of the need for a resolution to the current traffic problems associated with I-10 and the existing tunnels. However, a few were in favor of the previous proposed bridge plans. The currents plans have been received more open-mindedly. Several still refer to a coalition of local business called "Keep Mobile Moving." References were made to plans presented by a consultant hired by this group. All requested serious consideration of the plans presented by "Keep Mobile Moving."

Question #7:
We believe personnel currently available will be sufficient to handle activity for any/all displacements. Acquisition and Relocation programs will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1987, as amended. Services will be provided without regard to race, creed, color, sex, sexual orientation, religion, or national origin.

Hazardous Material Notifications
The Hazardous Materials Notification Forms are located in Appendix E of the DEIS.

Acknowledgments
Information regarding existing and projected availability of replacements properties was obtained through discussions with realtors and appraisers, tabulation of real estate service listings, newspaper advertisements, and notation of posted "For Sale/Rent" signs during field investigations.

The following persons provided information for this report and/or estimate:

Mrs. Tricia DeVaughn – ALDOT
Mr. Paul Gelineau – ALDOT
Mr. Robbie Lipscomb – ALDOT
Mrs. Deborah Miller – ALDOT
Mr. Will Sibley – ALDOT

Virginia Street Shell Station
N Carolina Ct
S Warren St
Lamar Advertising Sign
Maritech Marine & Industrial Services
S Carolina St
S Hamilton St
S Cedar St
Montgomery St
Delaware St
S Lawrence St
New Jersey Ct
Delaware Ct
Virginia St
10
Claiborne St
Texas St
Jubileescape Properties, LLC
CT Realty Company
Prism Systems, Inc.
AW Williams Inspection Company
Lamar Advertising Sign
Wal-Tech Valve
Carnivals Artist's
Lamar Advertising Sign
Maryland St
S Conception St
Google Earth


Mobile County Public Works
Coastal Security Taskforce
Blackwell's Towing
Delta Bail Bonds
Jonathan Mabire, Attorney at Law
Bail Out Bonding
James Bond Bail Bonds
Heros Towing
Green & Phillips
Bandit Bail Bonds
Jason Darley, Attorney at Law
Water St
CE, LLC
Google Earth

S Joachim St
S Conception St
Theatre St
St Emanuel St
Monroe St
S Royal St
16
10
Jubilee Pkwy
Tomley Barge Company
Austal USA, LLC
Addsco Rd
Southern Fish & Oyster Company
Bender Shipbuilding & Repair
Bender Shipbuilding & Repair
Buffalo Marine Services
CE, LLC
Buffalo Marine Service, Inc.
Dunlap Dr
Canal St
Palmetto St
Google Earth

APPENDIX E

Environmental Justice Assessment

ENVIRONMENTAL JUSTICE ASSESSMENT

MOBILE RIVER BRIDGE & BAYWAY

PROJECT NO. DPI-0030(005)

I-10 MOBILE RIVER BRIDGE AND BAYWAY

MOBILE AND BALDWIN COUNTIES, ALABAMA

March 2019

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Attachment B: EJ Community Workshops
Attachment C: Responses to Comments Received
Attachment D: Survey Transmitted to Africatown/Plateau Community

1.0 Introduction

The I-10 Mobile River Bridge and Bayway Project is a proposal to increase the capacity of I-10 by constructing a new six-lane bridge across the Mobile River and replacing the existing four-lane I-10 bridges over Mobile Bay with eight lanes at an elevation above the 100-year storm event. The proposed project is located in Mobile and Baldwin Counties, Alabama.

Four Build Alternatives and the No Build Alternative are evaluated in the National Environmental Policy Act (NEPA) document for the proposed project. **Figure EJ-1** displays the project location and the Build Alternatives. The estimated total cost of the proposed project is approximately $2 billion.

The purpose of this project is 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.

The DEIS for the proposed project was signed by the FHWA on July 22, 2014. Due to changes in the proposed project that occurred subsequent to the DEIS, the FHWA determined that a Supplemental DEIS should be prepared.

Subsequent to the DEIS, ALDOT decided to use an alternative delivery method to design, build, finance, operate, and maintain (DBFOM) the proposed project. This Public-Private Partnership (P3) will allow ALDOT to leverage private sector technical expertise and funding sources to deliver this major transportation infrastructure project. In order for the private equity partner(s) to recoup their investment, tolls will be implemented.

As part of the development of the Supplemental DEIS, a new environmental justice (EJ) assessment has been prepared to identify potential impacts on EJ populations resulting from the proposed project. The impacts described in this report would be experienced under all of the Build Alternatives.

ALABAMA DEPARTMENT OF TRANSPORTATION
I-10 MOBILE RIVER BRIDGE
AND BAYWAY PROJECT
PROJECT No. DPI-0030 (005)
MOBILE AND BALDWIN COUNTIES, ALABAMA

DEPARTMENT OF TRANSPORTATION

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MOTT MACDONALD

HDR

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community Digital Globe 2017

FIGURE EJ-1
BUILD ALTERNATIVES FROM DEIS

PROJECT NO.:	DATE:
15-1101-0300	NOVEMBER 2018

2.0 Environmental Justice Assessment

2.1 Background

In response to Executive Order 12898, FHWA identifies three fundamental environmental justice principles for transportation projects:

1) To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;
2) To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
3) To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The methodology used to conduct the Environmental Justice Assessment for the I-10 Mobile River Bridge and Bayway Project is based on requirements set forth in Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*; U.S. Department of Transportation Order 5610.2(a), *Final DOT Environmental Justice Order*; and FHWA Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

Additionally, the following guidance documents were used to develop the methodology for this assessment:

1) FHWA *Environmental Justice Reference Guide*, April 1, 2015
2) AASHTO Practitioner's Handbook, *Managing the NEPA Process for Toll Lanes and Toll Roads*, 2016
3) NCHRP *Assessing the Environmental Justice Effects of Toll Implementation or Rate Changes: Guidebook and Toolbox*, 2018
4) NCHRP *Environmental Justice Analyses When Considering Toll Implementation or Rate Changes Final Report*, January 2017
5) Council on Environmental Quality's *Environmental Justice Guidance under the National Environmental Policy Act.*

2.2 Definitions

Executive Order 12898, USDOT Order 5610.2(a), and FHWA Order 6640.23A provide the following important definitions of minority and low-income populations.

- ***Minority***: A person who is:
    - Black: a person having origins in any of the black racial groups of Africa;
    - Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;
    - Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;
    - American Indian and Alaskan Native: a person having origins in any of the original people of North America or South America (including Central America) and who maintains cultural identification through Tribal affiliation or community recognition; or
    - Native Hawaiian and Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- ***Low-Income***: A person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines.

- ***Population****:* Any readily identifiable group of minority and/or low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons of those groups (such as migrant workers, homeless persons, or Native Americans) who will be similarly affected by a proposed U.S. DOT/FHWA program, policy, or activity.

2.3 Methodology

In order to evaluate the potential effects on environmental justice populations that could result from the Mobile River Bridge and Bayway Project, the following steps were undertaken:

1) Develop demographic profile for project study area to determine if an EJ population exists.
2) Identify locations within project study area with high concentrations of low-income and/or minority populations using commonly-accepted thresholds ("areas of EJ concern").
3) Determine whether the proposed project would result in adverse and/or beneficial impacts on environmental justice populations.
4) Determine whether potential impacts on environmental justice populations would be considered "disproportionately high and adverse."
5) Develop measures to avoid, minimize, and/or mitigate disproportionately high and adverse impacts on environmental justice populations.
6) Include all findings and determinations in the NEPA document for the project.

2.4 Analysis

2.4.1 Develop demographic profile for project study area

For the purposes of this EJ analysis, the project study area is defined as the planning area covered by the travel demand model for the proposed project (**Figure EJ-2**). The travel demand model covers the majority of Mobile County and all of Baldwin County, in accordance with the planning areas covered by the Mobile Area Transportation Study and the Baldwin County Highway Department. Within the travel demand model, areas are broken into traffic analysis zones (TAZs). TAZs are small geographic units used to model where people drive to and from. The travel demand model estimates future travel patterns and traffic volumes in future years with and without the proposed project.

Census block groups were found to closely align with TAZ boundaries. Socio-economic data from the U.S. Census Bureau's 2015 American Community Survey were used to develop the demographic profile for the project study area. Data were collected for each Census block group within the project study area. Data utilized include: race/ethnicity, median household income, and average household size. The demographic profile developed for the project was used to identify EJ populations broken into the following categories: minority, low-income, and minority and low-income. **Table EJ-1** presents a summary of the demographics for the project study area as a whole, while **Attachment A** contains the demographic profile broken down by block group and TAZ.

Table EJ-1: Summary of Demographic Profile for Project Study Area

Total Population	609,372
Minority Population	192,160
Non-Minority Population	417,212
% Minority	31.53%
Median Household Income	$41,705
Average Household Size	2.6 (rounded to 3.0)
Low-Income Population	26,717
% Low Income	4%

Source: U.S. Census Bureau, 2015

Figure EJ-2: Project Study Area Limits

Source: CDM Smith, 2018

ALDOT met with the South Alabama Regional Planning Commission and the Eastern Shore Metropolitan Planning Organization to obtain input regarding socio-economic data sources, to discuss how they perform their EJ analyses for Long Range Transportation Plans, and to determine whether they had any information that would be useful in the project-specific EJ analysis. The meetings confirmed that while the specific methodologies and traffic models used to address transportation system-wide analyses compared to project-level analyses by the MPOs differ, the same sources of data are used by these organizations to populate demographic data for their transportation plans.

2.4.2 Identify locations within the project study area with high concentrations of low-income and/or minority populations using commonly-accepted thresholds

The demographic profile developed for this project was used to identify EJ populations broken into the following categories:

- Minority
- Low-Income
- Minority and Low-Income

For the purposes of this assessment, Block Groups where the minority population is greater than 50% are considered high concentration minority areas. This is consistent with the "Fifty Percent Analysis" described in the Council on Environmental Quality's Report "Environmental Justice under the National Environmental Policy Act." This methodology is generally considered a conservative measure to identify minority populations when they comprise a majority of a geographic unit of analysis (i.e., block group).

In accordance with FHWA's *Environmental Justice Reference Guide*, block groups are considered low-income when the median household income is lower than the U.S. Department of Health and Human Services (HHS) poverty guidelines for the respective average household size. The average household size and median income for each block group were compared to the HHS Poverty Guidelines for that household size. Normal rounding up or down to the nearest whole number was used. For example, if the Census Bureau indicated that a block group's average household size was 3.6, then the average household size for that block group was rounded up to a household size of 4. **Table EJ-2** displays the 2015 HHS Poverty Guidelines for reference.

Table EJ-2: 2015 HHS Poverty Guidelines

Persons in Household	Poverty Guideline
1	$11,770
2	$15,930
3	$20,090
4	$24,250
5	$28,410
6	$32,570
7	$36,730
8	$40,890
For households with more than 8 persons, add $4,160 per additional person	

Source: HHS, 2015

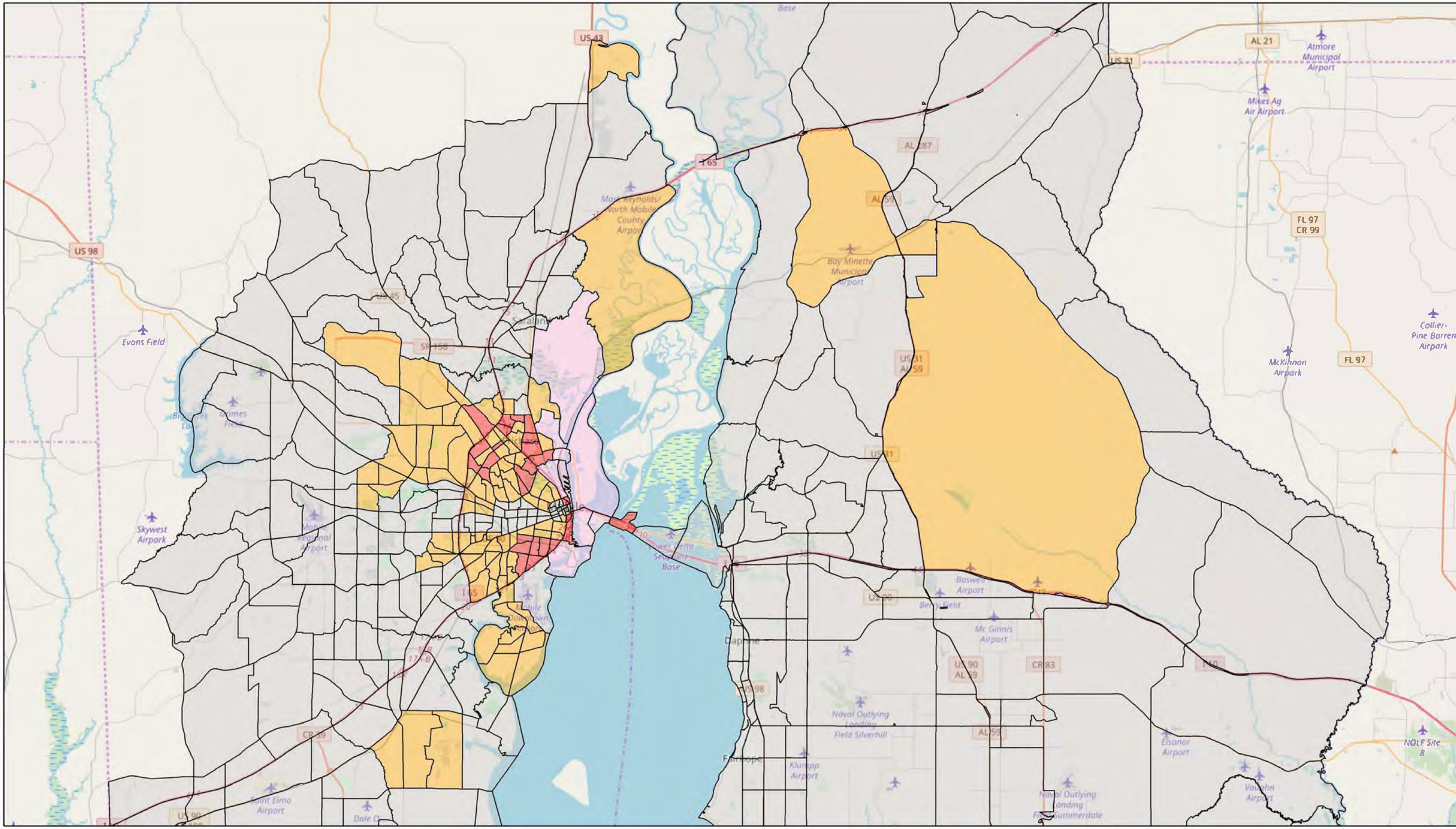
The following data were input into a Microsoft Excel spreadsheet to identify areas with high concentrations of low-income and/or minority populations:

- TAZ,
- Census Tract,
- Block Group,
- Percent Non-White,
- Total Population by Race,
- Median Household Income in Last 12 Months,
- Average Household Size of Occupied Housing Units by Tenure, and
- HHS 2015 Poverty Guidelines for Household Size.

A total of 486 TAZs were included in the analysis. Of the 486, 87 TAZs were identified as minority and 37 TAZs were identified as both minority and low-income. None of the TAZs were identified as low-income only. Twelve TAZs that are entirely industrial and do not contain residences were removed from the analysis. These TAZs do not contain residences and therefore cannot be categorized as EJ or non-EJ trips based on Census data. Areas with high concentrations of minority and/or low-income populations, also known as areas of EJ concern, were mapped and are shown on **Figure EJ-3**.

It should be noted that while the identified areas of EJ concern have high concentrations of minority and/or low-income populations, there are non-minority and non-low-income populations within these areas, and vice versa. Therefore, minority and/or low-income populations may also be located in TAZs that are not readily identifiable as minority and/or low-income based on available Census data. TAZs that do not contain high concentrations of minority or low-income populations are called “other TAZs” or “other areas” in this assessment. Based upon readily available data and guidance listed in Section 2.1, the methodology used in this assessment is acceptable and consistent with what is commonly used for transportation planning purposes.

Within the areas of EJ concern, specific areas that are most likely to experience impacts from the proposed project were identified. These areas include the Africatown/Plateau, Texas Street, and Oakdale communities. The Africatown/Plateau community is located approximately three miles north of the proposed project along Bay Bridge Road (**Figure EJ-4**). This area was included because it is located along a route that is expected to experience increased traffic due to drivers avoiding the toll on I-10. The Texas Street and Oakdale communities are included because they are located adjacent to existing I-10 near downtown Mobile (**Figure EJ-5**).



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PROJECT No. DPI-0030 (005)
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0 2 4 Miles

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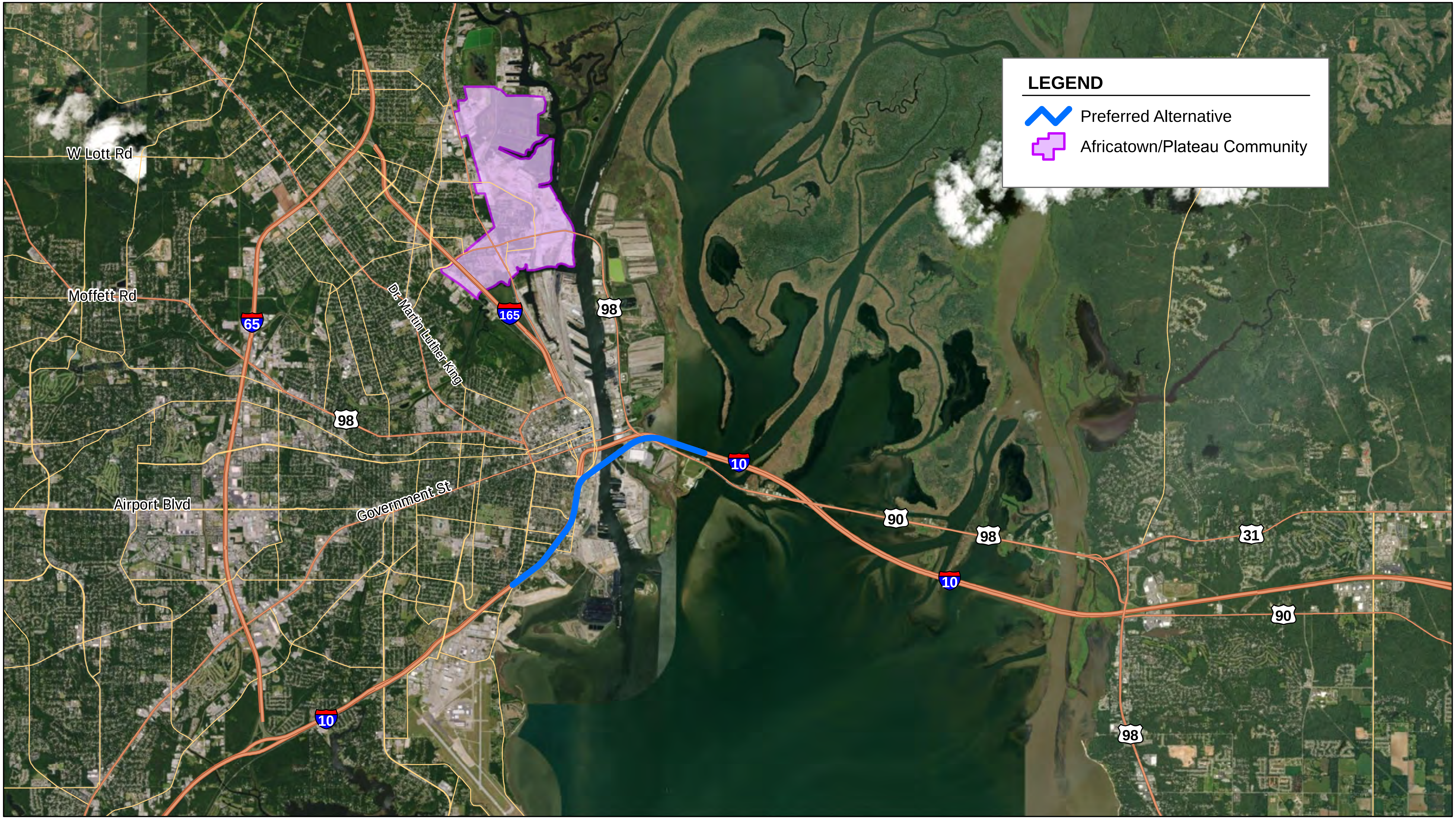
TRAFFIC ANALYSIS ZONES (TAZs)

- Area of EJ Concern - Minority
- Area of EJ Concern - Minority and Low-Income
- Excluded - Commercial Use
- Other TAZ Boundary - Not Minority or Low-Income

FIGURE EJ-3
AREAS OF EJ CONCERN

PROJECT NO.: 15-1101-0300

DATE: SEPTEMBER 2018



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Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Digital Globe 2017

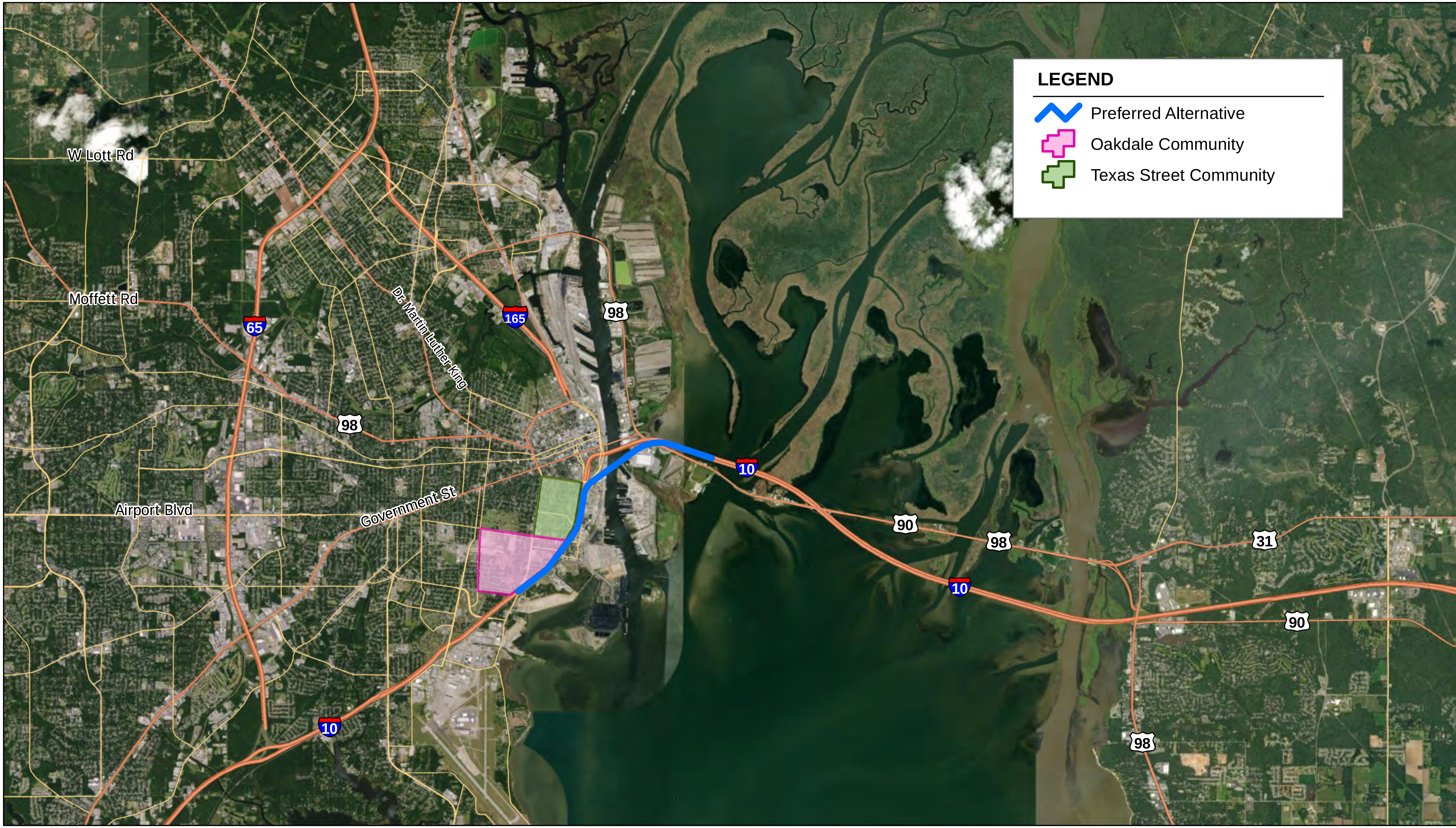
0 2 4 Miles

FIGURE EJ-4
AFRICATOWN / PLATEAU COMMUNITY

PROJECT NO.: 15-1101-0300

DATE: FEBRUARY 2019

Coordinate System: NAD 1983 StatePlane Alabama West FIPS 0102 Feet
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 1,968,500.0000
False Northing: 0.0000
Central Meridian: -87.5000
Scale Factor: 0.9999
Latitude Of Origin: 30.0000
Units: Foot US



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0 2 4 Miles

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FIGURE EJ-5
TEXAS STREET / OAKDALE COMMUNITIES

PROJECT NO.: 15-1101-0300

DATE: FEBRUARY 2019

Date 2/20/2019

2.4.3 Determine whether the proposed project would result in adverse and/or beneficial impacts on environmental justice populations

The proposed project includes actions that could result in impacts on EJ populations, non-EJ populations, and the community and region as a whole. These actions would result from construction of a new transportation facility that includes interchange modifications, construction of a new bridge across the Mobile River, and replacement of the Bayway across Mobile Bay, and implementation of a new toll on I-10. The proposed tolled route is shown on **Figure EJ-6**, and the proposed non-tolled route is shown on **Figure EJ-7**.

Per the USDOT Order 5610.2(a) and FHWA Order 6640.23A, all reasonably foreseeable adverse social, economic, and environmental effects on minority and low-income populations must be identified and addressed. Construction of a new transportation facility includes a variety of potential social, economic, and environmental impacts. In addition to the impacts typically addressed in environmental evaluations for new roadway and bridge projects, impacts associated specifically with the implementation of a new toll facility are also evaluated, as presented in **Table EJ-5**.

Select Link Analysis

To determine the potential impacts of tolling on EJ populations, a select link analysis was performed. The select link analysis is a tool in the travel demand model that provides information of where traffic comes from and goes to at selected locations. It should be noted that data used in traffic models to generate the select link analysis are based on readily available data and have inherent limitations; however, these types of analyses are commonly used to assess traffic patterns and make projections related to trip-making behavior.

For this assessment, the tool was used to answer the following questions for the No Build and Build scenarios for years 2020, 2030, and 2040:

- How many trips begin and/or end in each TAZ in the travel demand model?
- How many trips would use the Bankhead Tunnel to cross Mobile River?
- How many trips would use the Cochrane-Africatown USA Bridge to cross Mobile River?
- How many trips would use the Wallace Tunnel to cross Mobile River?
- How many trips would use the new Mobile River Bridge to cross Mobile River?
- How many trips would use the I-10 Bayway to cross Mobile Bay?
- How many trips would use the US-98 Causeway to cross Mobile Bay?
- How many trips begin or end in areas of EJ concern?
- How many trips begin or end in other areas (not of EJ concern)?

The answers to the questions above allowed the project team to identify the routes that are currently used by drivers in areas of EJ concern and whether the use of those routes would change with or without the proposed project. **Table EJ-3** presents more details on the number of trips made by drivers beginning or ending in TAZs of EJ concern. The trips originating or terminating in areas EJ concern are considered to most accurately capture the number of trips to and from TAZs with concentrations of EJ populations. As described in more detail in the following paragraphs and tables, the analysis indicates that the trips on the tolled route are expected to decrease for both EJ and non-EJ users. This reduction in trips on a route due to the implementation of a toll is often referred to as “suppression.”

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HDR

1,000 0 1,000 2,000 3,000 4,000 Feet

0 1 2 Miles

LEGEND

Proposed Tolled Route*
Major Highways
Highways
Major Roads

***NOTE: Ramps along tolled route may be tolled.**

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community NAIP 2015 - 1 Meter Resolution

FIGURE EJ-6
PROPOSED TOLLED ROUTE

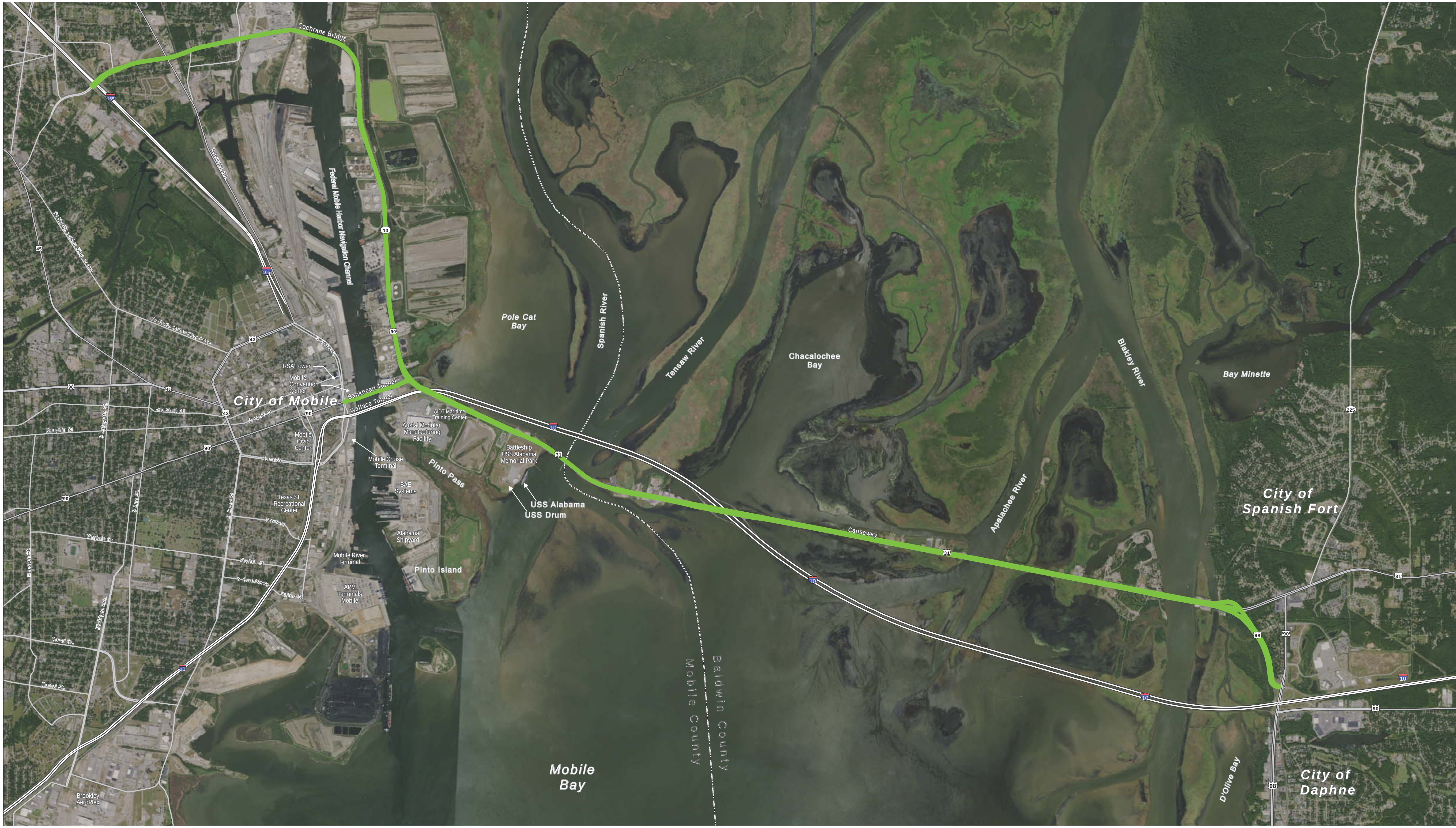
DRAFT

PROJECT NO.: 15-1101-0300

DATE: JULY 2017

E-14

Date 7/24/2017



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HDR

1,000 0 1,000 2,000 3,000 4,000 Feet

0 1 2 Miles

LEGEND
- Proposed Non-Tolled Route
- Major Highways
- Highways
- Major Roads

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
NAIP 2015 - 1 Meter Resolution

FIGURE EJ-7
PROPOSED NON-TOLLED ROUTE

DRAFT

PROJECT NO.: 15-1101-0300

DATE: JULY 2017

E-15

Date 7/24/2017

The Bay Bridge Road and Cochrane-Africatown USA Bridge route's close proximity to downtown, I-165, and I-65 make it an accessible free route for passenger vehicles and trucks, particularly for residents of the Africatown community. The close proximity of the Bankhead Tunnel to the Texas Street and Oakdale communities makes it an accessible free route as well. The total number of trips to or from areas of EJ concern that cross the Mobile River (via any route) are expected to decrease from around 78,015 trips per day in the 2040 No Build scenario to around 71,236 trips per day in the 2040 Build scenario, which represents a decrease of approximately 9 percent. For comparison purposes, the total trips crossing the river going to or from other areas are projected to decrease from around 141,370 trips per day in the 2040 No Build scenario to around 132,275 trips per day in the 2040 Build scenario, which represents a decrease of approximately 6 percent.

Table EJ-3: Comparison of Traffic on Key Travel Links by Trip (Either Origin or Destination)

Route		Total trips on link	2020 No Build by Either Origin or Destination			Total trips on link	2020 Build by Either Origin or Destination		
			EJ Trips*	Other Trips	EJ % of Total Trips		EJ Trips	Other Trips	EJ % of Total Trips
1	I-65	32,937	9,334	23,603	28%	36,489	10,237	26,252	28%
2	Bankhead Tunnel	22,880	8,434	14,446	37%	21,160	7,332	13,829	35%
3	Cochrane Bridge	24,719	14,693	10,026	59%	47,227	22,811	24,416	48%
4	Wallace Tunnel	90,019	31,776	58,244	35%	25,391	10,270	15,121	40%
5	New I-10 Bridge					29,493	8,941	20,553	30%
6	I-10 Bayway (West)	96,002	32,187	63,815	34%	52,510	17,453	35,057	33%
7	US-98 (West)	25,753	13,921	11,832	54%	54,560	22,947	31,613	42%
8	I-10 Bayway (East)	88,423	28,818	59,605	33%	49,268	15,371	33,897	31%
9	US-98 (East)	29,173	10,250	18,922	35%	54,120	18,042	36,078	33%

Route		Total trips on link	2030 No Build by Either Origin or Destination			Total trips on link	2030 Build by Either Origin or Destination		
			EJ Trips	Other Trips	EJ % of Total Trips		EJ Trips	Other Trips	EJ % of Total Trips
1	I-65	39,713	11,646	28,067	29%	43,603	12,050	31,553	28%
2	Bankhead Tunnel	25,821	9,188	16,633	36%	21,477	6,891	14,586	32%
3	Cochrane Bridge	32,306	18,073	14,232	56%	51,163	24,875	26,289	49%
4	Wallace Tunnel	102,336	34,178	68,158	33%	31,504	12,393	19,110	39%
5	New I-10 Bridge					38,582	10,840	27,742	28%
6	I-10 Bayway (West)	108,184	34,677	73,508	32%	68,375	21,569	46,807	32%
7	US-98 (West)	36,219	17,756	18,463	49%	57,701	24,082	33,619	42%
8	I-10 Bayway (East)	101,074	31,586	69,487	31%	63,581	18,868	44,712	30%
9	US-98 (East)	39,210	13,528	25,682	35%	59,132	19,691	39,441	33%

Route		Total trips on link	2040 No Build by Either Origin or Destination			Total trips on link	2040 Build by Either Origin or Destination		
			EJ Trips	Other Trips	EJ % of Total Trips		EJ Trips	Other Trips	EJ % of Total Trips
1	I-65	45,049	13,357	31,693	30%	49,341	13,465	35,877	27%
2	Bankhead Tunnel	27,556	9,169	18,386	33%	23,277	7,065	16,213	30%
3	Cochrane Bridge	37,666	21,164	16,501	56%	51,162	25,127	26,035	49%
4	Wallace Tunnel	109,114	34,325	74,789	31%	34,097	13,428	20,669	39%
5	New I-10 Bridge					45,733	12,151	33,582	27%
6	I-10 Bayway (West)	116,944	35,556	81,387	30%	79,284	24,090	55,195	30%
7	US-98 (West)	41,777	20,278	21,499	49%	58,755	24,489	34,265	42%
8	I-10 Bayway (East)	110,793	33,069	77,724	30%	73,290	20,913	52,377	29%
9	US-98 (East)	44,151	15,424	28,727	35%	61,827	20,397	41,431	33%

Source: Select Link Analysis, CDM Smith, 2018

** Note: As discussed in Section 2.4.2 and shown on Figure EJ-4, areas of EJ concern are based on census data available at the block group level for each TAZ. Due to limitations in Census data, low-income and/or minority populations may also exist in other areas not identified as areas of EJ concern. Therefore, the number of EJ Trips listed in the table above may include trips made by non-EJ persons, and the number of Other Trips listed in the table above may include trips made by EJ persons.*

Data from the select link analysis was also used to determine if trip-making behavior for drivers originating in areas identified as low-income would change with the proposed project. The select link analysis projects that trips beginning in areas identified as low-income would decrease by:

- Approximately 10% between the 2020 No Build and 2020 Build scenario,
- Approximately 11% between the 2030 No Build and 2030 Build scenario, and
- Approximately 12% between the 2040 No Build and 2040 Build scenario.

These decreases are consistent with the projected decreases in traffic for the trips across the Mobile River and Mobile Bay that begin in areas not identified as low-income, indicating that trips originating in low-income areas would not be suppressed at a substantially higher rate than trips originating in other areas. Trips beginning in non-low-income areas are projected to decrease by:

- Approximately 10% between the 2020 No Build and 2020 Build scenario,
- Approximately 10% between the 2030 No Build and 2030 Build scenario, and
- Approximately 11% between the 2040 No Build and 2040 Build scenario.

Data from the select link analysis was also analyzed to evaluate the potential for changes in driver behavior in the Build scenario specifically for the Africatown/Plateau area. The analysis indicates that drivers originating from within or in close proximity to the Africatown/Plateau area would continue to use I-65, the Bankhead Tunnel, and the Cochrane-Africatown USA Bridge, regardless of whether the project is constructed. **Table EJ-4** displays a summary of this information. This behavior can be attributed to the fact that the non-tolled route is located within and in close proximity to this EJ community.

Table EJ-4: Summary of Trips Originating or Ending from Within or in Close Proximity to Africatown/Plateau Community

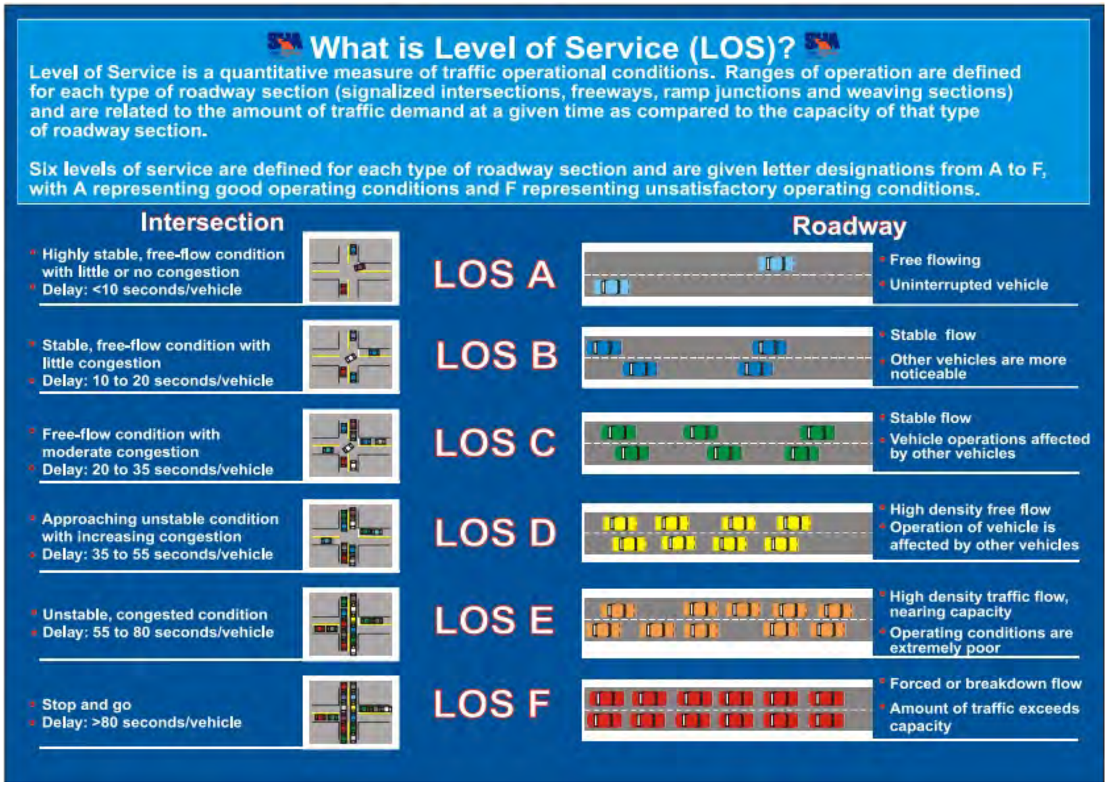
Route	Number of Trips		
	2020 No Build	2020 Build	2040 Build
I-65	647	742	1,030
Bankhead Tunnel	1,913	2,066	2,213
Cochrane Bridge	6,469	7,355	7,372
Wallace Tunnel	3,105	2,026	2,062
New I-10 Bridge	N/A	0	0
I-10 Bayway (west)	1,385	1,195	1,323
US-98 (west)	4,711	4,549	4,449
I-10 Bayway (east)	2,278	1,106	1,108
US-98 (east)	2,343	3,163	3,157

Source: Select Link Analysis, CDM Smith, 2018

Level of Service/Congestion Analysis

In addition to the select link analysis, traffic and level of service (LOS) projections from the Interchange Modification Request (IMR) were used to identify roadways and intersections within areas of EJ concern that may experience increased congestion or delays as a result of traffic diverting from the tolled route to the non-tolled route. **Figure EJ-8** shows the different levels of service that are used to measure traffic conditions on roadways and at intersections. In general, LOS A indicates the best condition, where traffic is free-flowing while LOS F indicates the worst condition, where the amount of traffic on a roadway exceeds the capacity of that facility.

Figure EJ-8: Levels of Service



Source: Maryland Department of Transportation, https://policymanual.mdot.maryland.gov/mediawiki/index.php?title=File:LOS_Graphic.jpg, 2018

The IMR indicates that congestion along Bay Bridge Road, the Cochrane-Africatown USA Bridge, US-90 between the Cochrane-Africatown USA Bridge and the Bankhead Tunnel, and the US-98 Causeway is expected to increase with or without the proposed project.

Along Bay Bridge Road and the Cochrane-Africatown USA Bridge, the level of service is expected to worsen from a current LOS B to LOS D in 2020 with the proposed project and further worsen to LOS E in 2040. The US-98 Causeway is predicted to worsen from a current LOS D to a LOS E in 2020 with the proposed project and further worsen to LOS F in 2040. This level of congestion would be experienced during the peak (rush) hours. **Figure EJ-9** displays the projected levels of service along the non-tolled route in the 2016 (existing) condition, as well as in the 2020 and 2040 Build condition.

Congestion along these routes is projected to worsen even if this project is not constructed because travelers will use alternate routes to avoid congestion on I-10, particularly in the Wallace Tunnel. However, it is anticipated that congestion along Bay Bridge Road, the Cochrane-Africatown USA Bridge, and the US-98 Causeway would be experienced sooner with the proposed project than without it.

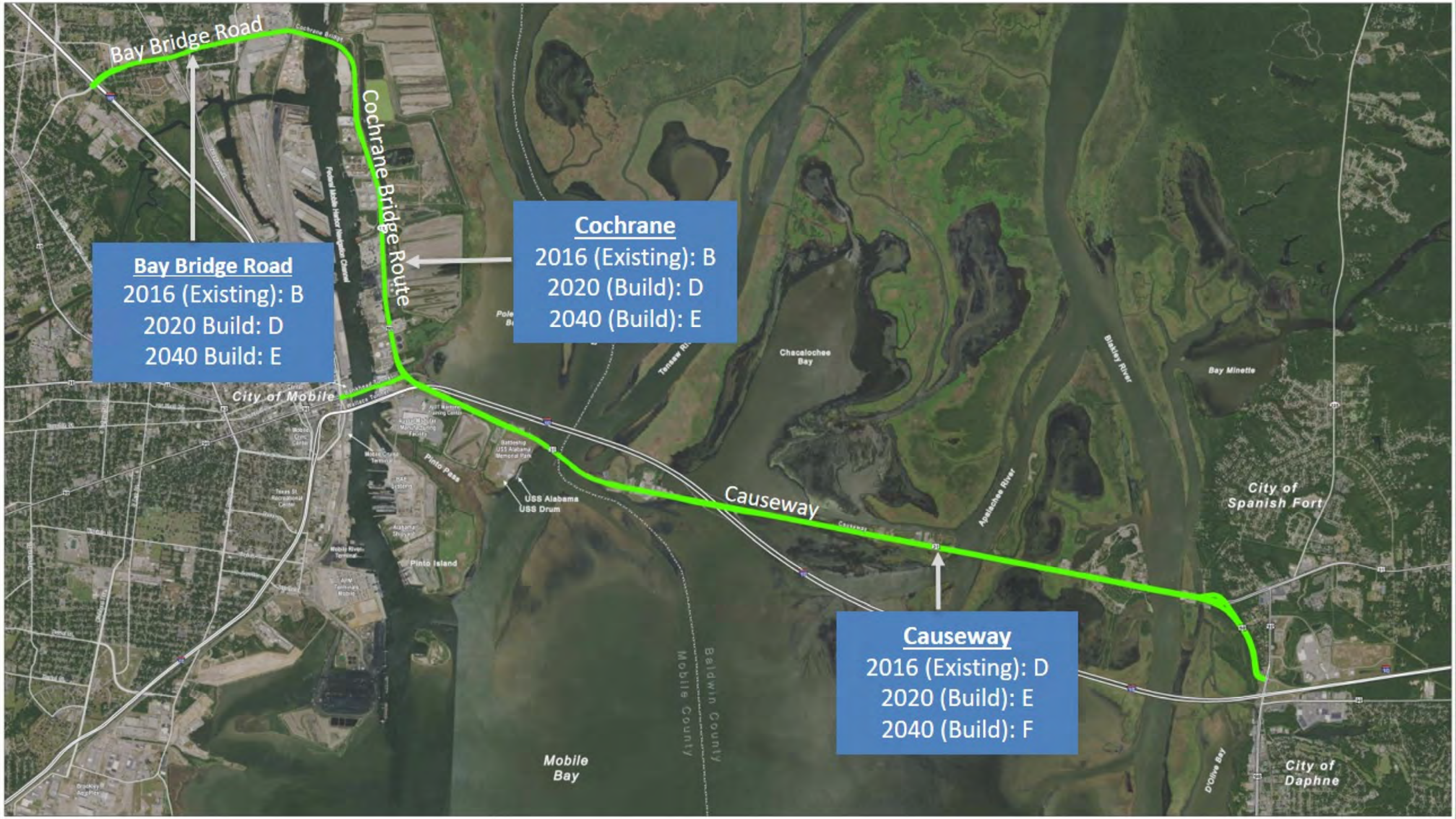


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FIGURE EJ-9: PROJECTED WORST-CASE LOS ON NON-TOLLED ROUTE

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Increased congestion is expected to result in longer queues at intersections along Bay Bridge Road, as shown on **Figures EJ-10 and EJ-11**. The worst-case change is predicted to occur at the Bay Bridge Road/Butts Street intersection during the evening rush hour for traffic traveling westbound on Bay Bridge Road. These delays are expected to increase from approximately 66 seconds in the 2040 No Build condition to approximately 86 seconds in the 2040 Build condition during the evening rush hour.

Figure EJ-10: Anticipated Morning Queue Lengths (Bay Bridge Road at Butts Street)

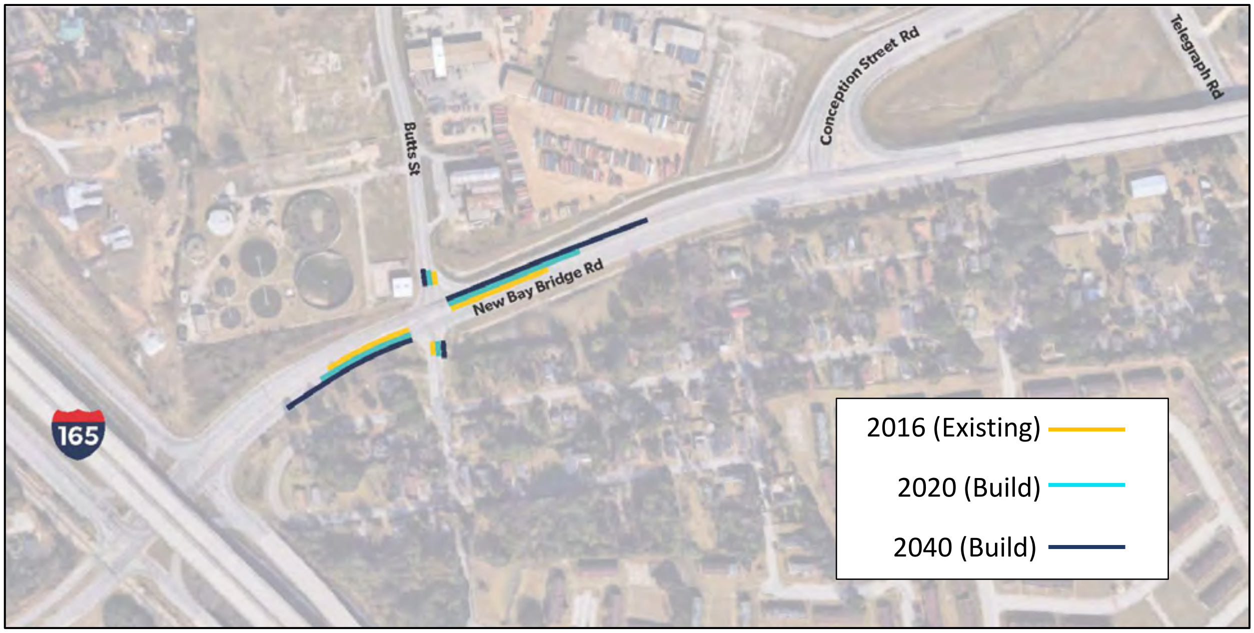

Figure EJ-11: Anticipated Evening Queue Lengths (Bay Bridge Road at Butts Street)

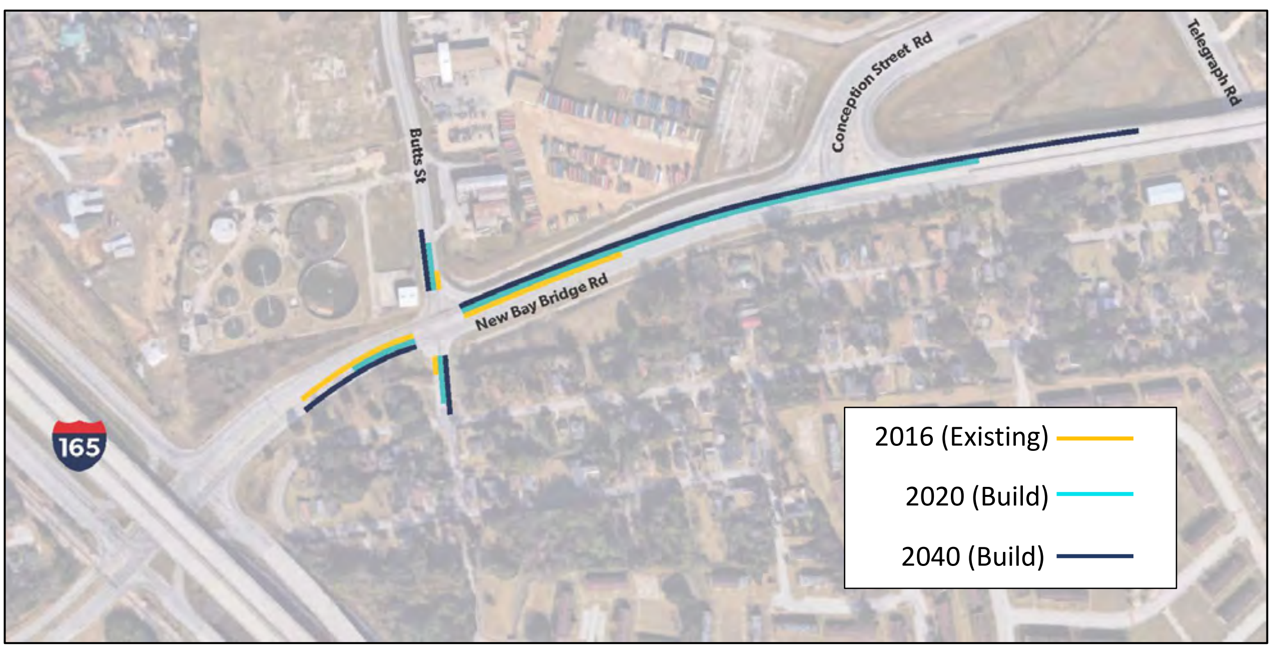

Table EJ-5 displays information regarding direct and indirect impacts that may result from the proposed project.

Table EJ- 5: Summary of Potential Impacts on Areas of EJ Concern

Impact Category	Impact on Areas of EJ Concern*	Comments
Air	No	The Air Quality Analysis contained in the Supplemental DEIS indicates that the proposed project will not result in air quality impacts exceeding the National Ambient Air Quality Standards (NAAQS). The maximum one-hour concentration of carbon monoxide for the worst-case intersection on Bay Bridge Road (in the Africatown/Plateau community) was modeled at 4.8 parts per million, which is well below the USEPA's one-hour criteria of 35 parts per million.
Changes in health (air) for residents near alternative routes that have degradation in level of service	No	
Noise	Yes, but expected to be minimal; therefore, not a disproportionately high and adverse concern	An addendum to the traffic noise analysis in Appendix L of the Supplemental DEIS evaluated traffic noise impacts for the proposed project using updated traffic projections. The noise analysis indicates that the areas adjacent to I-10, which include the Oakdale and Texas Street communities, currently experience noise impacts and will continue to experience noise impacts in 2040 No Build and 2040 Build scenarios due to their proximity to I-10. The noise analysis indicates that 186 receptors in this area would experience noise impacts in the existing/pre-build scenario. A total of 213 receptors would experience noise impacts in the 2040 No Build scenario. The proposed project would result in noise impacts at 170 receptors in this area in the 2040 Build scenario. The difference in noise levels between existing/pre-build (2020) and the 2040 No Build scenario ranges from a decrease of 1.5 dBA to an increase of 4.1 dBA, while the difference in noise levels between the existing/pre-build (2020) and the 2040 Build scenario ranges from a decrease of 4.1 dBA to an increase of 4.2 dBA. Changes in noise levels of 3 dBA or more between existing and the 2040 condition would be perceptible to the human ear, with or without the proposed project. Compared to the 2040 No Build scenario, the 2040 Build scenario would result in a decrease in noise levels ranging from 0.1 to 4.8 dBA at 157 impacted receptors, an increase in noise levels ranging from 0.1 to 1.9 dBA at 12 impacted receptors, and no change at one impacted receptor. According to FHWA's Highway Traffic Noise: Analysis and Abatement Guidance, 2011, changes in noise levels of less than 3 dBA are barely perceptible to the human ear. The decrease in impacts and noise levels is primarily a result of lower traffic volumes using I-10 in 2040 because of the toll

Impact Category	Impact on Areas of EJ Concern*	Comments
		and a shift in the I-10 alignment to the east further away from the residential areas. While the majority of these impacted receptors are located within areas of EJ concern, all of these impacted receptors may not be occupied by EJ individuals. Because the increases in projected noise levels at impacted receptors between the 2040 Build and 2040 No Build scenarios would be barely perceptible to the human ear, and because the proposed project would result in lower noise levels at 157 of the 170 impacted receptors compared to the 2040 No Build, the impacts are considered minimal.
Changes in health (noise) for residents near alternative routes that have degradation in level of service	Yes, but expected to be minimal; therefore, not a disproportionately high and adverse concern	The addendum to the traffic noise analysis in Appendix L of the Supplemental DEIS evaluated a new area along Bay Bridge Road, which includes the Africatown/Plateau community, to determine the potential impacts of increased traffic diverting from the tolled route to the non-tolled route. The noise analysis indicates that the Africatown/Plateau community currently experiences noise impacts and will continue to experience noise impacts in 2040 No Build and 2040 Build scenarios due to projected increases in traffic volumes along Bay Bridge Road. The traffic noise analysis found that 5 receptors experience noise impacts in the existing (2016) condition. A total of 72 receptors would experience noise impacts along Bay Bridge Road in the 2040 No Build scenario. The proposed project would result in noise impacts at 88 receptors along Bay Bridge Road in the 2040 Build scenario. The difference in noise levels between existing and the 2040 No Build scenario ranges from 3.3 to 7.3 dBA, while the difference in noise levels between existing and the 2040 Build scenario ranges from 4.9 to 8.8 dBA. Changes in noise levels between the existing and the 2040 condition would be perceptible to the human ear, with or without the proposed project. Compared to the 2040 No Build scenario, the 2040 Build scenario would result in an increase in noise levels ranging from 0 to 1.6 dBA at 88 receptors. According to FHWA's Highway Traffic Noise: Analysis and Abatement Guidance, 2011, changes in noise levels of less than 3 dBA are barely perceptible to the human ear. Because the increases in projected noise levels at impacted receptors between the 2040 Build and 2040 No Build scenarios would be barely perceptible to the human ear, the impacts are considered minimal.
Vibrations	No	Based upon the *Final Report on Vibrations Due to Pile Driving at the Mobile River Bridge Site*, modern structures within 150 feet of the proposed project and historic structures within

Impact Category	Impact on Areas of EJ Concern*	Comments
		250 feet of the proposed project are to be monitored for damage due to vibrations. The closest structure in the Texas Street community is approximately 159 feet from the nearest proposed bridge foundation. The closest structure in the Oakdale community is approximately 340 feet from the nearest proposed bridge foundation. Structures within these communities that are within the recommended radii for vibration monitoring will be identified and included in the vibration monitoring plan to be implemented as part of the construction phase. Another component of vibrations is the distance at which vibrations can be felt by humans. The vibrations study concluded that people within 150 feet of pile driving activities may experience vibrations that are considered annoying to humans. Both the Texas Street and Oakdale communities are more than 150 feet away from the closest proposed foundations that would require pile driving activities; therefore, neither of these communities should experience vibrations at a level that is considered annoying to humans.
Changes in health (vibrations) for residents near alternative routes that have degradation in level of service	No	The Africatown/Plateau community is located approximately three miles north of the proposed Mobile River Bridge; therefore, the area should not be able to feel the vibrations from pile-driving activities.
Hazardous Materials	No	Vehicles transporting hazardous materials are currently prohibited from using the tunnels. Therefore, they must use I-165, Bay Bridge Road (Africatown/Plateau community), and the Cochrane-Africatown USA Bridge to avoid the tunnels. The proposed project would provide a more direct, less congested route for trucks traveling on I-10 to cross Mobile River.
Water Quality	No	Impacts to water quality in areas of EJ concern are not anticipated. Implementation of Best Management Practices (BMPs) will prevent adverse effects on water quality. The 303(d) impaired water bodies that would be crossed by the proposed project are located in Baldwin County, not in proximity to areas of EJ concern. The proposed project would not alter the use designations of the water bodies within the project study area.
Waters of the U.S.	No	The project would not affect Waters of the U.S. in the areas of EJ concern.
T&E Species	No	The threatened and endangered species that could be affected by the proposed project are located along the portion of the project that would involve reconstruction of the Bayway, not within areas of EJ concern.
Drainage	No	Past discussions with the Texas Street and Oakdale communities indicated concerns about potential flooding from increased impervious surfaces. Subsequent to those

Impact Category	Impact on Areas of EJ Concern*	Comments
		discussions, the City of Mobile constructed drainage improvements to help alleviate the historical flooding issues in the area. Drainage infrastructure will be constructed as part of the proposed project to ensure that the pre and post-construction runoff rates are the same or lower than what currently exist, avoiding impacts on these areas.
Visual/Aesthetics	Yes	The Oakdale and Texas Street communities are located adjacent to existing I-10. These communities would have a view of the new approach structures leading up to the new bridge and the new Mobile River Bridge itself. The communities have expressed concerns about roadway lighting impacts and light spill onto residences adjacent to I-10.
Community Cohesion	Yes	The proposed project would not introduce new transportation facilities that would bisect EJ neighborhoods. The Africatown/Plateau community is currently bisected by Bay Bridge Road, which runs east-west through the community. I-10 currently runs along the eastern border of the Texas Street and Oakdale communities. The proposed project is expected to improve community cohesion for Texas Street and Oakdale by improving at-grade connections for vehicles, bicyclists, and pedestrians crossing I-10. Improved bicycle and pedestrian connectivity will also occur at the Virginia Street interchange. The proposed project is projected to cause increased congestion at intersections along Bay Bridge Road (in the Africatown/Plateau community) due to traffic avoiding the toll. Increased congestion is expected to result in worsening LOS and longer wait times at intersections along the non-tolled route during peak traffic hours. The intersection of Bay Bridge Road and Butts Street is expected to go from a LOS B in the 2016 existing and 2020 No Build scenarios to a LOS F in the 2020 and 2040 Build scenarios. It should be noted that congestion at this intersection is expected to be a LOS E in the 2040 No Build condition. Increased congestion could result in queues backing up over 1,600 feet in the 2040 Build condition during the periods of highest congestion. Existing queues at this location reach up to approximately 331 feet, and queues are projected to reach approximately 1,300 feet in the 2020 Build scenario and 995 feet in the 2040 No Build condition. Increased congestion may make it more difficult for residents to cross Bay Bridge Road or to turn onto Bay Bridge Road. Passenger vehicles and trucks currently use this route and are expected to continue to use this route with the implementation of the proposed project. During peak travel times, it can be difficult for local residents to cross from one

Impact Category	Impact on Areas of EJ Concern*	Comments
		side of Bay Bridge Road to the other, particularly at locations without traffic signals.
Economic Vitality	No	The proposed project is compatible with plans for economic development and tourism opportunities identified in Africatown's *Neighborhood Plan*, which was developed in conjunction with the City of Mobile in 2016.
Access and Availability of Public and Private Facilities and Service	No	Access to public and private facilities and services will be maintained during construction.
Employment Effects	Yes, beneficial impact	As discussed in the 2014 DEIS, construction of the proposed project is expected to create new jobs, which could be a beneficial effect of the proposed project.
Change in household disposable income and change in household financial burden	Yes	For EJ users who choose to use the tolled route, the expense of the toll would result in a decrease in their household income. The daily, weekly, monthly, and annual expenditure resulting from paying a toll would be directly attributable to the number of times the driver uses the tolled route per day. For example, if the toll is set at the upper end of the acceptable range, people in passenger vehicles who use the entire tolled route to make one trip between Mobile and Daphne would pay approximately $6 (in 2020 dollars) one-way. For comparison purposes, people who use the entire tolled route twice per weekday to commute for work would pay approximately $60 per week (if the toll is set at the upper end of the acceptable range). ALDOT will incorporate a frequent user discount program into their toll policy. More details on ALDOT's toll policy are included in Section 4.4.1 of the Supplemental DEIS.
Displacement of Persons, Businesses, Farms, and/or NPOs	Yes	As discussed in Section 4.5 of the Supplemental DEIS, one business with a minority tenant is expected to be relocated by the Preferred Alternative. As discussed in the DEIS, Alternative C would result in the acquisition of one minority-owned residence and three minority-tenant occupied residences.
Traffic Changes	Yes, but expected to be minimal; therefore, not a disproportionately high and adverse concern	The existing I-10 westbound off-ramp and I-10 eastbound on-ramp at the Texas Street interchange will be removed. According to the IMR, these ramps currently experience a low number of users. Removal of the ramps will prevent undesirable weave conditions between these ramps and the Canal Street/Water Street interchange. With the closure of these ramps, Texas Street traffic to and from I-10 would use city streets or the I-10 interchanges at either the Virginia Street or the Canal Street/Water Street. The travel distance from the Texas Street off ramp to I-10 at Virginia Street via Texas Street and Washington Street is approximately 0.9 mile which equates to just under 2 minutes in travel time, based upon a posted speed limit of 30 miles per hour. The travel distance from the Texas Street off ramp to I-10 at Canal Street/Water Street is approximately 1.1 miles which

Impact Category	Impact on Areas of EJ Concern*	Comments
		equates to just over 2 minutes in travel time, based upon a posted speed limit of 30 miles per hour.
Change in road use patterns (diversions to alternative routes or modes)	Yes	As discussed in this EJ Analysis, the select link analysis indicates that none of the trips originating the Africatown/Plateau community would use the new Mobile River Bridge to cross the Mobile River. This is largely attributed to the fact that the Africatown/Plateau community is located directly along the non-tolled route, making it more convenient to use the non-tolled route than the tolled route. There are limited crossings of the Mobile River, and the two crossings closest to the Africatown/Plateau community (Cochrane-Africatown USA Bridge and Bankhead Tunnel) will be part of the non-tolled system. Changes in road use patterns would affect other areas of EJ concern by diverting EJ users from I-10 to the non-tolled routes that will be more congested. As shown in Table EJ-3, total trips crossing the Mobile River and the Mobile Bay by EJ users are expected to decrease between the 2020 No Build and 2020 Build scenarios. The total trips crossing the Mobile River and the Mobile Bay by drivers from areas identified as low-income are also projected to be reduced between the No Build and Build scenarios for the years 2020, 2030, and 2040.
Increased travel on alternative routes or modes leads to degradation of level of service on the alternative routes or modes	Yes	The IMR indicates that congestion along Bay Bridge Road, the Cochrane-Africatown USA Bridge, US-90 between the Cochrane-Africatown USA Bridge and the Bankhead Tunnel, and the US-90/US-98 Causeway would be experienced beginning with the commencement of tolling under the Build scenario, impacting all users avoiding the tolled route. Increased congestion is expected to result in worsening LOS and longer wait times at intersections along the non-tolled route during peak traffic hours. The intersection of Bay Bridge Road and Butts Street is expected to go from a LOS B in the 2016 existing and 2020 No Build scenarios to a LOS F in the 2020 and 2040 Build scenarios. It should be noted that congestion at this intersection is expected to be a LOS E in the 2040 No Build condition. Increased congestion could result in traffic queues backing up over 1,600 feet in the 2040 Build condition during the periods of highest congestion. Existing queues at this location reach up to approximately 331 feet, and queues are projected to reach approximately 1,300 feet in the 2020 Build scenario and 995 feet in the 2040 No Build condition. These increases in congestion would impact the Africatown/ Plateau community.

Impact Category	Impact on Areas of EJ Concern*	Comments
		Additional details on LOS and congestion are contained in Table 4 of the Supplemental DEIS.
Denial of, reduction in, or significant delay in receipt of benefits of Federal programs, policies, or actions	No	The proposed project would be available to all users at their discretion. The proposed project would not result in the denial of, reduction in, or significant delay in receipt of benefits of other Federal programs, policies, or actions.
Bicycle/Pedestrian Facilities	Yes, beneficial impact	Currently, bicyclists and pedestrians in the Africatown/Plateau community who want to cross the Mobile River use the shoulders of the Cochrane-Africatown USA Bridge and existing sidewalks along Bay Bridge Road. The corridor does not contain crosswalks tied to signals along Bay Bridge Road to allow pedestrians and bicyclists to cross from one side of Bay Bridge Road to the other. The projected increases in traffic and congestion would likely make it more difficult for pedestrians and bicyclists to safely share the road with motorists and safely cross Bay Bridge Road. Residents in the Texas Street and Oakdale communities currently cross I-10 under existing bridges. However, many of these areas lack bicyclist and pedestrian facilities that meet current design criteria.

** Note: As discussed in Section 2.4.2 and shown on Figure EJ-4, areas of EJ concern are based on Census data available at the block group level for each TAZ. Due to limitations in Census data, low-income and/or minority populations may also exist in other TAZs not identified as areas of EJ concern. The reverse is also true in that non-minority and non-low-income populations may also exist in areas of EJ concern.*

Conclusions Regarding Potential Impacts on EJ Population

The proposed project would result in both adverse and beneficial impacts on EJ populations. Adverse impacts of disproportionately high and adverse concern include:

- Visual/aesthetics in Texas Street and Oakdale communities;
- Community cohesion in Africatown/Plateau community;
- Change in household disposable income and change in household financial burden, which could affect any of the areas of EJ concern;
- One displacement of a commercial minority tenant east of I-10 near Virginia Street interchange;
- Traffic changes resulting from diverted traffic to the non-tolled route, including Bay Bridge Road and Cochrane-Africatown USA Bridge within the Africatown/Plateau community, as well as the US-98 Causeway and Bankhead Tunnel, which are frequently used for trips beginning or ending in areas of EJ concern; and
- Increased travel on alternative routes or modes leads to degradation of level of service on the alternative routes or modes, including Bay Bridge Road and the Cochrane-Africatown USA Bridge in the Africatown/Plateau community.

Beneficial impacts include the following:

- Increased employment opportunities resulting from construction activities and
- Improved bicycle and pedestrian facilities.

2.4.4 Determine whether potential impacts on environmental justice populations would be considered "disproportionately high and adverse"

The FHWA and USDOT EJ Orders state that "disproportionately high and adverse" refers to an adverse effect that:

- Is predominately borne by a minority population and/or a low-income population; or
- Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population. When considering whether an effect is "disproportionately high and adverse," practitioners should include the community that may be affected in that discussion.

If the answers to the above-listed questions are no, then no further analysis is needed. If the answers to the above-listed questions are "yes," then measures to avoid, minimize, and/or mitigation disproportionately high and adverse impacts on EJ populations must be developed.

In order to make a determination regarding whether these adverse impacts are "disproportionately high and adverse," potential adverse impacts on EJ populations identified in Section 2.4.3 were compared to the impacts that would be experienced by non-EJ populations. **Table EJ-6** displays the results of this comparison and answers the questions of whether the adverse impacts would be predominantly borne by a minority and/or low-income population and whether the adverse impacts suffered by the minority and/or low-income population would be appreciably more severe or greater in magnitude than that suffered by the non-minority and/or non-low-income population.

Table EJ-6: Comparison of Adverse Impacts on Areas of EJ Concern and Other Populations

Impact Category	Disproportionately High and Adverse Impacts to an EJ Population?	Comments
Visual/Aesthetics	No	The new Mobile River Bridge and approach structures will introduce a large, new modern feature into the skyline that will be visible to areas of downtown Mobile and beyond. The project will also include new roadway lighting along the I-10 corridor and its interchanges, as well as aesthetic lighting. These impacts will be very visible from the Texas Street and Oakdale communities, as well as from other locations in proximity to the downtown area. Visual/aesthetic impacts would not be predominately borne by the EJ population, and this impact would not be appreciably more severe or greater in magnitude than the adverse effect experienced by non-EJ populations. Mitigation measures to minimize visual effects from the proposed project, including lighting, are included in the environmental commitments for the project.
Community Cohesion	Yes	While the proposed project would not introduce a new transportation facility that would bisect the Africatown/Plateau community, it would result in increased congestion along Bay Bridge Road. As a result, it may be more difficult for residents to cross Bay Bridge Road or turn onto Bay Bridge Road during periods of heavy congestion. Degradation of levels of service along the primary roadway accessing the Africatown/Plateau community will result in access challenges for the community. While congestion is also expected to increase around the Eastern Shore area, the residential population in the affected area is lower. Additionally, there is an area containing approximately five fish camps that is accessible by the US-90/US-98 Causeway that will also experience high congestion, but the population affected by this congestion is very limited. The Africatown/Plateau community is the only permanent residential area along the non-tolled route that is expected to experience impacts to the primary route used to access its community as a result of traffic diversion. Therefore, it has been determined that these effects will be predominately borne by the EJ population in the Africatown/Plateau community, and these impacts would be greater in magnitude than the adverse effect that will be suffered by non-EJ populations.
Changes in disposable household income and change in household financial burden	No	For anyone who chooses to use the tolled route, the expense of the toll would result in a decrease in their household income. The daily, weekly, monthly, and annual expenditure resulting from paying a toll would be directly attributable to the number of times the driver uses the tolled route per day. For example, if the toll is set at the upper end of the acceptable range, people in passenger vehicles who use the entire tolled route to make one trip between Mobile and Daphne would pay approximately $6 (in 2020 dollars) one-way. People who use the entire tolled route twice per weekday to commute for work would pay approximately $60 per week (if the toll is set at the upper end of the acceptable range).

Impact Category	Disproportionately High and Adverse Impacts to an EJ Population?	Comments
		The payment of a toll would represent a higher percentage of disposable household income for low-income households than non-low-income households. The select link analysis indicates that trips beginning in areas identified as low-income would decrease by around the same percentage as the trips beginning in areas identified as non-low-income. To help offset the cost of tolls for frequent users, ALDOT will implement a frequent user discount program. More details on ALDOT's toll policy are included in Section 4.4.1 of the Supplemental DEIS. This impact would not be predominantly borne by EJ users, as the select link analysis indicates that trips beginning in areas identified as low-income would decrease by around the same percentage as the trips beginning in areas not identified low-income in the 2020, 2030, and 2040 Build scenarios. The select link analysis indicates that trips from the areas identified as low-income would make up approximately 4% of the overall trips crossing the Mobile River and Mobile Bay in the 2020 and 2040 No Build and Build scenarios. As a result, the vast majority of users paying the toll would not be low-income users; therefore, this impact would not be predominantly borne by EJ populations, and this impact would not be appreciably more severe or greater in magnitude than the adverse effect experienced by non-minority or non-low-income populations. Therefore, these impacts are not disproportionately high and adverse on EJ populations.
Displacement of Persons, Businesses, Farms, and/or NPOs	No	One business with a minority tenant is expected to be displaced by the Preferred Alternative out of 25 business relocations. Alternative A would not result in any minority displacements. Alternative B would result in the displacement of one business with a minority tenant. Alternative C would result in the displacement of one minority-owned residence and three minority-tenant occupied residences. No other residential relocations would be required. This impact of the Preferred Alternative would not be predominantly borne by EJ users, and this impact would not be appreciably more severe or greater in magnitude than the adverse effect experienced by non-minority or non-low-income populations. Therefore, these impacts are not disproportionately high and adverse on EJ populations.
Change in road use patterns (diversions to alternative routes or modes)	No	The IMR indicates that traffic would be diverted from the tolled route to the non-tolled route to avoid paying tolls. All drivers on the non-tolled route would experience these impacts, and the majority of the users on the non-tolled route would not originate or end in areas of EJ concern. Therefore, this impact would not be predominantly borne by EJ users, and this impact would not be appreciably more severe or greater in

<table>
<tr><th>Impact Category</th><th>Disproportionately High and Adverse Impacts to an EJ Population?</th><th>Comments</th></tr>
<tr><td></td><td></td><td>magnitude than the adverse effect experienced by non-EJ populations.</td></tr>
<tr><td>Increased travel on alternative routes or modes leads to degradation of level of service on the alternative routes or modes</td><td>Yes</td><td>The IMR indicates that the LOS along Bay Bridge Road, the Cochrane-Africatown USA Bridge, US-90 between the Cochrane-Africatown USA Bridge and the Bankhead Tunnel, and the US-90/US-98 Causeway is expected to worsen by 2040 without the proposed project because drivers will use alternate routes to avoid congestion on I-10, particularly to avoid the Wallace Tunnel.

While the proposed project would not introduce a new transportation facility that would bisect the Africatown/Plateau community, it would result in increased congestion along Bay Bridge Road. As a result, it may be more difficult for residents to cross Bay Bridge Road or turn onto Bay Bridge Road during periods of heavy congestion. Degradation of LOS along the primary roadway accessing the Africatown/Plateau community will result in access challenges for the neighborhood. Increased congestion is expected to result in worsening LOS and longer wait times at intersections along the non-tolled route during peak traffic hours. The intersection of Bay Bridge Road and Butts Street in the Africatown/Plateau community is expected to go from a LOS B in the 2016 existing and 2020 No Build scenarios to a LOS F in the 2020 and 2040 Build scenarios. It should be noted that congestion at this intersection is expected to be a LOS E in the 2040 No Build condition.

The LOS for the non-tolled route for the 2016 Existing 2040 No Build, 2020 Build, and 2040 Build scenarios are as follows:

<table>
<tr><th>Route</th><th>2016 Existing</th><th>2040 No Build</th><th>2020 Build</th><th>2040 Build</th></tr>
<tr><td>Bay Bridge Road</td><td>B</td><td>D</td><td>D</td><td>E</td></tr>
<tr><td>Cochrane-Africatown USA Bridge</td><td>B</td><td>D</td><td>D</td><td>E</td></tr>
<tr><td>US-90 between Cochrane-Africatown USA Bridge and Bankhead Tunnel</td><td>B</td><td>C</td><td>C</td><td>C</td></tr>
<tr><td>US-90/US-98 Causeway</td><td>D</td><td>E</td><td>E</td><td>F</td></tr>
</table>

Increased congestion could result in queues backing up over 1,600 feet in the 2040 Build condition in the 2040 Build condition during the periods of highest congestion. Existing queues at this location reach up to approximately 331 feet, and queues are projected to reach approximately 1,300 feet in the 2020 Build scenario and 995</td></tr>
</table>

Impact Category	Disproportionately High and Adverse Impacts to an EJ Population?	Comments
		feet in the 2040 No Build condition. These increases in congestion would impact the Africatown/Plateau community. While congestion is also expected to increase around the Eastern Shore area, the residential population in the affected area is lower. Additionally, there is an area containing approximately five fish camps that is accessible by the US-90/US-98 Causeway that will also experience high congestion, but the population affected by this congestion is very limited. The Africatown/Plateau community is the only permanent residential area along the non-tolled route that is expected to experience impacts to the primary route used to access its community as a result of traffic diversion. Therefore, it has been determined that these impacts would be predominantly borne by the EJ population in the Africatown/Plateau communities, and these impacts would be greater in magnitude than the adverse impact experienced by non-EJ populations.

** Note: As discussed in Section 2.4.2 and shown on Figure EJ-4, areas of EJ concern are based on Census data available at the block group level for each TAZ. Due to limitations in Census data, low-income and/or minority populations may also exist in other TAZs not identified as areas of EJ concern.*

EJ Outreach

Engagement with affected EJ communities is an important part of the process used to identify potential impacts on those communities and to develop appropriate mitigation measures.

ALDOT held community workshops specifically to discuss the potential effects of the proposed project on EJ communities. The first workshop was held on Monday, June 18, 2018 at the James M. Seals Community Center at 540 Texas Street, Mobile, Alabama 36603. This workshop focused on the Texas Street and Oakdale communities. The second workshop was held on Tuesday, June 19, 2018 at the Robert L. Hope Community Center at 850 Edwards Street, Mobile, Alabama 36610. This workshop focused on the Africatown/Plateau community.

Postcards were designed specifically for these workshops. More than 5,000 postcards were mailed directly to residents and property owners along mail routes in the Texas Street, Oakdale, and Africatown/Plateau communities. In addition, postcards were placed in the Texas Street Community Center, the Robert L. Hope Community Center, Greater Pine Grove AME Church, and the First Hopewell Baptist Church, all of which are located within the potentially affected EJ communities. Information about the workshops was also sent to the Africatown Community Development Corporation and the Africatown Business and Community Panel for distribution throughout the community. The Africatown Community Development Corporation is the official Africatown domestic non-profit foundation charged with protecting the Mobile's African American Heritage. The Africatown Business and Community Panel is a non-profit organization that was formed to foster understanding between businesses and residents in the Africatown/Plateau community.

The workshops were held from 5:00-7:00 p.m. on weeknights that would not conflict with church activities.

Brief presentations were made at each meeting, focusing on issues relative to each of the communities. Roll maps were also displayed at each meeting, and representatives of FHWA, ALDOT, and the project team were available to answer questions and discuss the project with interested citizens. Copies of the workshop materials are included in **Attachment C** of this document.

Despite efforts to encourage participation, turnout at the workshops was low. Nine citizens attended the Texas Street/Oakdale workshop, and thirteen citizens attended the Africatown/Plateau workshop. A total of seven written comments were received. One comment was submitted at the Texas Street/Oakdale workshop, and six comments were submitted at the Africatown/Plateau workshop. A summary of the input received from the workshops is contained in **Table EJ-7**. Responses to comments received are included in **Attachment C** of this document.

Table EJ-7: Summary of Input Received from EJ Community Workshops

Question		Answer
1.	What impacts do you think will happen to the community as a result of the project?	Received at the Texas Street/Oakdale Workshop: - Believe that it will cause a hardship on our community should a toll be enforced. Received at the Africatown/Plateau Workshop: - I think it will be a nice thing to happen in this area and people around have a lot to see and be safe. It will be a good way to see a part of Mobile. - I am sure it will eliminate traffic or slow down traffic in certain areas. - More tourists. - Too much traffic on Bay Bridge Road. - Positive influence on tourism. - Bring jobs to the area and hopefully people in our area.
2.	What are your thoughts on the project?	Received at the Texas Street/Oakdale Workshop: - Concerned about cost, what will happen to the existing infrastructure, and we are interested in seeing a bike lane added for residents. Received at the Africatown/Plateau Workshop: - It looks good, and it is time for a new change because there are more people traveling on the highway. - Excellent - I think that it is a good project for out of town people. They will get to the beach faster. - Long overdue. Traffic backs up on I-10 east Monday through Friday starting about 3:30 p.m. - The sooner, the better.
3.	How often do you use the Cochrane-Africatown Bridge, Wallace Tunnels, Bankhead Tunnel, Bay Bridge Road, and the Causeway? Which of those routes do you prefer, and	Received at the Texas Street/Oakdale Workshop: - We use Bankhead and Causeway three to five times per week. Reasons: recreation and shopping, getting to Florida at least three times per month. Use both at least weekly. Received at the Africatown/Plateau Workshop: - We use all every day. Reason: other. - Two or three times weekly. Reason: none listed. - Use Bay Bridge Road every day. Reason: church.

Question		Answer
	why do you use them (work, recreation, other)?	- At least three times per week. Preferred route: Cochrane-Africatown USA Bridge. No reason listed. - Twice per week in spring and summer (fishing time). Preferred routes are Cochrane-Africatown USA Bridge and Causeway. Reason: Recreation - Very frequent (five to six times per week). Preferred routes are Cochrane-Africatown USA Bridge, Bay Bridge Road, and Causeway. Reasons: For recreation and view.
4.	Given the potential impacts, how can ALDOT help your community?	Received at Texas Street/Oakdale Workshop: - Ensure that increased traffic is not put through our neighborhood. Parents are elderly and we are concerned with the noise of the work that will be done. Will it impact our quality of life? Received at Africatown/Plateau Workshop: - I'm excited about everything presented. - Can you do something about Paper Mill Road? - Hopefully some businesses will come to Africatown Boulevard [Bay Bridge Road]. Consider another traffic lighting on Africatown Boulevard [Bay Bridge Road]. Resurface Paper Mill Road. - More traffic lights on Bay Bridge Road. Resurface Paper Mill Road and Woodland Street to re-route some of the traffic. Attempt to hire people from the community.
5.	What impact will tolling have on your household budget?	Received at Texas Street/Oakdale Workshop: - It would significantly increase my budget and may cause me to remain in Mobile instead of traveling to Daphne. Received at Africatown/Plateau Workshop: - $3 to $6 seems a little much. $1.50 to $2 sounds better. - None. - None or very little. - It will depend upon the fee. I am on a fixed income.
6.	Tell us about your community. What is happening that we need to know as we plan for the future?	Received at Texas Street/Oakdale Workshop: - The community is an older community. My family uses the tunnels to travel back and forth for travel to Florida and shopping in Daphne and Malbis. It is easier to use the Causeway to shop due to the time of travel. Received at Africatown/Plateau Workshop: - Africatown is a historical area. I'm a direct descendant. The future for this area, make it a tourist area. - Blueway project is in the pipeline. Information and tourist center to be constructed in Africatown. Several tourist attractions are in the area (Mobile County Technical School, ancient old cemetery, and historic markers). - We need a traffic light re-installed at the entry of Union Missionary Baptist Church. Difficult for members to get into church and out of church after Sunday service.
7.	How can we be sure we're reaching your neighbors?	Received at Texas Street/Oakdale Workshop: - Mail invites and notices. Use the next door app. Received at Africatown/Plateau Workshop: - Churches/flyers - Give information to local tv stations and announcements to area churches. - Newsletters, newspapers, flyers, tv, radio, door to door
8.	Was this meeting time and location	Received at Texas Street/Oakdale Workshop: - Yes

Question		Answer
	convenient for you?	Received at Africatown/Plateau Workshop: - Four people responded "yes." - 5 p.m. after work.

Table EJ-8 displays a summary of EJ outreach activities that have occurred since the DEIS was signed in 2014, including activities that are currently underway. Input received from additional outreach activities will be included in the FEIS/ROD. Outreach strategies have been adjusted based upon recommendations from members of the EJ communities. These strategies include distributing handouts and surveys through the Africatown CDC, coordinating with the pastor of the Union Missionary Baptist Church to obtain input from the congregation, and attending basketball games at local community centers in the community to distribute project flyers and surveys and discuss the project, its potential impacts, and proposed mitigation strategies.

Table EJ-8: Summary of EJ Outreach since DEIS

Activity	Topics	Response/Input from EJ Community
Africatown Community Development Corporation (CDC) Meetings	ALDOT, at the request of the CDC, has participated in three CDC meetings since 2016 to provide project updates, including bicyclist/pedestrian facilities, potential impacts, and proposed mitigation measures.	Requested regular attendance at meetings to provide updates on status of project; community leaders indicate that they welcome the project and think it will be good for Africatown/Plateau community and the entire Mobile/Baldwin area.
Bicycle/Pedestrian Public Workshop (October 27, 2016)	Held at James Seals Community Center on Texas Street within EJ community.	Received petition from Africatown/Plateau community with 95 signatures supporting improvement for bicyclist/pedestrian facilities along Bay Bridge Road/Cochrane-Africatown Bridge route.
Texas Street Community Workshop (June 18, 2018)	Held at James Seals Community Center on Texas Street within EJ community.	Sent approximately 5,000 specially designed postcards to invite residents and business owners to the EJ community workshops; distributed flyers to community centers and churches within communities; Received input on potential mitigation measures.
Africatown Community Workshop (June 19, 2018)	Held at Hope Community Center in Africatown.	

Activity	Topics	Response/Input from EJ Community
Africatown CDC/Business Community Partners (BCP) Holiday Social (December 7, 2018)	Approximately 40 people attended. Attendees appreciated the update and asked to be kept informed of the project's progress.	Received one verbal comment from a resident who recommended putting a signal at the Union Missionary Baptist Church and reaching out to pastor at Union Missionary Baptist Church; also talked about how traffic may help attract services back to Africatown/Plateau community which used to be a thriving community.
Surveys provided to residents via the Africatown CDC and community leaders	Handout provided that explains the purpose of the project; potential impacts that may occur; and proposed mitigation measures. Survey requests feedback from the community on both impacts and proposed mitigation measures. A copy of the handout with the survey is contained **Attachment D**.	
Requested opportunities to meet with Africatown Clean Healthy Educated Safe and Sustainable (CHESS) organization	ALDOT has reached out via e-mail and telephone to participate in CHESS meetings to discuss project, potential impacts, and mitigation measures.	
Tabling Events within EJ Community	Attended basketball practices and games at Hope Community Center to discuss project with members of the community in February 2019.	Talked to residents about project and asked for input on potential impacts and mitigation measures.
Community Meeting at Union Missionary Baptist Church	Joint meeting with Councilman Manzie to discuss project, potential impacts, and mitigation measures.	Held on March 19, 2019.
Community Meeting for Texas Street/Oakdale Community	Joint meeting with Councilman Manzie to discuss project, potential impacts, and mitigation measures.	ALDOT is working with Councilman Manzie to schedule this meeting.

ALDOT recognizes that turnout at the EJ Workshops was lower than anticipated and desired. Because this project has been studied for two decades, many people feel like this project is not close to being a reality; therefore, there is no sense of urgency to participate in discussions about the project. This is a challenge that must be overcome by engaging with EJ communities in small group settings to educate them on the timeline for the project and what the project may mean to their communities.

In order to reach minority and low-income populations in areas that may be affected by the proposed project, ALDOT has implemented an EJ outreach program. The goal of this program is to further develop relationships with the community and promote involvement in the project as it moves through the environmental, design, construction, and post-construction phases. The overall objective of EJ outreach is to ensure that minority and/or low-income individuals are given opportunities to provide meaningful input on projects that may affect their environment or health.

To achieve more successful participation with EJ communities on the proposed project, ALDOT has identified outreach strategies that should result in more effective and meaningful interaction with areas of EJ concern. These strategies are focused on encouraging dialogue and two-way conversations, rather than presenter/observer settings. The strategies offer avenues to engage with community members and leaders, provide accurate information in a timely manner, educate audiences on the proposed project and how it may affect communities, seek feedback, and support ALDOT's commitment for transparency.

ALDOT reached out to the City Councilman who represents the Africatown and Texas Street/Oakdale areas to arrange community meetings. The Africatown community meeting was held on March 19, 2019, at the Union Missionary Baptist Church. A total of 49 citizens signed in at the meeting. ALDOT presented information about the project, its potential impacts, and mitigation measures to be implemented for the community. Attendees were provided with a project information sheet and comment form and were encouraged to provide comments to ALDOT. At the time this EJ Assessment was prepared, the comment period was still open. Comments received from the Africatown community and responses to those comments, along with any other community meetings that are held to discuss the project, will be included in the FEIS/ROD for the project.

2.4.5 Develop measures to avoid, minimize, and/or mitigate disproportionately high and adverse impacts on environmental justice populations

The proposed project is expected to have disproportionately high and adverse impacts on EJ populations in the Africatown/Plateau community due to traffic diverting to the non-tolled route to avoid the toll as shown in **Table EJ-6**. Mitigation measures were presented to the Africatown/Plateau community at the EJ Workshop on June 19, 2018, at the Africatown CDC/BCP holiday social on December 7, 2018, and at the Africatown community meeting on March 19, 2019. Members of the community indicated that they were in support of the mitigation measures, and the commitment to resurface Paper Mill Road from Bay Bridge Road to US 43 was added as a result of the feedback from the EJ Workshop. In addition to soliciting input from the community at the EJ Workshops, feedback from the community on the mitigation measures was requested in surveys that have been distributed to the community via the Africatown CDC, at local tabling events at the community centers, and through churches in Africatown/Plateau community.

To mitigate adverse impacts resulting from traffic diverting to the non-tolled route within the Africatown/Plateau community, ALDOT will implement the measures presented in **Table EJ-9**.

Table EJ-9: EJ Mitigation Measures

Type of Impact	**Mitigation Measure**	**Benefits to Africatown/Plateau Community**
Traffic congestion resulting from traffic diversion on non-tolled route (degradation of level of service)	ALDOT will adjust signal timing along the non-tolled route, including Bay Bridge Road, to better accommodate local traffic movements.	Will minimize interruptions to the primary roadway used to access the Africatown/Plateau community and will ensure ingress and egress to the community
	Based on current traffic projections, ALDOT will develop an access	Will help maintain traffic flow along the preferred route used by residents of the

Type of Impact	Mitigation Measure	Benefits to Africatown/Plateau Community
	management plan to help facilitate access to and from destinations along the US-90/US-98 Causeway. Strategies included in this access management plan may include installing traffic signals, medians with U-turns, mid-block signals, as well as other appropriate techniques. The access management plan will be implemented prior to tolling commencement.	Africatown/Plateau community to cross Mobile Bay
Community Cohesion	ALDOT will provide traffic signals at Union Missionary Baptist Church and Bay Bridge Road Cutoff.	Will improve access to and from the church located on Bay Bridge Road in the Africatown/Plateau community and will improve connectivity between destinations north and south of Bay Bridge Road
	ALDOT will construct the Cochrane-Africatown USA Bridge Shared Use Path from the I-165 ramp at Bay Bridge Road to US-90 on east side of Mobile River and will work with local municipalities to provide future extensions from downtown to the USS ALABAMA Battleship Memorial Park.	Will improve bicycle and pedestrian access to and from the Africatown/ Plateau community and will provide stronger separation from vehicular traffic. At the October 2015 bicycle and pedestrian public workshop, the Africatown/Plateau community voiced their support for the Cochrane-Africatown USA Shared Use Path to cross the Mobile River. The community submitted a petition with 95 signatures in favor of this route. This path would provide connectivity to various points of interest proposed as part of the 2016 Africatown *Neighborhood Plan* developed by the City of Mobile and Africatown residents and community stakeholders. It would also provide connectivity to the Africatown Connections Blueway, which will include a recreation facility on the west side of the Mobile River in close proximity to the Cochrane-Africatown USA Bridge.
	Crosswalks at signals along Bay Bridge Road will be provided to help pedestrians and cyclists cross from one side of Bay Bridge Road to the other.	Will improve connectivity and safety for bicyclist and pedestrian traffic crossing Bay Bridge Road
	Landscaping and historical/interpretive signage will be included along the Cochrane-Africatown USA Shared Use Path.	Will satisfy short-term actions listed in the Africatown *Neighborhood Plan* to provide streetscape/gateway improvements on Bay Bridge Road and

Type of Impact	Mitigation Measure	Benefits to Africatown/Plateau Community
		to support the area's heritage tourism plan
	Paper Mill Road will be resurfaced from Bay Bridge Road to US 43. Streetscaping will be included along this route.	Will improve condition of a roadway that is commonly used by Africatown/Plateau residents to reach I-65 and employment centers in areas north and south of the Africatown/ Plateau community. Streetscaping along this route will fulfill an action item in Africatown's *Neighborhood Plan*.

Implementation of the mitigation measures will not offset the identified disproportionately high and adverse impacts on EJ populations. There is no practicable alternative that would avoid or reduce the disproportionately high and adverse impacts. There is a substantial need for the project based on the best overall public interest, as congestion on the I-10 corridor continues to grow due to lack of adequate capacity. The mitigation measures will provide a benefit to the Africatown/Plateau community by addressing access, congestion, and speed issues that are currently experienced and would continue to be experienced without the project, as well as those that are projected to result from the project. ALDOT will work with the Africatown/Plateau community to implement the mitigation measures through community outreach, public meetings, and/or a steering committee. This will provide continued opportunities for involvement of Africatown/Plateau representatives to promote compatibility with plans for the Africatown/Plateau community's development and growth.

2.4.6 Include all findings and determinations in the NEPA document prepared for the proposed project.

This EJ Assessment will be included as an appendix to the Supplemental DEIS prepared for the proposed project.

Measures selected to avoid, minimize, and/or mitigate adverse effects are included as environmental commitments in the FEIS/ROD to be carried forward throughout the design, construction, and post-construction phases.

3.0 Mobile Area MPO EJ Analysis

The Mobile Area MPO is required to evaluate the effects of all projects in the planning area for potential impacts on EJ populations. As part of an update to the *Destination 2040 Long Range Transportation Plan*, the Mobile Area MPO performed a separate EJ analysis to determine the potential impacts of the proposed project on travel times within the overall transportation network with and without a toll. The model identifies destinations, such as employment locations, medical facilities, educational facilities, and retail areas, as "attraction zones." Areas of EJ concern are called "target zones." The Mobile Area MPO's EJ analysis focuses on changes in travel times to and from destinations of interest, such as employment locations, medical facilities, educational facilities, and retail areas. The Mobile Area MPO's model concluded that "overall, there will be a comparable increase in travel time to both EJ and non-EJ zones due to the toll." Therefore, there are no disproportionately high and adverse impacts on EJ populations related to travel times. The amendment to the Long Range Transportation Plan was adopted by the Mobile Area MPO on October 31, 2018.

4.0 Conclusions

The proposed project is expected to result in adverse impacts on EJ populations in Mobile County. The projected impacts on the Africatown/Plateau community due to traffic diverting onto the non-tolled route are expected to be disproportionately high and adverse on EJ populations.

Implementation of the mitigation measures will not offset the identified disproportionately high and adverse impacts on EJ populations. There is no practicable alternative that would avoid or reduce the disproportionately high and adverse impacts. There is a substantial need for the project based on the best overall public interest, as congestion on the I-10 corridor continues to grow due to lack of adequate capacity. The mitigation measures will provide a benefit to the Africatown/Plateau community by addressing access, congestion, and speed issues that are currently experienced and would continue to be experienced without the project, as well as those that are projected to result from the project. ALDOT will work with the Africatown/Plateau community to implement the mitigation measures through community outreach, public meetings, and/or a steering committee. This will provide continued opportunities for involvement of Africatown/Plateau representatives to promote compatibility with plans for the Africatown/Plateau community's development and growth.

Attachment A

Demographic Profile

FIELD NAME	DEFINITION	DESCRIPTION/SOURCE
STATEFP	Census State FIPS Code	Alabama is Code 01
COUNTYFP	Census County FIPS Code	Mobile County is Code 097, Baldwin County Code 003
TRACTCE	Census Tract Code	Census Tract Code
BLKGRPCE	Blockgroup Code	Blockgroup Code
GEOID	Census Geographic Unique Identifier	Concatenation of STATEFP, COUNTYFP, TRACTCE AND BLCKGRPCE
NAMELSAD	Block Group Long Name	
PNT_NONWH	Percent "Non-While Alone" total population.	Field calculated by Thompson Engineering using B02001e1 and B02001e2 fields from table X02 RACE
B02001e1	RACE: Total: Total population	American Community Survey Blockgroup Metadata
B02001m1	RACE: Total: Total population -- (Margin of Error)	American Community Survey Blockgroup Metadata
B02001e2	RACE: White alone: Total population -- (Estimate)	American Community Survey Blockgroup Metadata
B02001m2	RACE: White alone: Total population -- (Margin of Error)	American Community Survey Blockgroup Metadata
B19013e1	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Estimate)	American Community Survey Blockgroup Metadata
B19013m1	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Margin of Error)	American Community Survey Blockgroup Metadata
B25010e1	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Estimate)	American Community Survey Blockgroup Metadata
B25010m1	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Margin of Error)	American Community Survey Blockgroup Metadata
MINORITY	Indicates if BG is considered "minority" BG if total Non-White Alone" population is greater than 50% based on PNT_NONWH field.	Thompson Engineering
HHS2015Pov	Indicates if BG is considered "poverty" BG based on HHS 2015 Poverty Guidelines for the 48 Contiguous States. Based on HHS guidelines and field B25010e1 and B19013e1. Compared average household size and median income for BG to HHS Poverty Guidelines for that household size. If tenths were 5 or greater, household size was rounded up.	Thompson Engineering

ACS 5 Year Estimates for Alabama by Block Group Geodatabase Extract. Includes only Baldwin and Mobile County block groups and contains pertinent select data from the following tables: X02 RACE, X19 INCOME, X25 HOUSING CHARACTERISTICS

For the last 12 months means for the 2015 year.

COUNTYFP	TAZ	TRACTCE	BLKGRPCE	NAMELSAD	PNT_NONWH	B02001e1	B02001e2	B19013e1	B25010e1	2015 HHS Poverty Guidelines	MINORITY	HHS2015Pov
COUNTY CODE	TRAFFIC ANALYSIS ZONE FROM CDM SMITH TRAVEL DEMAND MODEL	TRACT CODE	BLOCKGROUP	BLCKGROUP LONG NAME	Percent "Non-While Alone" total population.	RACE: Total: Total population	RACE: White alone: Total population -- (Estimate)	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Estimate) ($)	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Estimate)	HHS 2015 Poverty Guidelines for Household Size ($)	Indicates if BG is considered "minority" BG if total Non-White Alone" population is greater than 50% based on PNT_NONWH field.	Indicates if BG is considered "poverty" BG based on HHS 2015 Poverty Guidelines for the 48 Contiguous States. Based on HHS guidelines and field B25010e1 and B19013e1.
097	29	000401	1	Block Group 1	100.000	9	-	$ -	0.00	-	YES	YES
097	29	000401	3	Block Group 3	98.760	484	6	$ 16,250	2.26	$ 15,930	YES	NO
097	26	000401	4	Block Group 4	100.000	414	-	$ 14,743	2.37	$ 15,930	YES	YES
097	29	000401	2	Block Group 2	100.000	407	-	$ 15,882	2.51	$ 20,090	YES	YES
097	25	000402	1	Block Group 1	100.000	668	-	$ 15,246	2.04	$ 15,930	YES	YES
097	27	000500	2	Block Group 2	100.000	495	-	$ 23,750	2.86	$ 20,090	YES	NO
097	27, 28	000500	1	Block Group 1	99.737	1,521	4	$ 22,739	2.85	$ 20,090	YES	NO
097	89	000600	1	Block Group 1	99.144	935	8	$ 17,067	2.13	$ 15,930	YES	NO
097	90	000600	2	Block Group 2	91.120	1,295	115	$ 16,222	2.73	$ 20,090	YES	YES
097	88	000701	1	Block Group 1	100.000	1,033	-	$ 21,250	2.98	$ 20,090	YES	NO
097	88	000701	3	Block Group 3	100.000	715	-	$ 30,000	3.49	$ 20,090	YES	NO
097	88	000701	2	Block Group 2	100.000	595	-	$ 35,913	3.36	$ 20,090	YES	NO
097	91	000702	2	Block Group 2	100.000	514	-	$ 28,510	1.98	$ 15,930	YES	NO
097	91	000702	1	Block Group 1	100.000	926	-	$ 24,063	2.64	$ 20,090	YES	NO
097	92	000702	3	Block Group 3	98.660	970	13	$ 19,659	2.57	$ 20,090	YES	YES
097	85	000800	3	Block Group 3	94.639	1,343	72	$ 32,083	2.65	$ 20,090	YES	NO
097	86	000800	1	Block Group 1	83.376	782	130	$ 40,968	2.28	$ 15,930	YES	NO
097	86	000800	5	Block Group 5	100.000	963	-	$ 33,810	2.80	$ 20,090	YES	NO
097	87	000800	4	Block Group 4	100.000	931	-	$ 17,083	3.04	$ 20,090	YES	YES
097	86	000800	2	Block Group 2	100.000	701	-	$ 23,447	3.59	$ 24,250	YES	YES
097	41	000903	1	Block Group 1	61.038	1,599	623	$ 39,792	2.52	$ 20,090	YES	NO
097	36	001001	1	Block Group 1	54.352	517	236	$ 26,591	2.02	$ 15,930	YES	NO
097	40	001002	1	Block Group 1	87.423	485	61	$ 31,490	1.96	$ 15,930	YES	NO
097	38	001100	3	Block Group 3	100.000	823	-	$ 18,413	1.91	$ 15,930	YES	NO
097	38	001100	1	Block Group 1	100.000	401	-	$ 17,538	1.96	$ 15,930	YES	NO
097	39	001100	2	Block Group 2	84.177	632	100	$ 34,250	2.31	$ 15,930	YES	NO
097	15, 16, 18, 119, 17, 22, 23, 24, 20, 21, 313, 22, 104, 102, 103	001200	1	Block Group 1	66.078	5,828	1,977	$ 20,250	2.71	$ 20,090	YES	NO
097	46	001200	2	Block Group 2	100.000	614	-	$ 18,869	2.84	$ 20,090	YES	YES
097	45	001302	2	Block Group 2	93.030	990	69	$ 25,804	2.61	$ 20,090	YES	NO
097	44	001302	1	Block Group 1	97.577	1,073	26	$ 28,846	3.33	$ 20,090	YES	NO
097	45	001302	3	Block Group 3	100.000	814	-	$ 10,966	2.61	$ 20,090	YES	YES
097	42	001400	1	Block Group 1	99.385	650	4	$ 33,594	2.69	$ 20,090	YES	NO
097	43	001400	3	Block Group 3	100.000	509	-	$ 16,696	2.18	$ 15,930	YES	NO
097	43	001400	2	Block Group 2	98.347	726	12	$ 22,976	2.20	$ 15,930	YES	NO
097	48	001501	1	Block Group 1	99.300	857	6	$ 16,713	2.19	$ 15,930	YES	NO
097	48	001501	2	Block Group 2	100.000	757	-	$ 9,342	2.47	$ 15,930	YES	YES
097	47	001502	1	Block Group 1	100.000	1,396	-	$ 9,492	2.68	$ 20,090	YES	YES
097	164	001800	2	Block Group 2	66.750	1,200	399	$ 33,828	2.33	$ 15,930	YES	NO

COUNTYFP	TAZ	TRACTCE	BLKGRPCE	NAMELSAD	PNT_NONWH	B02001e1	B02001e2	B19013e1	B25010e1	2015 HHS Poverty Guidelines	MINORITY	HHS2015Pov
COUNTY CODE	TRAFFIC ANALYSIS ZONE FROM CDM SMITH TRAVEL DEMAND MODEL	TRACT CODE	BLOCKGROUP	BLCKGROUP LONG NAME	Percent "Non-While Alone" total population.	RACE: Total: Total population	RACE: White alone: Total population -- (Estimate)	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Estimate) ($)	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Estimate)	HHS 2015 Poverty Guidelines for Household Size ($)	Indicates if BG is considered "minority" BG if total Non-White Alone" population is greater than 50% based on PNT_NONWH field.	Indicates if BG is considered "poverty" BG based on HHS 2015 Poverty Guidelines for the 48 Contiguous States. Based on HHS guidelines and field B25010e1 and B19013e1.
097	162	001800	1	Block Group 1	58.044	1,125	472	$ 31,828	2.84	$ 20,090	YES	NO
097	160	001901	1	Block Group 1	70.121	907	271	$ 26,984	2.97	$ 20,090	YES	NO
097	163	001902	1	Block Group 1	65.343	1,737	602	$ 31,378	2.56	$ 20,090	YES	NO
097	159	001902	2	Block Group 2	54.619	617	280	$ 52,273	2.22	$ 15,930	YES	NO
097	56	002100	3	Block Group 3	86.373	1,886	257	$ 34,728	3.44	$ 20,090	YES	NO
097	57	002100	1	Block Group 1	58.987	1,263	518	$ 42,713	3.34	$ 20,090	YES	NO
097	57	002100	2	Block Group 2	86.532	943	127	$ 38,304	3.18	$ 20,090	YES	NO
097	54	002200	2	Block Group 2	76.913	784	181	$ 22,857	2.99	$ 20,090	YES	NO
097	55	002200	3	Block Group 3	80.705	1,135	219	$ 28,148	2.98	$ 20,090	YES	NO
097	58	002200	1	Block Group 1	72.098	939	262	$ 38,875	2.94	$ 20,090	YES	NO
097	52	002301	2	Block Group 2	94.956	912	46	$ 26,987	2.83	$ 20,090	YES	NO
097	53	002301	3	Block Group 3	80.469	640	125	$ 36,554	2.71	$ 20,090	YES	NO
097	53	002301	1	Block Group 1	100.000	325	-	$ 24,048	2.58	$ 20,090	YES	NO
097	51	002302	2	Block Group 2	98.598	856	12	$ 26,938	2.82	$ 20,090	YES	NO
097	50	002302	1	Block Group 1	95.764	1,204	51	$ 15,486	3.41	$ 20,090	YES	YES
097	65	002400	1	Block Group 1	97.114	797	23	$ 21,959	2.42	$ 15,930	YES	NO
097	64	002400	2	Block Group 2	91.253	1,189	104	$ 27,943	2.88	$ 20,090	YES	NO
097	63, 64	002400	3	Block Group 3	61.688	1,031	395	$ 34,188	2.12	$ 15,930	YES	NO
097		002600	2	Block Group 2	79.535	645	132	$ 23,750	2.03	$ 15,930	YES	NO
097	82, 83	002600	3	Block Group 3	96.197	1,420	54	$ 33,693	3.07	$ 20,090	YES	NO
097	84	002600	1	Block Group 1	85.246	305	45	$ 11,599	1.13	$ 11,770	YES	YES
097	74, 77	002700	1	Block Group 1	82.151	1,283	229	$ 31,328	2.72	$ 20,090	YES	NO
097	75, 76	002700	2	Block Group 2	94.802	1,212	63	$ 14,567	2.51	$ 20,090	YES	YES
097	79	002800	3	Block Group 3	54.758	1,324	599	$ 29,940	2.64	$ 20,090	YES	NO
097	79	002800	2	Block Group 2	81.359	1,148	214	$ 24,809	3.49	$ 20,090	YES	NO
097	59	002900	2	Block Group 2	50.285	1,229	611	$ 33,333	2.29	$ 15,930	YES	NO
097	60, 61, 284, 285	002900	3	Block Group 3	59.566	1,568	634	$ 30,016	2.37	$ 15,930	YES	NO
097	156	003000	2	Block Group 2	52.182	1,123	537	$ 43,701	1.94	$ 15,930	YES	NO
097	146	003202	2	Block Group 2	55.366	1,053	470	$ 47,031	2.42	$ 15,930	YES	NO
097	148	003204	2	Block Group 2	85.611	1,661	239	$ 38,395	2.27	$ 15,930	YES	NO
097	147	003205	1	Block Group 1	71.174	843	243	$ 39,722	2.62	$ 20,090	YES	NO
097	150	003205	2	Block Group 2	81.135	2,237	422	$ 14,904	2.73	$ 20,090	YES	YES
097	134	003402	2	Block Group 2	77.724	3,295	734	$ 35,523	2.99	$ 20,090	YES	NO
097	134	003402	1	Block Group 1	87.917	869	105	$ 47,850	3.09	$ 20,090	YES	NO
097	181	003404	1	Block Group 1	82.025	2,459	442	$ 33,776	3.04	$ 20,090	YES	NO
097	182	003405	1	Block Group 1	63.023	1,958	724	$ 52,157	2.81	$ 20,090	YES	NO
097	137, 283	003406	1	Block Group 1	55.249	2,791	1,249	$ 41,903	2.41	$ 15,930	YES	NO
097	186	003407	3	Block Group 3	78.306	1,913	415	$ 55,288	2.76	$ 20,090	YES	NO
097	183	003408	3	Block Group 3	60.128	2,024	807	$ 43,854	2.53	$ 20,090	YES	NO
097	183	003408	1	Block Group 1	80.400	949	186	$ 57,188	2.85	$ 20,090	YES	NO
097	183	003408	2	Block Group 2	68.534	696	219	$ 34,740	2.73	$ 20,090	YES	NO
097	180	003602	2	Block Group 2	91.408	419	36	$ 23,000	3.04	$ 20,090	YES	NO

COUNTYFP	TAZ	TRACTCE	BLKGRPCE	NAMELSAD	PNT_NONWH	B02001e1	B02001e2	B19013e1	B25010e1	2015 HHS Poverty Guidelines	MINORITY	HHS2015Pov
COUNTY CODE	TRAFFIC ANALYSIS ZONE FROM CDM SMITH TRAVEL DEMAND MODEL	TRACT CODE	BLOCKGROUP	BLCKGROUP LONG NAME	Percent "Non-While Alone" total population.	RACE: Total: Total population	RACE: White alone: Total population -- (Estimate)	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Estimate) ($)	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Estimate)	HHS 2015 Poverty Guidelines for Household Size ($)	Indicates if BG is considered "minority" BG if total Non-White Alone" population is greater than 50% based on PNT_NONWH field.	Indicates if BG is considered "poverty" BG based on HHS 2015 Poverty Guidelines for the 48 Contiguous States. Based on HHS guidelines and field B25010e1 and B19013e1.
097	179, 180	003602	1	Block Group 1	52.941	867	408	$ 11,449	2.39	$ 15,930	YES	YES
097	176	003607	1	Block Group 1	50.884	2,997	1,472	$ 30,200	2.65	$ 20,090	YES	NO
097	176	003607	2	Block Group 2	56.830	1,003	433	$ 34,318	1.80	$ 15,930	YES	NO
097	179	003608	1	Block Group 1	71.681	1,356	384	$ 53,170	2.59	$ 20,090	YES	NO
097	173	003707	2	Block Group 2	61.487	2,677	1,031	$ 32,438	2.16	$ 15,930	YES	NO
097	105, 273, 120, 121, 268, 273	003800	1	Block Group 1	50.081	1,228	613	$ 33,917	2.40	$ 15,930	YES	NO
097	95, 96, 97	003901	1	Block Group 1	98.505	1,137	17	$ 22,125	2.81	$ 20,090	YES	NO
097	96	003901	2	Block Group 2	100.000	899	-	$ 22,969	2.32	$ 15,930	YES	NO
097	93, 94	003902	1	Block Group 1	100.000	800	-	$ 19,671	2.77	$ 20,090	YES	YES
097	110	004000	2	Block Group 2	100.000	660	-	$ 37,500	3.06	$ 20,090	YES	NO
097	111	004000	1	Block Group 1	100.000	806	-	$ 11,047	2.70	$ 20,090	YES	YES
097	109	004000	3	Block Group 3	100.000	818	-	$ 14,167	2.78	$ 20,090	YES	YES
097	98	004100	1	Block Group 1	100.000	958	-	$ 13,201	2.37	$ 15,930	YES	YES
097	112, 113	004800	1	Block Group 1	98.565	418	6	$ 28,250	2.11	$ 15,930	YES	NO
097	116	004800	2	Block Group 2	86.496	859	116	$ 9,561	3.18	$ 20,090	YES	YES
097	126	004900	1	Block Group 1	94.976	637	32	$ 27,321	2.67	$ 20,090	YES	NO
097	125	004900	2	Block Group 2	100.000	590	-	$ 33,750	3.88	$ 25,240	YES	NO
097	126	004900	3	Block Group 3	95.818	1,363	57	$ 27,578	3.06	$ 20,090	YES	NO
097	126	004900	4	Block Group 4	96.312	922	34	$ 15,726	2.27	$ 15,930	YES	YES
097	124	005000	2	Block Group 2	85.354	1,072	157	$ 33,571	3.21	$ 20,090	YES	NO
097	123	005000	1	Block Group 1	54.956	686	309	$ 31,917	2.64	$ 20,090	YES	NO
097	117	005100	1	Block Group 1	58.465	821	341	$ 21,121	2.97	$ 20,090	YES	NO
097	117	005100	2	Block Group 2	55.635	843	374	$ 19,201	3.56	$ 25,240	YES	YES
097	N/A	005800	2	Block Group 2	58.444	1,889	785	$ 27,386	2.96	$ 20,090	YES	NO
097	N/A	005800	3	Block Group 3	78.458	1,258	271	$ 41,250	2.70	$ 20,090	YES	NO
097	129, 132	006103	2	Block Group 2	68.998	2,845	882	$ 36,364	2.85	$ 20,090	YES	NO
097	130, 131	006103	1	Block Group 1	63.531	2,594	946	$ 46,976	3.17	$ 20,090	YES	NO
097	196	006402	1	Block Group 1	75.676	1,184	288	$ 18,500	2.52	$ 20,090	YES	YES
097	293	006702	3	Block Group 3	55.234	1,175	526	$ 40,028	2.97	$ 20,090	YES	NO
097	219	007102	1	Block Group 1	60.391	3,118	1,235	$ 32,095	2.73	$ 20,090	YES	NO
097	303	007300	4	Block Group 4	53.840	1,354	625	$ 17,045	2.86	$ 20,090	YES	YES
097	165	007400	2	Block Group 2	59.167	1,009	412	$ 21,827	2.19	$ 15,930	YES	NO
097	167	007400	4	Block Group 4	69.291	508	156	$ 20,840	2.09	$ 15,930	YES	NO
097	49	007400	1	Block Group 1	100.000	312	-	$ 33,333	4.22	$ 24,250	YES	NO
097	108	007500	1	Block Group 1	100.000	853	-	$ 23,237	2.55	$ 20,090	YES	NO
097	114	007500	2	Block Group 2	99.417	686	4	$ 17,885	2.72	$ 20,090	YES	YES
097	106	007600	1	Block Group 1	100.000	1,023	-	$ 18,958	2.41	$ 15,930	YES	NO
097	107, 115	007600	2	Block Group 2	100.000	998	-	$ 17,125	2.48	$ 15,930	YES	NO
097	100	007700	3	Block Group 3	100.000	418	-	$ 26,375	2.73	$ 20,090	YES	NO
097	101	007700	1	Block Group 1	100.000	171	-	$ 18,661	2.48	$ 15,930	YES	NO
097	99	007700	2	Block Group 2	100.000	1,083	-	$ 15,125	3.00	$ 20,090	YES	YES

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003	401	010100	1	Block Group 1	81.758	455	83	$ 20,461	2.50	$ 20,090	YES	NO
003	393	010600	2	Block Group 2	56.848	533	230	$ 18,250	2.67	$ 20,090	YES	YES
003	393	010600	1	Block Group 1	97.196	1,070	30	$ 12,019	3.01	$ 20,090	YES	YES
097		000200	1	Block Group 1	45.699	1,116	606	$ 30,170	1.40	$ 11,770	NO	NO
097		000901	1	Block Group 1	41.396	1,017	596	$ 28,108	2.52	$ 20,090	NO	NO
097		000901	2	Block Group 2	30.208	864	603	$ 46,875	2.38	$ 15,930	NO	NO
097		000902	2	Block Group 2	12.136	1,203	1,057	$ 56,042	1.83	$ 15,930	NO	NO
097		000902	1	Block Group 1	26.432	768	565	$ 46,042	2.05	$ 15,930	NO	NO
097		001001	2	Block Group 2	40.941	1,148	678	$ 45,781	1.73	$ 15,930	NO	NO
097		001002	2	Block Group 2	38.526	1,438	884	$ 66,705	2.50	$ 20,090	NO	NO
097		001901	2	Block Group 2	39.115	1,447	881	$ 45,163	2.90	$ 20,090	NO	NO
097		001902	3	Block Group 3	46.610	708	378	$ 40,284	2.50	$ 20,090	NO	NO
097		002000	1	Block Group 1	45.833	528	286	$ 26,349	2.65	$ 20,090	NO	NO
097		002000	2	Block Group 2	15.221	1,176	997	$ 103,750	2.80	$ 20,090	NO	NO
097		002501	1	Block Group 1	3.420	1,228	1,186	$ 54,118	2.11	$ 15,930	NO	NO
097		002501	2	Block Group 2	10.036	1,106	995	$ 67,500	2.14	$ 15,930	NO	NO
097		002501	3	Block Group 3	10.211	1,136	1,020	$ 72,727	2.11	$ 15,930	NO	NO
097		002502	1	Block Group 1	23.414	867	664	$ 45,455	2.16	$ 15,930	NO	NO
097		002502	2	Block Group 2	8.298	470	431	$ 54,667	1.90	$ 15,930	NO	NO
097		002502	3	Block Group 3	0.000	1,055	1,055	$ 56,125	2.02	$ 15,930	NO	NO
097		002800	1	Block Group 1	20.599	801	636	$ 30,046	2.03	$ 15,930	NO	NO
097		002800	4	Block Group 4	46.788	825	439	$ 31,875	2.00	$ 15,930	NO	NO
097		002800	5	Block Group 5	10.927	723	644	$ 22,877	2.38	$ 15,930	NO	NO
097		002900	1	Block Group 1	28.004	982	707	$ 62,875	2.40	$ 15,930	NO	NO
097		003000	1	Block Group 1	18.053	1,839	1,507	$ 50,062	2.20	$ 15,930	NO	NO
097		003100	3	Block Group 3	8.786	1,104	1,007	$ 76,563	2.50	$ 20,090	NO	NO
097		003100	1	Block Group 1	19.629	1,401	1,126	$ 56,346	2.59	$ 20,090	NO	NO
097		003100	2	Block Group 2	12.388	2,349	2,058	$ 61,641	2.92	$ 20,090	NO	NO
097		003202	1	Block Group 1	45.099	1,459	801	$ 41,779	2.11	$ 15,930	NO	NO
097		003203	1	Block Group 1	24.334	1,089	824	$ 42,109	2.45	$ 15,930	NO	NO
097		003203	2	Block Group 2	44.511	2,496	1,385	$ 40,250	2.33	$ 15,930	NO	NO
097		003204	1	Block Group 1	47.150	2,456	1,298	$ 31,610	2.06	$ 15,930	NO	NO
097		003301	2	Block Group 2	19.041	1,523	1,233	$ 43,438	1.93	$ 15,930	NO	NO
097		003301	1	Block Group 1	45.280	1,144	626	$ 37,125	2.09	$ 15,930	NO	NO
097		003302	1	Block Group 1	10.250	1,600	1,436	$ 54,737	1.75	$ 15,930	NO	NO
097		003302	2	Block Group 2	20.359	1,282	1,021	$ 83,214	2.87	$ 20,090	NO	NO
097		003302	3	Block Group 3	5.434	1,325	1,253	$ 103,348	2.44	$ 15,930	NO	NO
097		003407	1	Block Group 1	45.819	3,217	1,743	$ 69,583	3.01	$ 20,090	NO	NO
097		003407	2	Block Group 2	23.565	2,283	1,745	$ 41,045	2.77	$ 20,090	NO	NO
097		003501	1	Block Group 1	34.839	996	649	$ 59,167	2.61	$ 20,090	NO	NO
097		003501	2	Block Group 2	14.774	1,990	1,696	$ 56,466	2.27	$ 15,930	NO	NO
097		003501	3	Block Group 3	0.000	941	941	$ 104,833	3.18	$ 20,090	NO	NO

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097		003502	1	Block Group 1	1.832	1,310	1,286	$ 100,982	2.44	$ 15,930	NO	NO
097		003502	2	Block Group 2	0.751	1,199	1,190	$ 104,861	2.13	$ 15,930	NO	NO
097		003605	1	Block Group 1	33.123	634	424	$ -	0.00	-	NO	-
097		003606	2	Block Group 2	36.068	2,584	1,652	$ 35,855	2.37	$ 15,930	NO	NO
097		003606	1	Block Group 1	17.222	1,080	894	$ 56,125	2.63	$ 20,090	NO	NO
097		003703	1	Block Group 1	39.308	3,470	2,106	$ 42,458	2.16	$ 15,930	NO	NO
097		003704	1	Block Group 1	19.906	2,130	1,706	$ 73,958	2.47	$ 15,930	NO	NO
097		003704	2	Block Group 2	16.163	2,085	1,748	$ 46,422	1.88	$ 15,930	NO	NO
097		003705	1	Block Group 1	22.605	1,712	1,325	$ 50,060	1.91	$ 15,930	NO	NO
097		003705	2	Block Group 2	20.740	1,919	1,521	$ 56,771	2.11	$ 15,930	NO	NO
097		003706	1	Block Group 1	27.013	1,155	843	$ 43,934	1.80	$ 15,930	NO	NO
097		003706	2	Block Group 2	12.718	1,832	1,599	$ 73,125	2.36	$ 15,930	NO	NO
097		003707	1	Block Group 1	32.281	2,534	1,716	$ 48,889	2.52	$ 20,090	NO	NO
097		003708	2	Block Group 2	19.750	2,162	1,735	$ 55,185	2.29	$ 15,930	NO	NO
097		003708	1	Block Group 1	40.786	2,187	1,295	$ 67,610	2.84	$ 20,090	NO	NO
097		003709	1	Block Group 1	38.974	2,086	1,273	$ 53,207	2.54	$ 20,090	NO	NO
097		003709	2	Block Group 2	19.228	1,685	1,361	$ 64,844	2.69	$ 20,090	NO	NO
097		003709	3	Block Group 3	30.351	2,995	2,086	$ 61,535	2.31	$ 15,930	NO	NO
097		003710	3	Block Group 3	37.308	1,954	1,225	$ 43,636	2.49	$ 15,930	NO	NO
097		003710	2	Block Group 2	23.970	801	609	$ 45,938	2.12	$ 15,930	NO	NO
097		003710	1	Block Group 1	31.399	1,551	1,064	$ 46,020	2.50	$ 20,090	NO	NO
097		005200	1	Block Group 1	37.446	924	578	$ 36,563	2.92	$ 20,090	NO	NO
097		005200	2	Block Group 2	47.619	567	297	$ 38,750	2.49	$ 15,930	NO	NO
097		005300	1	Block Group 1	28.786	2,060	1,467	$ 37,500	2.45	$ 15,930	NO	NO
097		005400	2	Block Group 2	17.159	2,774	2,298	$ 47,659	2.57	$ 20,090	NO	NO
097		005400	1	Block Group 1	20.698	1,575	1,249	$ 36,985	2.51	$ 20,090	NO	NO
097		005500	1	Block Group 1	27.291	993	722	$ 45,230	3.07	$ 20,090	NO	NO
097		005500	2	Block Group 2	40.298	1,747	1,043	$ 41,397	2.38	$ 15,930	NO	NO
097		005600	2	Block Group 2	36.147	1,682	1,074	$ 60,625	2.83	$ 20,090	NO	NO
097		005600	1	Block Group 1	1.613	2,418	2,379	$ 63,272	2.52	$ 20,090	NO	NO
097		005600	3	Block Group 3	14.720	2,765	2,358	$ 54,339	2.62	$ 20,090	NO	NO
097		005700	1	Block Group 1	6.141	1,205	1,131	$ 44,621	3.06	$ 20,090	NO	NO
097		005700	3	Block Group 3	31.820	2,379	1,622	$ 44,050	3.00	$ 20,090	NO	NO
097		005700	2	Block Group 2	9.765	3,748	3,382	$ 89,743	2.88	$ 20,090	NO	NO
097		005800	1	Block Group 1	42.792	1,103	631	$ 35,341	2.31	$ 15,930	NO	NO
097		005900	1	Block Group 1	16.686	2,541	2,117	$ 50,455	3.00	$ 20,090	NO	NO
097		005900	2	Block Group 2	18.061	1,888	1,547	$ 43,438	3.26	$ 20,090	NO	NO
097		006000	1	Block Group 1	35.581	534	344	$ 35,435	2.19	$ 15,930	NO	NO
097		006000	3	Block Group 3	22.628	2,846	2,202	$ 49,767	2.78	$ 20,090	NO	NO
097		006000	2	Block Group 2	44.510	1,357	753	$ 65,588	2.55	$ 20,090	NO	NO
097		006102	1	Block Group 1	20.032	2,481	1,984	$ 45,425	2.71	$ 20,090	NO	NO
097		006104	1	Block Group 1	15.478	2,972	2,512	$ 53,542	2.92	$ 20,090	NO	NO

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097		006104	2	Block Group 2	16.728	1,907	1,588	$ 48,295	3.08	$ 20,090	NO	NO
097		006105	2	Block Group 2	20.657	1,980	1,571	$ 36,250	2.66	$ 20,090	NO	NO
097		006105	1	Block Group 1	32.889	2,627	1,763	$ 56,081	2.37	$ 15,930	NO	NO
097		006105	3	Block Group 3	16.935	2,238	1,859	$ 72,700	2.74	$ 20,090	NO	NO
097		006200	1	Block Group 1	6.656	3,215	3,001	$ 50,485	2.75	$ 20,090	NO	NO
097		006200	2	Block Group 2	9.971	1,715	1,544	$ 51,632	2.79	$ 20,090	NO	NO
097		006301	2	Block Group 2	0.756	3,572	3,545	$ 55,070	2.78	$ 20,090	NO	NO
097		006301	1	Block Group 1	18.774	3,835	3,115	$ 37,041	2.91	$ 20,090	NO	NO
097		006301	3	Block Group 3	9.275	3,019	2,739	$ 55,625	3.02	$ 20,090	NO	NO
097		006302	2	Block Group 2	22.515	2,958	2,292	$ 56,862	3.04	$ 20,090	NO	NO
097		006302	1	Block Group 1	18.622	3,861	3,142	$ 67,228	2.89	$ 20,090	NO	NO
097		006402	2	Block Group 2	4.254	1,669	1,598	$ 55,954	2.77	$ 20,090	NO	NO
097		006402	3	Block Group 3	11.216	1,489	1,322	$ 44,360	2.77	$ 20,090	NO	NO
097		006403	1	Block Group 1	37.576	1,972	1,231	$ 35,577	2.69	$ 20,090	NO	NO
097		006404	2	Block Group 2	39.575	4,758	2,875	$ 71,400	2.81	$ 20,090	NO	NO
097		006404	1	Block Group 1	23.612	2,863	2,187	$ 59,812	3.33	$ 20,090	NO	NO
097		006404	3	Block Group 3	30.623	3,997	2,773	$ 52,635	2.75	$ 20,090	NO	NO
097		006405	2	Block Group 2	31.644	809	553	$ 21,119	1.84	$ 15,930	NO	NO
097		006405	3	Block Group 3	25.868	4,063	3,012	$ 89,485	2.90	$ 20,090	NO	NO
097		006405	1	Block Group 1	26.544	1,409	1,035	$ 32,334	1.92	$ 15,930	NO	NO
097		006405	4	Block Group 4	11.064	1,410	1,254	$ 77,457	2.39	$ 15,930	NO	NO
097		006406	1	Block Group 1	14.527	4,853	4,148	$ 87,923	2.85	$ 20,090	NO	NO
097		006406	2	Block Group 2	22.461	3,161	2,451	$ 85,455	2.97	$ 20,090	NO	NO
097		006407	2	Block Group 2	1.849	2,326	2,283	$ 85,745	2.92	$ 20,090	NO	NO
097		006407	1	Block Group 1	13.078	4,473	3,888	$ 78,777	3.21	$ 20,090	NO	NO
097		006501	2	Block Group 2	7.217	2,397	2,224	$ 51,771	2.83	$ 20,090	NO	NO
097		006501	1	Block Group 1	34.013	2,746	1,812	$ 53,415	2.90	$ 20,090	NO	NO
097		006502	1	Block Group 1	7.040	3,679	3,420	$ 60,602	2.72	$ 20,090	NO	NO
097		006502	4	Block Group 4	14.054	3,999	3,437	$ 89,609	3.28	$ 20,090	NO	NO
097		006502	2	Block Group 2	1.563	2,496	2,457	$ 54,647	2.91	$ 20,090	NO	NO
097		006502	3	Block Group 3	2.849	1,404	1,364	$ 22,393	2.38	$ 15,930	NO	NO
097		006600	3	Block Group 3	0.000	1,844	1,844	$ 87,524	3.57	$ 24,250	NO	NO
097		006600	1	Block Group 1	23.840	1,099	837	$ 47,770	2.54	$ 20,090	NO	NO
097		006600	2	Block Group 2	14.993	747	635	$ 38,066	2.08	$ 15,930	NO	NO
097		006600	4	Block Group 4	8.864	1,884	1,717	$ 50,735	3.19	$ 20,090	NO	NO
097		006701	1	Block Group 1	28.181	2,051	1,473	$ 31,618	2.71	$ 20,090	NO	NO
097		006701	3	Block Group 3	18.605	2,580	2,100	$ 37,552	2.41	$ 15,930	NO	NO
097		006701	2	Block Group 2	32.078	1,805	1,226	$ 29,473	3.12	$ 20,090	NO	NO
097		006702	1	Block Group 1	17.756	1,025	843	$ 34,922	2.21	$ 15,930	NO	NO
097		006702	2	Block Group 2	10.000	1,070	963	$ 38,913	2.62	$ 20,090	NO	NO
097		006801	2	Block Group 2	16.768	3,286	2,735	$ 66,927	2.87	$ 20,090	NO	NO
097		006801	1	Block Group 1	30.213	3,664	2,557	$ 68,849	2.80	$ 20,090	NO	NO

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097		006801	3	Block Group 3	33.932	2,228	1,472	$ 94,492	3.19	$ 20,090	NO	NO
097		006802	2	Block Group 2	7.964	1,444	1,329	$ 62,639	2.61	$ 20,090	NO	NO
097		006802	1	Block Group 1	24.428	1,662	1,256	$ 36,048	2.98	$ 20,090	NO	NO
097		006901	1	Block Group 1	6.889	2,671	2,487	$ 30,097	2.24	$ 15,930	NO	NO
097		006901	3	Block Group 3	5.305	886	839	$ 50,582	2.61	$ 20,090	NO	NO
097		006901	2	Block Group 2	32.137	4,459	3,026	$ 42,226	3.42	$ 20,090	NO	NO
097		006902	1	Block Group 1	20.224	2,146	1,712	$ 45,755	2.94	$ 20,090	NO	NO
097		006902	2	Block Group 2	19.868	2,431	1,948	$ 33,576	2.99	$ 20,090	NO	NO
097		007000	2	Block Group 2	10.235	2,081	1,868	$ 64,186	2.70	$ 20,090	NO	NO
097		007000	3	Block Group 3	7.505	2,052	1,898	$ 71,250	2.58	$ 20,090	NO	NO
097		007000	1	Block Group 1	5.039	774	735	$ 46,343	2.02	$ 15,930	NO	NO
097		007101	1	Block Group 1	28.457	1,620	1,159	$ 41,270	2.75	$ 20,090	NO	NO
097		007101	2	Block Group 2	18.333	2,111	1,724	$ 53,913	2.67	$ 20,090	NO	NO
097		007101	3	Block Group 3	8.046	783	720	$ 35,726	2.40	$ 15,930	NO	NO
097		007103	1	Block Group 1	5.279	1,023	969	$ 32,411	2.00	$ 15,930	NO	NO
097		007103	2	Block Group 2	13.936	2,533	2,180	$ 51,563	2.77	$ 20,090	NO	NO
097		007201	1	Block Group 1	17.664	2,740	2,256	$ 35,913	2.86	$ 20,090	NO	NO
097		007202	1	Block Group 1	6.431	793	742	$ 77,125	2.51	$ 20,090	NO	NO
097		007202	2	Block Group 2	2.625	1,143	1,113	$ 56,125	2.57	$ 20,090	NO	NO
097		007202	3	Block Group 3	3.042	526	510	$ 49,615	2.17	$ 15,930	NO	NO
097		007300	1	Block Group 1	46.096	666	359	$ 31,307	3.03	$ 20,090	NO	NO
097		007300	2	Block Group 2	30.763	1,154	799	$ 51,635	3.65	$ 24,250	NO	NO
097		007300	3	Block Group 3	8.525	868	794	$ 50,250	2.48	$ 15,930	NO	NO
097		007400	3	Block Group 3	29.618	1,597	1,124	$ 51,287	2.53	$ 20,090	NO	NO
003		010100	3	Block Group 3	6.909	1,346	1,253	$ 41,250	2.92	$ 20,090	NO	NO
003		010100	2	Block Group 2	16.913	2,028	1,685	$ 47,850	2.60	$ 20,090	NO	NO
003		010200	2	Block Group 2	0.265	1,133	1,130	$ 33,155	2.59	$ 20,090	NO	NO
003		010200	1	Block Group 1	22.177	1,736	1,351	$ 29,208	2.68	$ 20,090	NO	NO
003		010300	1	Block Group 1	14.436	2,750	2,353	$ 41,327	2.85	$ 20,090	NO	NO
003		010300	3	Block Group 3	16.519	1,689	1,410	$ 37,353	2.75	$ 20,090	NO	NO
003		010300	2	Block Group 2	16.313	3,016	2,524	$ 69,000	2.90	$ 20,090	NO	NO
003		010400	1	Block Group 1	0.496	1,009	1,004	$ 56,389	2.73	$ 20,090	NO	NO
003		010400	2	Block Group 2	9.315	1,256	1,139	$ 43,409	3.29	$ 20,090	NO	NO
003		010400	3	Block Group 3	11.532	2,272	2,010	$ 39,107	2.48	$ 15,930	NO	NO
003		010500	2	Block Group 2	17.721	1,360	1,119	$ 24,845	2.35	$ 15,930	NO	NO
003		010500	4	Block Group 4	27.793	752	543	$ 48,068	2.93	$ 20,090	NO	NO
003		010500	3	Block Group 3	6.658	1,607	1,500	$ 49,471	2.58	$ 20,090	NO	NO
003		010500	1	Block Group 1	17.790	1,602	1,317	$ 44,375	2.39	$ 15,930	NO	NO
003		010600	3	Block Group 3	43.565	1,795	1,013	$ 31,535	2.51	$ 20,090	NO	NO
003		010701	3	Block Group 3	6.318	1,187	1,112	$ 67,740	2.66	$ 20,090	NO	NO
003		010701	4	Block Group 4	14.363	738	632	$ 32,444	1.47	$ 11,770	NO	NO
003		010701	2	Block Group 2	13.097	2,451	2,130	$ 80,450	2.66	$ 20,090	NO	NO

COUNTYFP	TAZ	TRACTCE	BLKGRPCE	NAMELSAD	PNT_NONWH	B02001e1	B02001e2	B19013e1	B25010e1	2015 HHS Poverty Guidelines	MINORITY	HHS2015Pov
COUNTY CODE	TRAFFIC ANALYSIS ZONE FROM CDM SMITH TRAVEL DEMAND MODEL	TRACT CODE	BLOCKGROUP	BLCKGROUP LONG NAME	Percent "Non-While Alone" total population.	RACE: Total: Total population	RACE: White alone: Total population -- (Estimate)	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Estimate) ($)	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Estimate)	HHS 2015 Poverty Guidelines for Household Size ($)	Indicates if BG is considered "minority" BG if total Non-White Alone" population is greater than 50% based on PNT_NONWH field.	Indicates if BG is considered "poverty" BG based on HHS 2015 Poverty Guidelines for the 48 Contiguous States. Based on HHS guidelines and field B25010e1 and B19013e1.
003		010701	1	Block Group 1	2.182	3,437	3,362	$ 97,917	3.07	$ 20,090	NO	NO
003		010703	2	Block Group 2	15.494	7,932	6,703	$ 73,833	2.46	$ 15,930	NO	NO
003		010703	1	Block Group 1	3.967	8,167	7,843	$ 92,292	3.03	$ 20,090	NO	NO
003		010704	1	Block Group 1	7.388	2,531	2,344	$ 58,262	2.69	$ 20,090	NO	NO
003		010704	2	Block Group 2	21.458	2,880	2,262	$ 68,846	3.34	$ 20,090	NO	NO
003		010705	1	Block Group 1	23.857	5,336	4,063	$ 43,460	2.51	$ 20,090	NO	NO
003		010705	2	Block Group 2	24.573	2,226	1,679	$ 62,188	2.33	$ 15,930	NO	NO
003		010705	3	Block Group 3	11.624	1,841	1,627	$ 47,941	2.65	$ 20,090	NO	NO
003		010800	1	Block Group 1	35.632	1,914	1,232	$ 52,137	2.91	$ 20,090	NO	NO
003		010800	3	Block Group 3	49.752	3,222	1,619	$ 31,250	2.78	$ 20,090	NO	NO
003		010800	2	Block Group 2	5.181	2,509	2,379	$ 84,926	2.67	$ 20,090	NO	NO
003		010903	3	Block Group 3	21.463	2,064	1,621	$ 50,518	2.76	$ 20,090	NO	NO
003		010903	2	Block Group 2	12.165	2,203	1,935	$ 49,313	2.77	$ 20,090	NO	NO
003		010903	1	Block Group 1	19.831	1,543	1,237	$ 41,705	2.96	$ 20,090	NO	NO
003		010904	1	Block Group 1	14.878	3,112	2,649	$ 41,250	3.32	$ 20,090	NO	NO
003		010904	2	Block Group 2	0.000	1,504	1,504	$ 48,973	2.63	$ 20,090	NO	NO
003		010904	3	Block Group 3	7.587	2,333	2,156	$ 48,625	2.84	$ 20,090	NO	NO
003		010905	2	Block Group 2	20.842	3,042	2,408	$ 36,908	2.81	$ 20,090	NO	NO
003		010905	3	Block Group 3	13.124	1,844	1,602	$ 67,614	2.16	$ 15,930	NO	NO
003		010905	1	Block Group 1	7.036	2,928	2,722	$ 48,500	2.47	$ 15,930	NO	NO
003		010906	1	Block Group 1	6.285	2,514	2,356	$ 33,924	3.14	$ 20,090	NO	NO
003		010906	2	Block Group 2	3.628	1,323	1,275	$ 63,750	3.53	$ 24,250	NO	NO
003		010906	3	Block Group 3	0.000	1,192	1,192	$ 51,367	2.70	$ 20,090	NO	NO
003		011000	2	Block Group 2	7.371	2,469	2,287	$ 26,727	2.73	$ 20,090	NO	NO
003		011000	1	Block Group 1	21.900	1,726	1,348	$ 35,265	2.59	$ 20,090	NO	NO
003		011101	1	Block Group 1	4.721	3,177	3,027	$ 65,556	3.00	$ 20,090	NO	NO
003		011101	2	Block Group 2	4.742	2,172	2,069	$ 62,197	2.33	$ 15,930	NO	NO
003		011101	3	Block Group 3	3.772	3,871	3,725	$ 59,632	2.46	$ 15,930	NO	NO
003		011102	1	Block Group 1	4.186	2,365	2,266	$ 68,237	2.68	$ 20,090	NO	NO
003		011102	2	Block Group 2	9.526	1,816	1,643	$ 52,045	2.80	$ 20,090	NO	NO
003		011201	1	Block Group 1	19.183	2,669	2,157	$ 62,813	2.72	$ 20,090	NO	NO
003		011201	2	Block Group 2	3.177	2,046	1,981	$ 51,205	2.13	$ 15,930	NO	NO
003		011202	4	Block Group 4	11.185	599	532	$ 59,904	2.08	$ 15,930	NO	NO
003		011202	2	Block Group 2	26.200	1,687	1,245	$ 41,455	2.59	$ 20,090	NO	NO
003		011202	3	Block Group 3	21.716	2,611	2,044	$ 55,147	3.03	$ 20,090	NO	NO
003		011202	1	Block Group 1	37.167	1,200	754	$ 48,333	3.26	$ 20,090	NO	NO
003		011300	4	Block Group 4	0.000	751	751	$ 73,281	2.56	$ 20,090	NO	NO
003		011300	3	Block Group 3	0.000	1,310	1,310	$ 57,614	3.35	$ 20,090	NO	NO
003		011300	2	Block Group 2	6.388	1,675	1,568	$ 57,716	2.72	$ 20,090	NO	NO
003		011300	1	Block Group 1	15.763	977	823	$ 87,115	2.30	$ 15,930	NO	NO
003		011401	3	Block Group 3	1.770	1,582	1,554	$ 65,864	3.19	$ 20,090	NO	NO
003		011401	2	Block Group 2	8.615	859	785	$ 59,333	2.21	$ 15,930	NO	NO

COUNTYFP	TAZ	TRACTCE	BLKGRPCE	NAMELSAD	PNT_NONWH	B02001e1	B02001e2	B19013e1	B25010e1	2015 HHS Poverty Guidelines	MINORITY	HHS2015Pov
COUNTY CODE	TRAFFIC ANALYSIS ZONE FROM CDM SMITH TRAVEL DEMAND MODEL	TRACT CODE	BLOCKGROUP	BLCKGROUP LONG NAME	Percent "Non-While Alone" total population.	RACE: Total: Total population	RACE: White alone: Total population -- (Estimate)	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2015 INFLATION-ADJUSTED DOLLARS): Total: Households -- (Estimate) ($)	AVERAGE HOUSEHOLD SIZE OF OCCUPIED HOUSING UNITS BY TENURE: Total: Occupied housing units -- (Estimate)	HHS 2015 Poverty Guidelines for Household Size ($)	Indicates if BG is considered "minority" BG if total Non-White Alone" population is greater than 50% based on PNT_NONWH field.	Indicates if BG is considered "poverty" BG based on HHS 2015 Poverty Guidelines for the 48 Contiguous States. Based on HHS guidelines and field B25010e1 and B19013e1.
003		011401	4	Block Group 4	2.428	2,801	2,733	$ 39,500	2.51	$ 20,090	NO	NO
003		011401	5	Block Group 5	1.329	2,633	2,598	$ 46,225	3.06	$ 20,090	NO	NO
003		011401	1	Block Group 1	33.380	2,834	1,888	$ 48,283	2.88	$ 20,090	NO	NO
003		011403	1	Block Group 1	3.021	2,880	2,793	$ 48,722	2.41	$ 15,930	NO	NO
003		011403	2	Block Group 2	4.213	3,133	3,001	$ 61,184	2.38	$ 15,930	NO	NO
003		011403	3	Block Group 3	6.468	3,448	3,225	$ 39,625	1.86	$ 15,930	NO	NO
003		011405	1	Block Group 1	1.555	2,251	2,216	$ 60,651	2.46	$ 15,930	NO	NO
003		011405	2	Block Group 2	1.235	1,458	1,440	$ 66,990	1.85	$ 15,930	NO	NO
003		011406	1	Block Group 1	5.833	840	791	$ 31,579	2.53	$ 20,090	NO	NO
003		011406	2	Block Group 2	30.741	823	570	$ 48,438	2.60	$ 20,090	NO	NO
003		011406	3	Block Group 3	8.570	1,937	1,771	$ 48,409	2.49	$ 15,930	NO	NO
003		011407	3	Block Group 3	0.204	1,472	1,469	$ 76,042	2.10	$ 15,930	NO	NO
003		011407	2	Block Group 2	0.000	1,082	1,082	$ 23,832	1.93	$ 15,930	NO	NO
003		011407	1	Block Group 1	17.851	2,392	1,965	$ 27,881	2.24	$ 15,930	NO	NO
003		011408	1	Block Group 1	0.000	704	704	$ 52,159	2.24	$ 15,930	NO	NO
003		011501	2	Block Group 2	11.387	887	786	$ 53,894	3.15	$ 20,090	NO	NO
003		011501	3	Block Group 3	13.684	2,587	2,233	$ 29,559	2.37	$ 15,930	NO	NO
003		011501	1	Block Group 1	0.958	2,297	2,275	$ 57,473	2.11	$ 15,930	NO	NO
003		011502	4	Block Group 4	6.902	2,695	2,509	$ 53,545	2.12	$ 15,930	NO	NO
003		011502	2	Block Group 2	8.911	1,212	1,104	$ 42,409	2.57	$ 20,090	NO	NO
003		011502	1	Block Group 1	29.050	4,241	3,009	$ 29,901	2.26	$ 15,930	NO	NO
003		011502	3	Block Group 3	47.545	3,401	1,784	$ 28,633	2.59	$ 20,090	NO	NO
003		011601	1	Block Group 1	3.707	1,052	1,013	$ 36,071	2.17	$ 15,930	NO	NO
003		011601	4	Block Group 4	2.089	1,388	1,359	$ 45,325	2.42	$ 15,930	NO	NO
003		011601	3	Block Group 3	0.000	848	848	$ 37,600	2.70	$ 20,090	NO	NO
003		011601	2	Block Group 2	3.611	3,157	3,043	$ 31,887	3.58	$ 24,250	NO	NO
003		011602	3	Block Group 3	2.312	865	845	$ 36,563	2.17	$ 15,930	NO	NO
003		011602	4	Block Group 4	4.557	1,646	1,571	$ 45,850	2.27	$ 15,930	NO	NO
003		011602	2	Block Group 2	18.555	1,827	1,488	$ 41,781	2.98	$ 20,090	NO	NO
003		011602	1	Block Group 1	4.329	1,386	1,326	$ 51,061	1.93	$ 15,930	NO	NO

Attachment B

EJ Community Workshops

Direct Mail Postcard, Comment Sheet, and Handout

Alabama Department of Transportation

Community Workshop

ALDOT will host an interactive workshop to share updates on the Mobile River Bridge and Bayway project and solicit feedback from your community.

Learn how the Mobile River Bridge and Bayway will affect issues that matter to your community.

Attend the workshop to have your voice heard:

5-7 p.m. | June 18, 2018

Texas St./Oakdale Community Workshop

James Seals Community Center

540 Texas Street, Mobile, AL 36603

5-7 p.m. | June 19, 2018

Africatown/Plateau Community Workshop

Robert L. Hope Community Center

850 Edwards Street, Mobile, AL 36610

MobileRiverBridge.com

Help shape the future of your community

The proposed Mobile River Bridge and Bayway project relieves congestion on Interstate 10 in South Alabama between Mobile and Baldwin Counties, provides a direct route for vehicles carrying hazardous materials, and allows for Mobile's maritime industry to continue operations.

ALDOT is working to bring this vital project to reality and is looking for input from your community.

Please join us at the workshop to:

- Understand how the project will impact your community
- Share information about your community
- Hear about next steps for the Mobile River Bridge and Bayway project

To request accommodations for persons with disabilities or information in alternative formats, call ***(251) 604-9790*** *or email* ***agregg@mobileriverbridge.com.***

Receive E-mail Updates:

Sign up for email updates by emailing **agregg@mobileriverbridge.com**

LEARN MORE AND STAY CONNECTED

www.mobileriverbridge.com
Allison Gregg
Public Information Officer
agregg@mobileriverbridge.com
251-604-9790

MISSION STATEMENT

To provide a safe, efficient, environmentally sound intermodal transportation system for all users, especially the taxpayers of Alabama. To also facilitate economic and social development and prosperity through the efficient movement of people and goods and to facilitate intermodal connections within Alabama. ALDOT must also demand excellence in transportation and be involved in promoting adequate funding to promote and maintain Alabama's transportation infrastructure.

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PERMIT NO. 165
MOBILE, AL

Alabama Department of Transportation

Mobile River Bridge and Bayway

Comment Form – June 2018 Neighborhood Workshops

The public is encouraged to provide feedback to ALDOT:

Project Overview:

About the Mobile River Bridge and Bayway Project:

This critically important, high-priority transportation project will involve constructing a new six-lane bridge across the Mobile River to increase Interstate 10's capacity and replace the existing four-lane Bayway with an eight-lane facility at an elevation above the 100 year storm surge event to reduce traffic headaches for thousands of commuters each day by saving motorists time.

ALDOT expects this project to:

- Reduce travel time between Mobile and Spanish Fort/Daphne on Interstate 10.
- Increase reliability in travel times and accessibility to jobs, educational facilities, medical services, and recreational activities.
- Facilitate access to/from major industries and freight destinations in Mobile and Baldwin Counties and and eliminate the need for hazardous materials to detour from I-10 in downtown Mobile.
- Take all efforts to preserve and protect the Mobile Bay, local rivers and surrounding communities.

Please provide your name and address:

______________________ ______________________

______________________ ______________________

______________________ ______________________

Please answer the following:

1. What impacts do you think will happen to the community as a result of the project?

____

____

____

2. What are your thoughts on the project?

____

____

____

3. How often do you use Cochrane-Africatown Bridge, Wallace Tunnels, Bankhead Tunnel, Bay Bridge Road, and the Causeway?

____

____

3. a. Which of those routes do you prefer, and why do you use them *(Work, Recreation, Other)*?

____

____

____

4. Given the potential impacts, how can ALDOT help your community?

5. What impact will tolling have on your household budget?

6. Tell us about your community. What is happening that we need to know as we plan for the future?

7. How can we be sure we're reaching your neighbors?

8. Was this meeting time and location convenient for you?

To sign up for our newsletter, please provide your email or mailing address:

Give your comments to a project team member or mail to:

Allison Gregg, Mobile River Bridge and Bayway, 107 St. Francis St., Suite 2100, Mobile, AL 36602

ALDOT's mission is to provide a safe, efficient, environmentally sound intermodal transportation system for all users, especially the taxpayers of Alabama.

Online: www.MobileRiverBridge.com | Email: agregg@mobileriverbridge.com

FACT SHEET

Mobile River Bridge and Bayway

The Mobile River Bridge and Bayway Project:
Connecting communities, improving commutes

Congestion through the Interstate 10 Wallace Tunnels and across the Bayway is on par with the worst in the Southeast. As the region grows, it is critical that the I-10 system can handle the increased traffic coming through the area. To alleviate congestion on Interstate 10, Alabama Department of Transportation (ALDOT) is furthering the design of the Mobile River Bridge and Bayway project. This high-priority project involves three major components:

- **Mobile River Bridge:** 2.5-mile cable stay bridge with a 100-year lifespan and scenic lookout
- **Bayway:** 7.5-mile bridges with eight lanes of travel above the 100-year storm surge
- **Access:** Seven interchange modifications

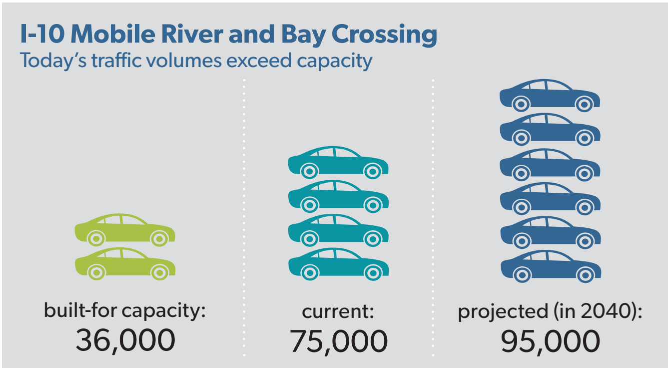
The Project will:

- Reduce round-trip travel time along I-10
- Facilitate access to and from major South Alabama and Gulf Coast destinations
- Eliminate the need for hazardous materials to detour from I-10 in downtown Mobile

Conceptual Rendering of Mobile River Bridge

Project Area

MobileRiverBridge.com



Traffic: Exceeding capacity

In South Alabama, I-10 serves as a gateway to some of nation's most beautiful beaches and busiest ports while connecting Mobile and Baldwin Counties. Nearly 40 years after being built to handle 36,000 vehicles per day, more than 75,000 pass through this section of I-10 daily. During peak travel season, that volume reaches up to 100,000 vehicles a day. Traffic projections show that in 2040, 95,000 vehicles will pass through on a daily basis.

Project Delivery

The Mobile River Bridge and Bayway Project is made possible through a public-private partnership, or P3. P3s allow public agencies to leverage private sector resources to build critical projects. This P3 pairs ALDOT with a private partner, or partners, to design, finance, construct, maintain, and operate the new Mobile River Bridge and Bayway without additional burden on public tax dollars.

ALDOT, the public partner, facilitates the selection of the private partner, or concessionaire, through a fair process. The concessionaire agrees to lease the roadway for 50 years, responsible for the design construction and maintenance. Over this time, ALDOT provides oversight and holds the concessionaire accountable for the safety and operations detailed in the lease.

Tolling

In order for the concessionaire to recoup their upfront funding, tolls will be collected within the project corridor on I-10 in Mobile and Baldwin Counties.

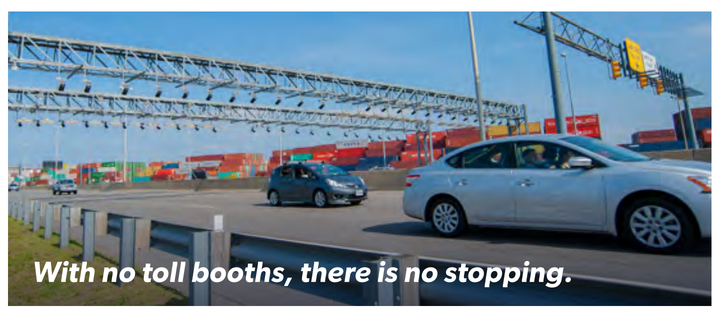
Determining toll rates

ALDOT is dedicated to determining the most appropriate toll rates. The project team brought together industry experts to study toll rates for the project. Toll rates account for traffic volumes, existing travel conditions, forecasted travel conditions, costs for construction, operations and maintenance, and more.

ALDOT is exploring frequent user rates discount for all vehicles and committed to maintaining free alternative routes, which include the Causeway, Bankhead Tunnel, and Cochrane-Africatown Bridge.

No Toll Booths, No Stopping

The Mobile River Bridge and Bayway will use all-electronic tolling – allowing drivers to travel through without stopping to physically pay a toll. Gantries will be placed over the road to collect the toll electronically via transponder or license plate, allowing drivers to maintain travel speeds.



Example of a toll gantry

Process Timeline

- **RFQ** Fall 2017
- **Select Shortlist** February 2018
- **Industry Review** February - December 2018
- **Award** 2019
- **Construction** 2019 - 2024
- **Operations** 2025 - 2075

For more information

- Visit ***MobileRiverBridge.com***
- Contact Allison Gregg, Public Information Officer
agregg@mobileriverbridge.com | 251-604-9790

Presentations

Mobile River Bridge and Bayway

Neighborhood Workshop

Texas Street/Oakdale

June 18, 2018

MobileRiver BRIDGE

Today's Agenda

- Welcome
- Project Overview
- Project Impacts
- Next Steps

Mobile River Bridge and Bayway

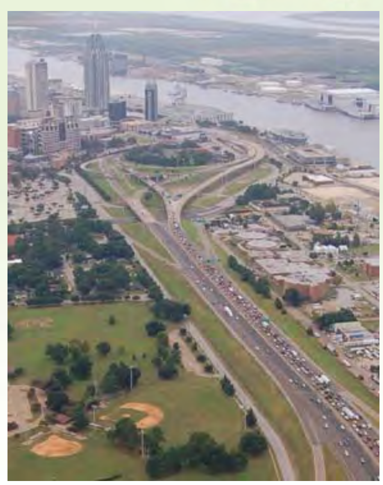
Mobile River Bridge and Bayway

Project Overview

MobileRiver BRIDGE

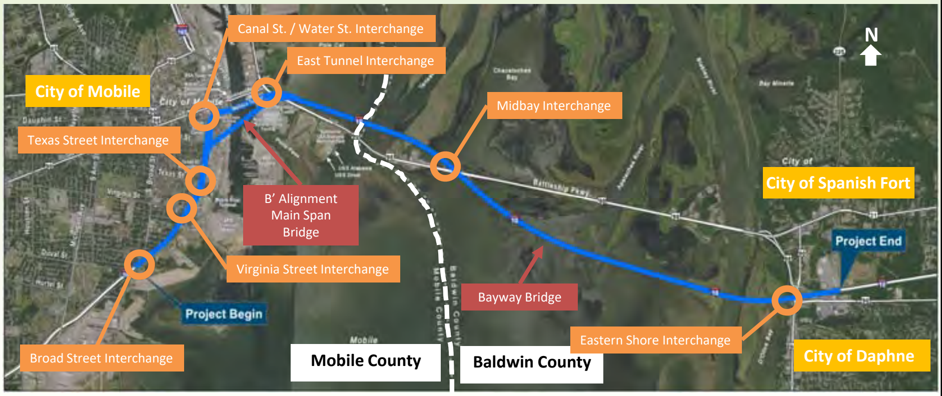
Purpose and Need

- Increase capacity of I-10 to meet existing and predicted future traffic volumes
- Provide a more direct route for vehicles transporting hazardous materials
- Minimize impacts to Mobile's maritime industry



Mobile River Bridge and Bayway

Project Scope & Limits



Mobile River Bridge and Bayway

Alternative B' Main Span and High Level Approaches

HIGH LEVEL APPROACH SPANS AND MAIN SPAN UNIT LIMITS

Mobile River Bridge and Bayway

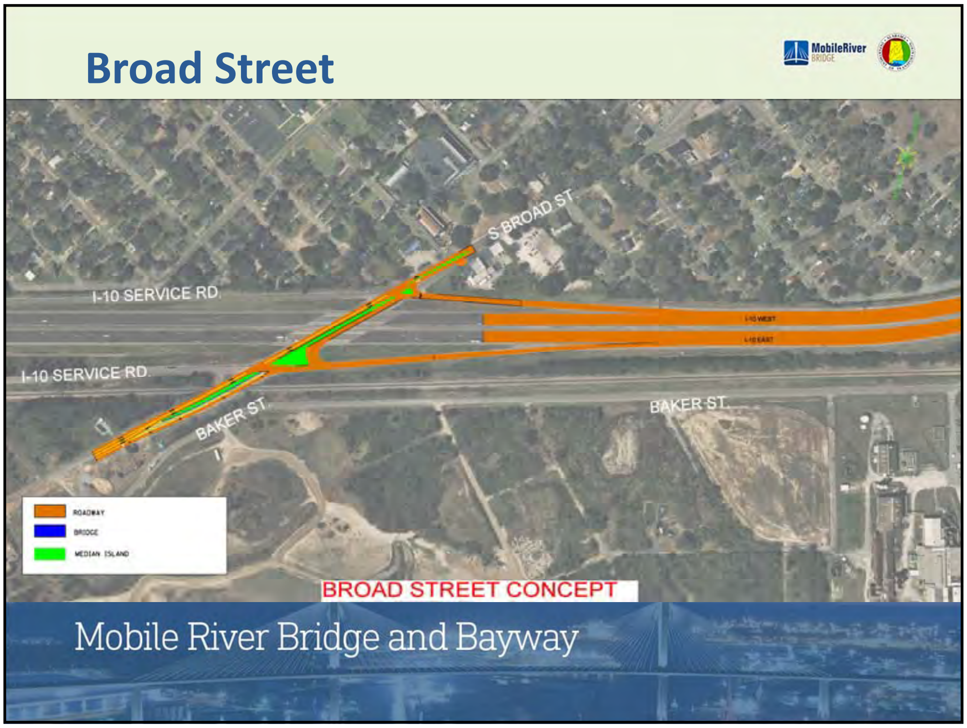
Public Private Partnership

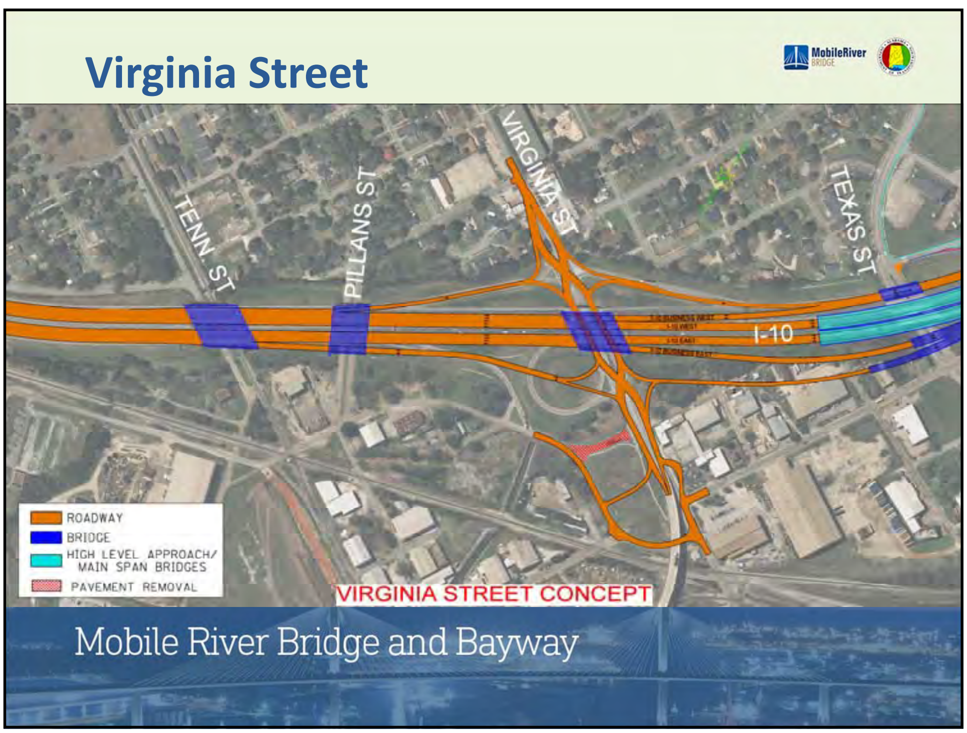
- Three teams competing to design, build, finance, operate, and maintain project
- Selected team will:
  - Provide innovative ideas for design and construction
  - Invest private equity to fund this project

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Interchanges


Broad Street
MobileRiver BRIDGE
S BROAD ST
I-10 SERVICE RD.
I-10 SERVICE RD.
BAKER ST
BAKER ST
ROADWAY
BRIDGE
MEDIAN ISLAND
BROAD STREET CONCEPT
Mobile River Bridge and Bayway


Virginia Street
MobileRiver BRIDGE
TENN. ST
PILLANS ST
VIRGINIA ST
TEXAS ST
I-10
ROADWAY
BRIDGE
HIGH LEVEL APPROACH/ MAIN SPAN BRIDGES
PAVEMENT REMOVAL
VIRGINIA STREET CONCEPT
Mobile River Bridge and Bayway

Texas Street

Mobile River Bridge and Bayway

Canal Street / Water Street

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Anticipated Effects

MobileRiver BRIDGE

Mobile River Bridge and Bayway

Tolling

MobileRiver BRIDGE

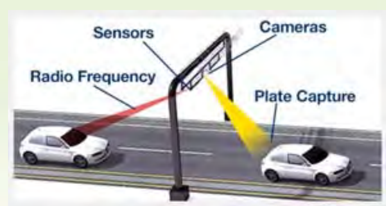
Tolling Overview

- Rates still to be determined
  - Anticipated range: $3 - $6
  - Toll by section
- All-electronic tolling

Mobile River Bridge and Bayway

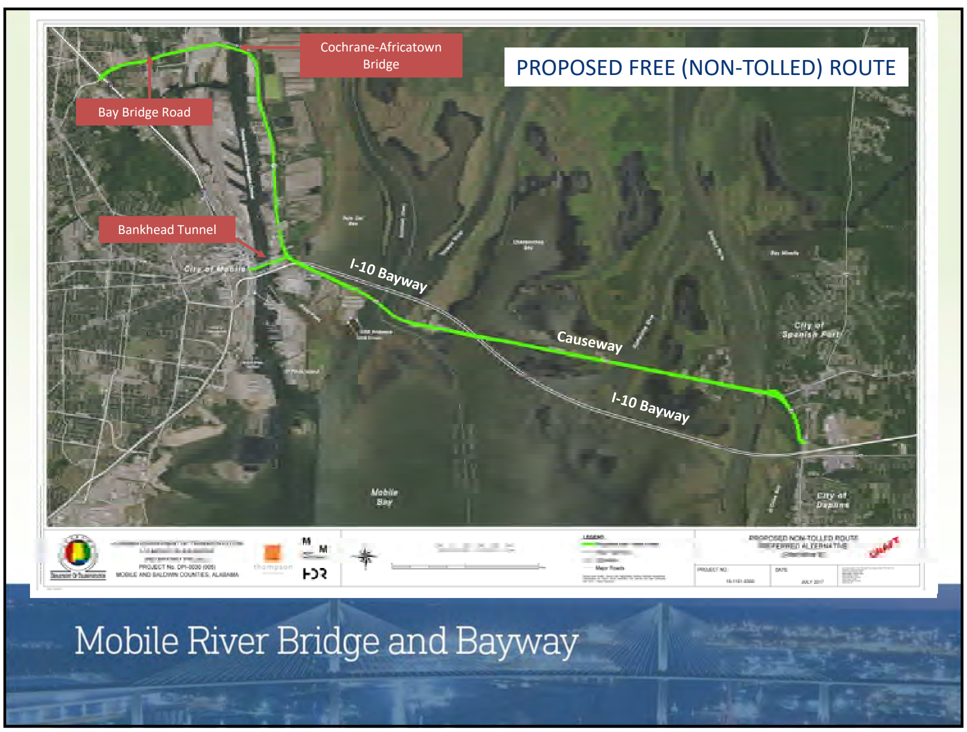
Tolling Overview

- Payment options:
  - Transponders
  - Pay-by-plate
  - Walk-in centers
  - Call center located in Alabama
- Working with tolling professionals to develop tolling policies and best practices
- Toll-free route: US 90/98 (Causeway), Bankhead, and Cochrane Bridge



Mobile River Bridge and Bayway


PROPOSED TOLLED ROUTE
Wallace Tunnels
New I-10 Mobile River Bridge
I-10 Bayway
Causeway
I-10 Bayway
Mobile River Bridge and Bayway


Cochrane-Africatown Bridge
PROPOSED FREE (NON-TOLLED) ROUTE
Bay Bridge Road
Bankhead Tunnel
I-10 Bayway
Causeway
I-10 Bayway
Mobile River Bridge and Bayway

Tolling Impacts

- Tolling impacts may include changes in:
  - Travel patterns
  - Trip-making behavior and purposes
  - Household budget
  - Disposable time
  - Congestion on free (non-tolled) routes

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Drainage

Drainage Requirements

- Teams will be required to prepare drainage plans for project
- Existing infrastructure will be replaced where warranted
- New infrastructure will be installed to handle additional runoff created by this project

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Noise

MobileRiver BRIDGE

Updated Traffic Noise Analysis

- Updates to noise analysis
- ALDOT will evaluate noise abatement measures where necessary to minimize or mitigate noise impacts, as required by their Noise Policy
- Results will be documented in the Supplemental Draft Environmental Impact Statement and shared at Public Hearings in the fall of this year

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Bicycle and Pedestrian Facilities

Bicycle and Pedestrian Alternatives

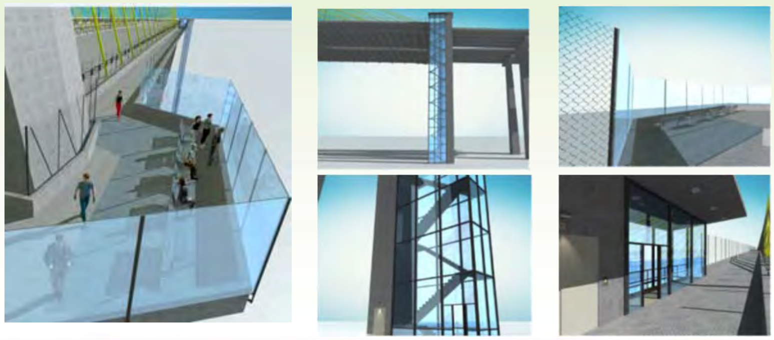
- Bike/Ped Workshop: October 27, 2016
  - Bankhead Tunnel Alternative
  - Cochrane Bridge Alternative
  - New Mobile River Bridge Alternatives

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Base Project Requirement: Belvedere

- Belvedere on west side of Mobile River Bridge accessible by stair tower and elevator



Conceptual – for discussion purposes only

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Aesthetics

Aesthetics

- Aesthetic Steering Committee
- Aesthetic Guidelines:
  - Architectural Themes
  - Land Use
  - Streetscape
  - Landscape
  - Materials and Finishes
  - Structures
  - Bicycle/Pedestrian Amenities
  - Lighting

Mobile River Bridge and Bayway

Conceptual Renderings

Mobile River Bridge and Bayway

Lighting

- Roadway and bridge lighting criteria for safety
- Measures to minimize light spill
- Aesthetic lighting will be included in aesthetic packages from teams and reviewed by Aesthetic Steering Committee

Mobile River Bridge and Bayway

Conceptual Rendering

Conceptual Rendering

Landscaping

- Landscape and Management Plan for areas within ALDOT's right-of-way to be developed and reviewed by Registered Landscape Architect

Tree Canopy

- ALDOT partnering with City of Mobile's Right Tree, Right Place Program
  - Maintain and improve tree canopy in and around downtown Mobile by working with City of Mobile

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Next Steps

Anticipated Project Milestones

- Draft Environmental Approval – Fall 2018
- Public Hearings – Fall 2018
- Final Environmental Approval – End of 2018
- Proposer Selection – June 2019
- Construction Start – End of 2019

Actions under Consideration

- Bicycle/pedestrian facilities
- Transponder assistance
- Landscaping
- Lighting
- Aesthetic Treatments

Your Thoughts

- Community impacts
- Thoughts on project
- Route use
- How can ALDOT help your community?
- Tolling impacts
- Transponder assistance
- Community improvements

Fill out comment card | Talk to team | Ask questions | Give feedback

Mobile River Bridge and Bayway

Future Neighborhood Outreach

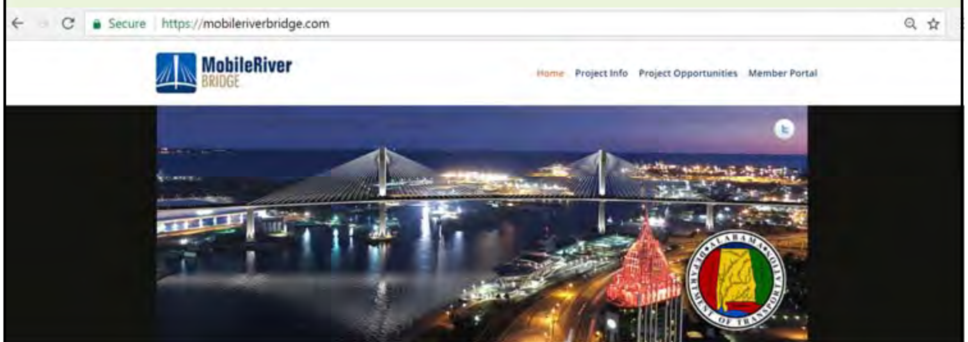
- We want you to be involved.
- How can we engage your neighbors?
- Was this a good time and day of the week to meet?
- We encourage you to participate in meetings as we move through design, construction, and post-construction.
- Look for Public Hearing announcements this fall.

Mobile River Bridge and Bayway

Track our Progress

www.MobileRiverBridge.com

agregg@mobileriverbridge.com

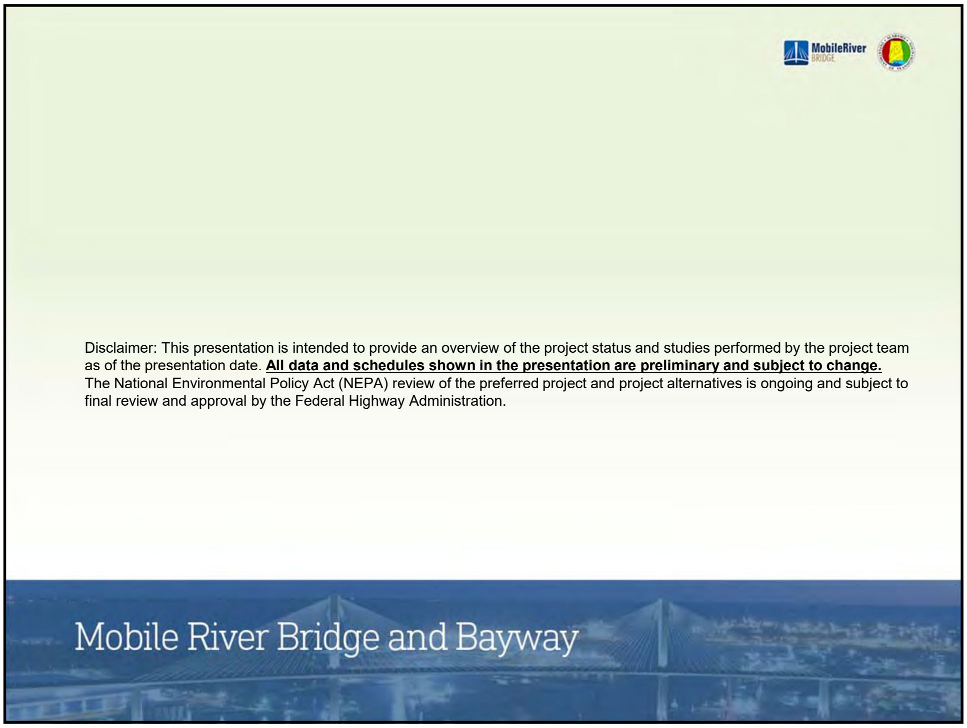


Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Thank You!

MobileRiver BRIDGE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Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Neighborhood Workshop

Africatown/Plateau Community

June 19, 2018

MobileRiver BRIDGE

Today's Agenda

- Welcome
- Project Overview
- Project Impacts
- Next Steps

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

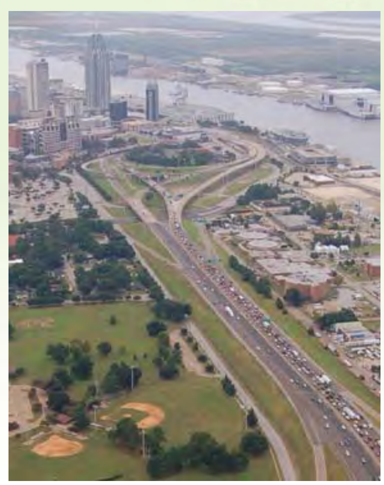
Project Overview

MobileRiver BRIDGE

MobileRiver BRIDGE

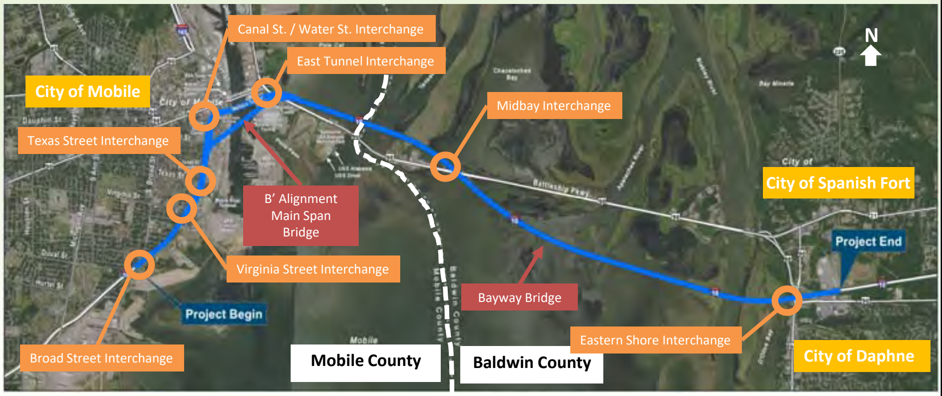
Purpose and Need

- Increase capacity of I-10 to meet existing and predicted future traffic volumes
- Provide a more direct route for vehicles transporting hazardous materials
- Minimize impacts to Mobile's maritime industry



Mobile River Bridge and Bayway

Project Scope & Limits



Mobile River Bridge and Bayway

Alternative B' Main Span and High Level Approaches

Mobile River Bridge and Bayway

Conceptual Renderings

Mobile River Bridge and Bayway

Public Private Partnership

- Three teams competing to design, build, finance, operate, and maintain project
- Selected team will:
  - Provide innovative ideas for design and construction
  - Invest private equity to fund this project

GULF COAST CONNECTORS

I-10 MOBILITY PARTNERS

MOBILE RIVER BRIDGE GROUP

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Potential Effects

Mobile River Bridge and Bayway

Tolling

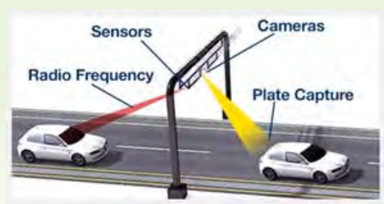
Tolling Overview

- Rates still to be determined
  - Anticipated range: $3 - $6
  - Toll by section

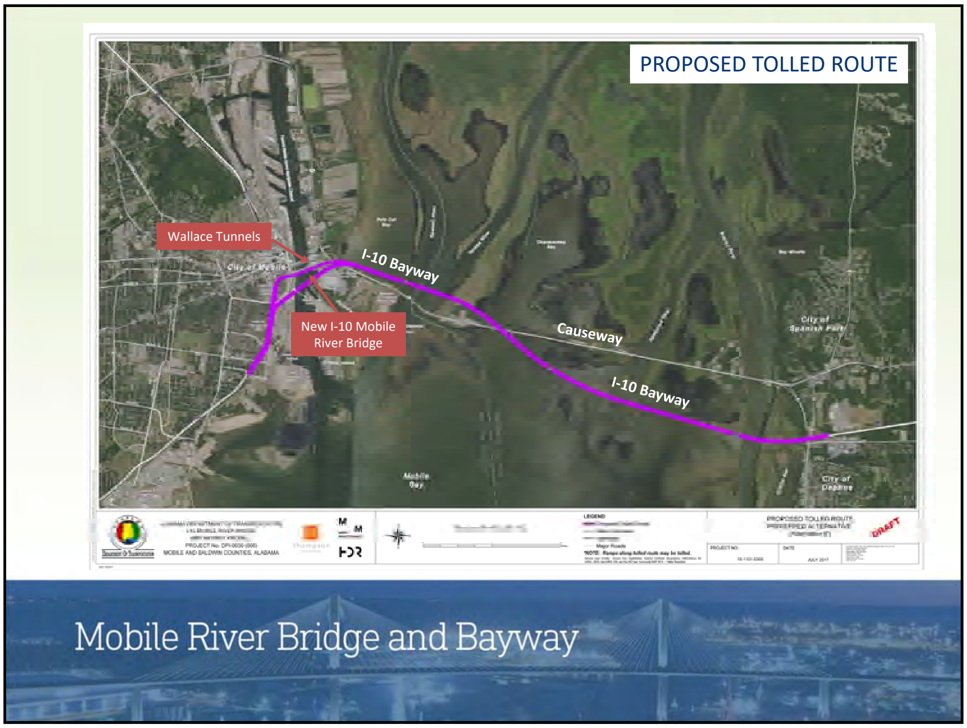
Mobile River Bridge and Bayway

Tolling Overview

- Payment options:
  - Transponders
  - Pay-by-plate
  - Walk-in centers
  - Call center located in Alabama
- Working with tolling professionals to develop tolling policies and best practices
- Toll-free route: US 90/98 (Causeway), Bankhead, and Cochrane Bridge



Mobile River Bridge and Bayway

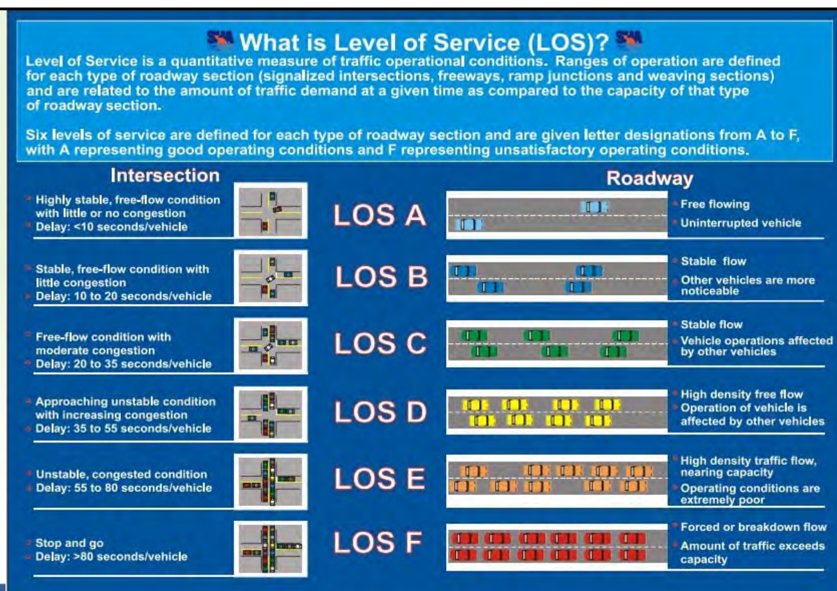

PROPOSED TOLLED ROUTE
Wallace Tunnels
I-10 Bayway
New I-10 Mobile River Bridge
Causeway
I-10 Bayway
Mobile River Bridge and Bayway


Cochrane-Africatown Bridge
PROPOSED FREE (NON-TOLLED) ROUTE
Bay Bridge Road
Bankhead Tunnel
I-10 Bayway
Causeway
I-10 Bayway
Mobile River Bridge and Bayway

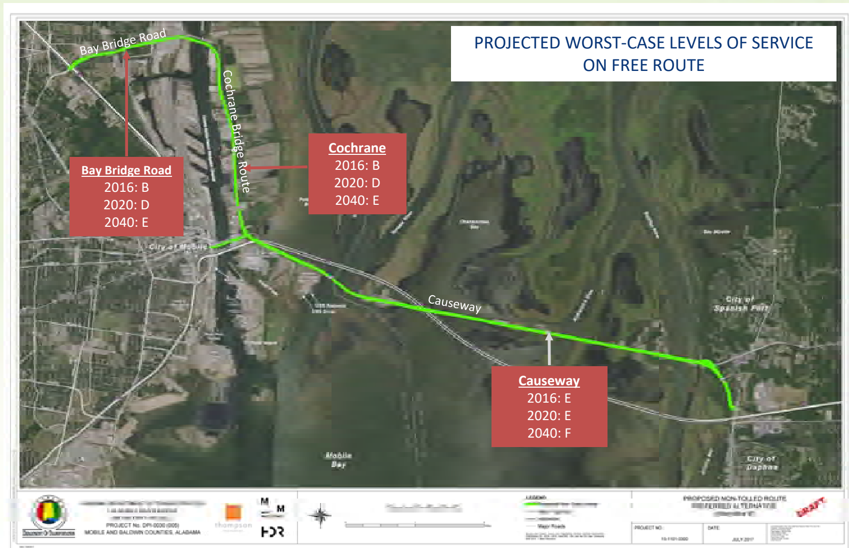
Traffic Impacts

- Increased congestion on:
  - Bay Bridge Road
  - Cochrane Bridge Route
  - Causeway
- Traffic models assume worst-case number of users of non-tolled routes
  - Bay Bridge Road (19,000 to 45,000 vehicles per day)
  - Cochrane Bridge (19,000 to 47,000 vehicles per day)

Mobile River Bridge and Bayway



Mobile River Bridge and Bayway



Mobile River Bridge and Bayway

Anticipated Morning Queue Lengths

(Butts Road at Bay Bridge Road)

Mobile River Bridge and Bayway

Anticipated Evening Queue Lengths
(Butts Road at Bay Bridge Road)

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Bicycle and Pedestrian Facilities

MobileRiver BRIDGE

Bicycle and Pedestrian Alternatives

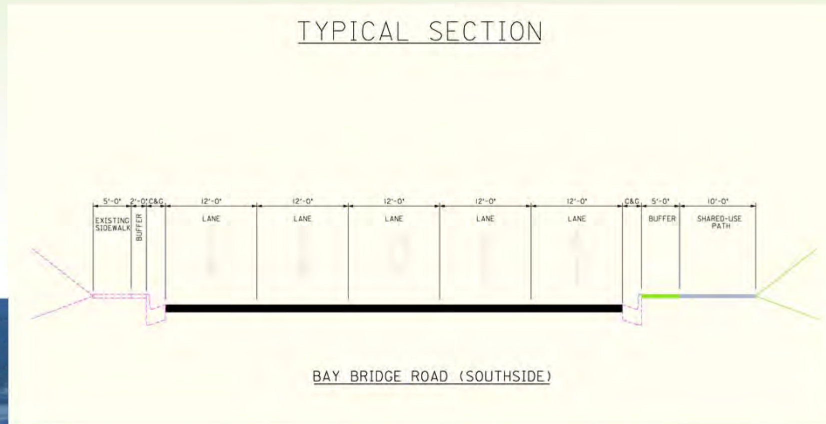
- Bike/Ped Workshop: October 27, 2016
  - Bankhead Tunnel Alternative
  - Cochrane Bridge Alternative
  - New Mobile River Bridge Alternatives
- Received petition with 95 signatures of Africatown residents supporting path on Cochrane Bridge

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

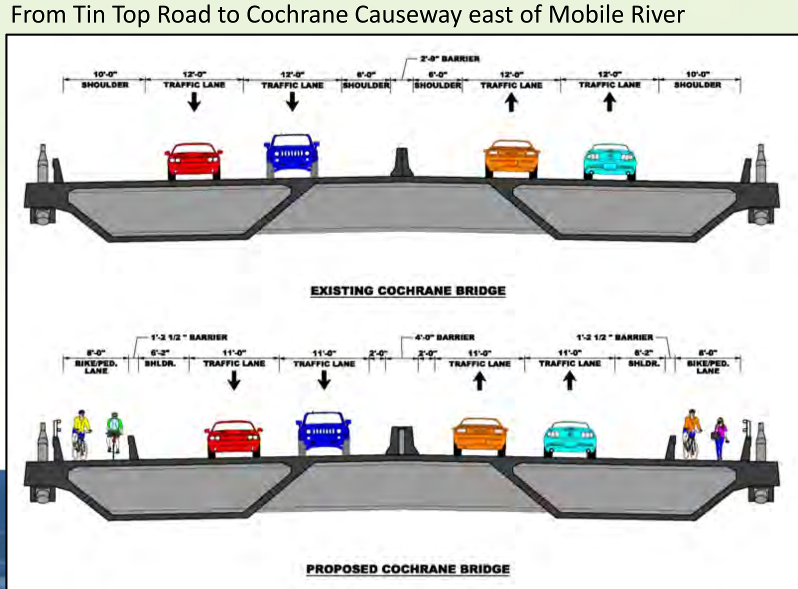
Bay Bridge Road Typical Section

- From I-165 to Tin Top Road:
  - Shared use on south side
  - Existing sidewalks on north side



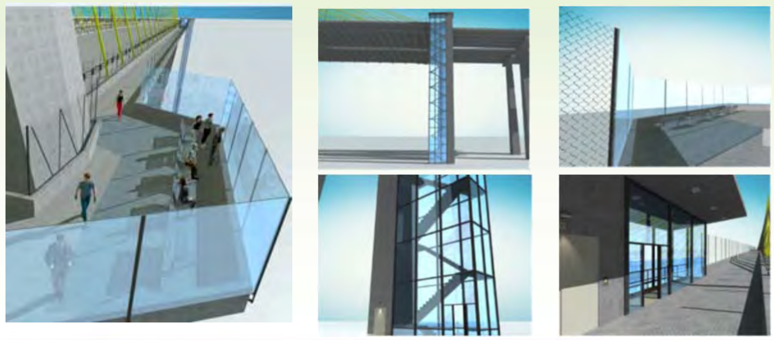
Cochrane-Africatown Bridge

- From Tin Top Road to Cochrane Causeway east of Mobile River



Belvedere

- Located on west side of Mobile River Bridge accessible by stair tower and elevator



Conceptual – for discussion purposes only

Mobile River Bridge and Bayway

Mobile River Bridge and Bayway

Next Steps

Anticipated Project Milestones

- Draft Environmental Approval – Fall 2018
- Public Hearings – Fall 2018
- Final Environmental Approval – End of 2018
- Proposer Selection – June 2019
- Construction Start – End of 2019

Actions under Consideration

- New signals along Bay Bridge Road
- Local road improvements
- Transit partnership/new transit stops
- Bicycle/pedestrian facilities
- Transponder assistance

Your Thoughts

- Community impacts
- Thoughts on project
- Route use
- Traffic impacts
- Compatibility with Africatown Neighborhood Plan and proposed Africatown Connections Blueway
- How can ALDOT work with your community?

Fill out comment card | Talk to team | Ask questions | Give feedback

Mobile River Bridge and Bayway

Future Neighborhood Outreach

- We want you to be involved.
- How can we engage your neighbors?
- Was this a good time and day of the week to meet?
- We encourage you to participate in meetings as we move through design, construction, and post-construction.
- Look for Public Hearing announcements this fall.

Mobile River Bridge and Bayway

Track our Progress

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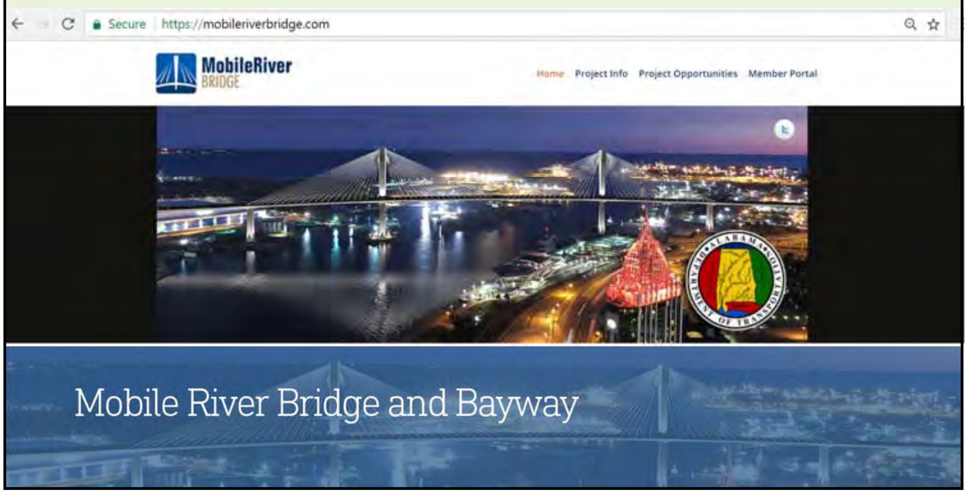

Mobile River Bridge and Bayway

Thank You!

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Community Handout and Survey

Project Overview: *About the Mobile River Bridge and Bayway Project:*
The I-10 Mobile River Bridge and Bayway project involves constructing a new six-lane bridge across the Mobile River and replacing the existing four-lane Bayway with an eight-lane structure.

The new bridge, Wallace Tunnel, and the Bayway will be tolled. The Cochrane-Africatown Bridge, Bankhead Tunnel and the Causeway will not be tolled.

ALDOT expects this project to:

- Reduce travel time between Mobile and Spanish Fort/Daphne on I-10.
- Increase reliability in travel times and accessibility to jobs, educational facilities, medical services, and recreational activities.
- Facilitate access to/from major industries and freight destinations in Mobile and Baldwin Counties and provide hazardous material vehicles a direct route away from downtown.
- Take all efforts to preserve and protect the Mobile Bay, local rivers and surrounding communities.

Anticipated Impacts to the Africatown Community:

- Increased traffic and congestion on Bay Bridge Road (Africatown Boulevard), Cochrane Bridge, and Causeway
- Longer delays at intersections along Bay Bridge Road (Africatown Boulevard)
- Increased traffic may result in minimal increase in noise along Bay Bridge Road (Africatown Boulevard); increase not expected to be perceived.
- Increased traffic could make it more difficult to cross from one side of Bay Bridge Road (Africatown Boulevard) to the other
- Increased traffic could make it more difficult to turn onto Bay Bridge Road (Africatown Boulevard) from side streets

To offset these potential impacts, ALDOT is proposing the following mitigation measures:

- Install a traffic signal at Bay Bridge Cutoff Road/Bay Bridge Road to improve access to the proposed Africatown Welcome Center and Union Baptist Church
- Adjust signal timing along non-tolled route to better accommodate local traffic movements to ensure that access to destinations is maintained
- Construct shared use path along Bay Bridge Road from I-165 across the Cochrane-Africatown Bridge to US-90 on the east side of Mobile River and provide crosswalks at traffic signals to allow bicyclists and pedestrians to cross Bay Bridge Road (Africatown Boulevard)

ALDOT's mission is to provide a safe, efficient, environmentally sound intermodal transportation system for all users, especially the taxpayers of Alabama.

Online: www.MobileRiverBridge.com | Email: agregg@mobileriverbridge.com

ALDOT would like your thoughts:

1. What are your thoughts on the project? ____

____

____

2. How often do you travel between Mobile and Baldwin Counties? ______________________________

____

3. When traveling across the Mobile River, which route do you prefer (please circle):

Cochrane-Africatown Bridge   Bankhead Tunnel   I-10 Wallace Tunnel

4. When traveling across the Mobile Bay, which route do you prefer (please circle):

Causeway (US 90/98)   I-10 Bayway

5. ALDOT anticipates more drivers will use the Cochrane-Africatown Bridge and Bay Bridge Road, meaning more congestion in this area. Given the potential impacts, how can ALDOT help your community?

____

____

6. What are your thoughts on the proposed mitigation efforts? ______________________________

____

____

7. For use of the full facility (Mobile River Bridge, Wallace Tune, and the Bayway, ALDOT is studying a tolling rate of $3-6. The Cochrane-Africatown Bridge, Bankhead Tunnel and Causeway will remain untolled.
Given this estimate, what impact will tolling have on your household budget?

____

8. How can we be sure we're reaching your neighbors? ______________________________

____

Thank you for your time.

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Attachment C

Responses to Comments Received

at Workshops

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

Responses to Comments Received at June 2018 Neighborhood Workshops

Texas Street/Oakdale Community Workshop

	Comment	Response
1.	We believe that it will cause a hardship on our community should a toll be enforced.	ALDOT is evaluating possible toll rates and will maintain a non-tolled route so that users have an option to take the free route to minimize impacts on the community.
2.	We are concerned about cost, what will happen to the existing structure, and we are interested in seeing a bike lane added for residents.	ALDOT is working with private investors and the federal government to fund the project. The existing Bayway will be removed and replaced with a new structure that is at a higher elevation and less susceptible to storm impacts. ALDOT has committed to providing bicycle and pedestrian facilities along Bay Bridge Road and over the Cochrane-Africatown USA Bridge. In addition, ALDOT will construct an observation area on the bridge on the west side of the Mobile River. This observation area will be connected to the ground level by pedestrian and bicycle facilities (sidewalks, bicycle lanes, and/or shared use path). Additionally, the Canal Street/Water Street interchange will be on the ground level and will include bicycle lanes and sidewalks to connect to bicycle lanes and sidewalks along Canal Street and Water Street.
3.	Ensure that increased traffic is not put through our neighborhood. Parents are elderly and we are concerned about the noise of the work that will be done. Will it impact our quality of life?	The proposed project is not expected to increase traffic on Lawrence Street, which is the address listed on this comment sheet. The Concessionaire will be required to implement measures to minimize construction noise. These measures are outlined in Section 4.17.4 of the Draft Environmental Impact

	Comment	Response
		Statement. The Concessionaire will be required to comply with Alabama Department of Transportation requirements to control noise pollution. Additional measures that may be implemented include ensuring that all diesel-powered equipment is properly muffled and installing temporary noise barriers between sensitive areas and noisy construction activities such as pile driving.
4.	The community is an older community. My family uses the tunnels to travel back and forth for travel to Florida and shopping in Daphne and Malbis. It is easier to use the Causeway and Bayway to shop due to the time of travel.	Thank you for your input. As noted above, the Bankhead Tunnel and Causeway will remain open and will not be tolled. The Bayway will, however, be tolled. Traffic is expected to increase on the Causeway due to people avoiding the toll on the Bayway.

Africatown/Plateau Community Workshop

	Comment	Response
1.	I think the project will be a nice thing to happen to this area, and people have a lot to see and be safer too. It will be a way to see part of Mobile.	Comment noted.
2.	The project looks good and it is time for a new change because there are more people traveling now on the highway.	Comment noted.
3.	I am sure the project will eliminate traffic or slow down traffic in certain areas.	The proposed project is expected to reduce congestion along the I-10 corridor between Mobile and Baldwin Counties. It is also expected to increase traffic on the non-tolled route due to people avoiding the toll.
4.	Two people state that the project will bring more tourists to the Africatown community/would have a positive influence on tourism.	Comment noted. The proposed project is expected to increase traffic on Bay Bridge Road through Africatown.
5.	The project looks excellent.	Comment noted.
6.	I prefer to use Bay Bridge Road to travel to church.	Comment noted.
7.	I'm excited about everything that was presented.	Comment noted.
8.	\$3-\$6 toll seems a little much. \$1.50-\$2 sounds better.	ALDOT is evaluating a range of toll rates to determine Factors influencing toll rates include traffic volumes; existing travel conditions; forecasted travel

	Comment	Response
		conditions; and costs for construction, operations and maintenance. ALDOT is exploring frequent user discounts and will maintain free alternative routes, which include the Causeway, Bankhead Tunnel, and Cochrane-Africatown Bridge.
9.	Africatown is a historical area. I'm a direct descendant. The future for this area is to make it a tourist area.	The proposed project is expected to increase traffic on Bay Bridge Road, which means more people will be traveling through the area.
10.	You can reach people by advertising in church flyers.	Future outreach activities will be advertised through churches.
11.	Prefer meetings to be held after work (after 5 p.m.).	Comment noted.
12.	The proposed project will bring too much traffic on Bay Bridge Road.	The proposed project will increase traffic on Bay Bridge Road. ALDOT has proposed mitigation measures to offset adverse impacts that would occur as a result of increased traffic. The proposed mitigation measures are described in Section 2.4.4 of this EJ Assessment. These mitigation measures will be coordinated with the Africatown community and will be finalized in the Final Environmental Impact Statement/Record of Decision.
13.	I think the project is good for out of town people. They will get to the beach faster.	Travel times on I-10 should be improved with the proposed project.
14.	Three people recommended resurfacing Paper Mill Road.	ALDOT proposes to resurface Paper Mill Road from Bay Bridge Road to US 43 as part of the mitigation for increased traffic and congestion on Bay Bridge Road resulting from the proposed project.
15.	The proposed project would not have any effect on my household budget.	Comment noted.
16.	The proposed project is long overdue. Traffic backs up on I-10 eastbound Monday through Friday starting about 3:30 p.m.	Comment noted.
17.	Hopefully, some businesses will come to Africatown Boulevard (Bay Bridge Road).	The proposed project will increase traffic on Bay Bridge Road; however, there is no way to predict whether new businesses will choose to locate on this corridor.
18.	Consider another traffic light on the Africatown Boulevard (Bay Bridge Road).	ALDOT proposes to install new traffic signals on Bay Bridge Road when warranted. Potential locations

	Comment	Response
		include Bay Bridge Road Cutoff and Tin Top Lane/Magazine Street.
19.	The proposed project would have none or very little impact on my household budget.	Comment noted.
20.	The Blueway Project is in the pipeline. Information and tourist center to be constructed in Africatown. Several tourist attractions are in the area – Mobile County Technical School, old cemetery, and historic markers.	ALDOT has committed to providing bicycle/pedestrian facilities along Bay Bridge Road from I-165 to US 98 on the east side of Mobile River. These facilities would provide connectivity to the Africatown Blueway project and provide improved pedestrian and bicyclist connectivity to points of interest in the Africatown community.
21.	To reach community, give information to local tv stations and area churches.	Future outreach activities will be advertised through local tv stations and area churches.
22.	The proposed project would bring jobs to the area and hopefully people in our area.	As discussed in Section 4.3.8 of the 2014 Draft Environmental Impact Statement, construction of the proposed project is expected to create new jobs in the area.
23.	The sooner the project starts, the better.	Comment noted.
24.	I use the Cochrane-Africatown USA Bridge, Wallace Tunnels, Bankhead Tunnel, Bay Bridge Road, and the Causeway very frequently, 5-6 times per week.	Comment noted.
25.	I prefer to use the Cochrane-Africatown USA Bridge, Bay Bridge Road, and the Causeway for recreation and view.	Comment noted.
26.	Suggest putting more traffic lights on Bay Bridge Road. Resurface Woodland Street. Attempt to hire people from the community.	ALDOT proposes to install new traffic signals on Bay Bridge Road when warranted. Potential locations include Bay Bridge Road Cutoff and Tin Top Lane/Magazine Street.
27.	The impacts of the project on my household budget will depend on the fee. I am on a fixed budget.	ALDOT is evaluating a range of toll rates to determine Factors influencing toll rates include traffic volumes; existing travel conditions; forecasted travel conditions; and costs for construction, operations and maintenance. ALDOT is exploring frequent user discounts and will evaluate opportunities for transponder assistance for economically-disadvantaged persons to offset the cost of using the tolled facility. Bay Bridge Road, the Causeway, the

	Comment	Response
		Bankhead Tunnel, and the Cochrane-Africatown USA Bridge will remain free to use.
28.	We need a traffic light re-installed at the entry of Union Baptist Church (Bay Bridge Cutoff). It is difficult for members to get into church and out of church after Sunday service.	One of the mitigation measures ALDOT proposes is to install a signal at Bay Bridge Road Cutoff which is the entrance to the Union Baptist Church.
29.	Reach community by using newsletters, newspapers, flyers, tv, radio, and door to door.	ALDOT will incorporate these methods into their outreach plan.

Attachment D

Survey Transmitted to

Africatown/Plateau Community

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ALDOT expects this project to:

- Reduce travel time between Mobile and Spanish Fort/Daphne on I-10.
- Increase reliability in travel times and accessibility to jobs, educational facilities, medical services, and recreational activities.
- Facilitate access to/from major industries and freight destinations in Mobile and Baldwin Counties and provide hazardous material vehicles a direct route away from downtown.
- Take all efforts to preserve and protect the Mobile Bay, local rivers and surrounding communities.

Anticipated Impacts to the Africatown Community:

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- Install a traffic signal at Bay Bridge Cutoff Road/Bay Bridge Road to improve access to the proposed Africatown Welcome Center and Union Baptist Church
- Adjust signal timing along non-tolled route to better accommodate local traffic movements to ensure that access to destinations is maintained
- Construct shared use path along Bay Bridge Road from I-165 across the Cochrane-Africatown Bridge to US-90 on the east side of Mobile River and provide crosswalks at traffic signals to allow bicyclists and pedestrians to cross Bay Bridge Road (Africatown Boulevard)

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ALDOT would like your thoughts:

1. What are your thoughts on the project? ______________________________

____

____

2. How often do you travel between Mobile and Baldwin Counties? ______________________________

____

3. When traveling across the Mobile River, which route do you prefer (please circle):

Cochrane-Africatown Bridge Bankhead Tunnel I-10 Wallace Tunnel

4. When traveling across the Mobile Bay, which route do you prefer (please circle):

Causeway (US 90/98) I-10 Bayway

5. ALDOT anticipates more drivers will use the Cochrane-Africatown Bridge and Bay Bridge Road, meaning more congestion in this area. Given the potential impacts, how can ALDOT help your community?

____

____

6. What are your thoughts on the proposed mitigation efforts? ______________________________

____

____

7. For use of the full facility (Mobile River Bridge, Wallace Tune, and the Bayway, ALDOT is studying a tolling rate of $3-6. The Cochrane-Africatown Bridge, Bankhead Tunnel and Causeway will remain untolled.
Given this estimate, what impact will tolling have on your household budget?

____

8. How can we be sure we're reaching your neighbors? ______________________________

____

Thank you for your time.

ALDOT's mission is to provide a safe, efficient, environmentally sound intermodal transportation system for all users, especially the taxpayers of Alabama.

Online: www.MobileRiverBridge.com | Email: agregg@mobileriverbridge.com

APPENDIX F

Draft Mitigation Plan and Interagency Coordination on Wetlands, SAV, and EFH

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F-2: Interagency Coordination on Draft Mitigation Plan	**F-46**

1) Summary of Interagency Coordination on Development of Draft Mitigation Plan since DEIS
2) March 4, 2015 Interagency Meeting Minutes
3) April 12, 2017 Interagency Meeting Minutes
4) July 25, 2017 Transmittal of Draft Mitigation Plan to Agencies and Comments Received
5) January 11, 2018 Transmittal of Revised Draft Mitigation Plan to Agencies, Disposition of Comments Received from Previous Review, and Comments Received from Agencies
6) April 12, 2018 ADCNR Meeting Minutes
7) August 2018 Transmittal of Revised Draft Mitigation Plan to Agencies, Disposition of Comments Received from Previous Review, and Meeting Minutes from August 28, 2018 Interagency Meeting
8) February 14, 2019 Interagency Meeting Minutes and Presentation
9) Correspondence with Agencies, February 21, 2019 Transmittal of Draft Mitigation Plan to Agencies, and Responses Received

DRAFT MITIGATION PLAN

ALABAMA DEPARTMENT OF TRANSPORTATION
I-10 MOBILE RIVER BRIDGE AND BAYWAY PROJECT

MOBILE AND BALDWIN COUNTIES
PROJECT DPI-0030(005)

Prepared for

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March 13, 2019

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APPENDIX B – TIDAL MARSH HGM ANALYSIS

APPENDIX C – DRAFT MONITORING PLAN

1.0 INTRODUCTION

This Plan outlines proposed mitigation for impacts to submerged aquatic vegetation (SAV) and emergent wetlands resulting from construction of the I-10 Mobile River Bridge and Bayway Project. The Project design includes the replacement of the existing four-lane Bayway with a new eight-lane Bayway. The new Bayway would be constructed within the footprint (outside edge to outside edge) of the existing Bayway, except at the interchanges, where construction outside of the existing Bayway bridges and/or ramps but within ALDOT's right-of-way may be required to reduce lane closures and maintain traffic during construction.

Since the signature of the DEIS in July 2014, ALDOT has conducted storm surge analyses and a bathymetric survey of the area along the Bayway. The results of these studies indicate that the existing I-10 Bayway bridges across Mobile Bay are vulnerable to impacts from storm surge, including sea level rise. Therefore, the Bayway will be replaced (rather than widened) at an elevation above the 100-year storm. The new bridge structures will remain within the footprint (outside edge to outside edge) of the existing Bayway, except at the interchange ramps. At the interchanges, new ramps may be constructed outside of the existing ramps but within ALDOT's right-of-way in order to maintain traffic during construction. The existing bridges will be used to maintain traffic on I-10 during construction and then demolished after construction of the new Bayway.

The preferred construction methodologies for the Bayway are barges and top-down construction. In order to better facilitate construction of the new Bayway bridges, ALDOT has determined that dredging may be required in areas where water depths are less than six (6) feet. Dredging would:

- Allow barges to float rather than rest on the Bay bottoms,
- Reduce construction time, and
- Result in substantial construction cost savings.

Dredging would only occur within some areas of the previously disturbed construction channel that was used to build the existing Bayway. The dimensions of the original channel were around 125 feet wide and 8 feet deep. The proposed dredging would be approximately 125 feet wide and 6 feet deep and would not occur in wetland areas. Affected SAV and wetlands located within the footprint of the existing Bayway bridges are shown in Figures 1A through 1E, along with proposed dredging locations (Appendix A). SAV and wetlands located within the areas at the westernmost Bayway ramp and at the Mid-Bay interchange ramp are shown on Figures 2A and 2B.

2.0 ANTICIPATED IMPACTS

2.1 Submerged Aquatic Vegetation

Approximately 12.2 acres of SAV were mapped in 2015 between the existing Bayway bridges, and follow-up surveys in the summer of 2016 found the same distribution (Figures 1B through 1E). It is assumed that 100% of the SAV between the existing Bayway bridges would be impacted either from shading or dredging. Most of the SAV acreage in the project footprint would be removed by dredging.

Although the new Bayway spans would be elevated approximately 34 feet above the average level of the Bay (approximately 10 feet higher than the existing deck elevation), shading caused by the new spans is expected to have an adverse impact on any SAV in the Project footprint not affected by the proposed dredging. Surveys for SAV in Mobile Bay (including the Bay bottoms under the existing spans) were conducted during the summer months of 2002, 2009, 2015, and 2016 (Barry A. Vittor & Associates, Inc., 2004, 2010, 2016) and found no SAV under the Bayway spans.

Areas at the westernmost Bayway ramp and at the Mid-Bay interchange within ALDOT's right-of-way but outside of the existing footprint that may be impacted total approximately 3.9 ac of SAV (Figures 2A and 2B).

A total of 16.1 acres of SAV would be affected by the Project. Submerged grassbeds between the existing Bayway spans contain mostly wild celery (*Vallisneria neotropicalis*), Eurasian watermilfoil (*Myriophyllum spicatum*), and southern naiad (*Najas guadalupensis*). These same species also occur in the areas immediately adjacent to and outside the Bayway spans, along with water stargrass (*Heteranthera dubia*) and coon's tail (*Ceratophyllum demersum*), with lesser amounts of small pondweed (*Potamogeton pusillus*). Scrub-shrub and forested wetlands contain wax myrtle (*Morella cerifera*), Chinese tallow tree (*Triadica sebifera*), black willow (*Salix nigra*), blackberry (*Rubus pensylvanicus*), peppervine (*Nekemias arborea*), and groundsel tree (*Baccharis halimifolia*).

2.2 Wetlands

Estuarine emergent wetlands in the Project footprint were surveyed in 2015 and 2016 (Figures 1A through 1E). Dredging would not occur in areas where wetlands are present; however, construction of new Bayway travel lanes would result in shading of 3.9 acres of these wetlands. This impact would be less severe than shading impacts on SAV, but is expected to result in some reduction in vegetation density and productivity; the Project would not involve permanent excavation or filling of any wetland habitat.

Areas within ALDOT's right-of-way but outside of the existing footprint that may be impacted have a combined total of approximately 2.1 ac of herbaceous marsh and 1.3 ac of scrub-shrub and forested wetland (Figures 2A and 2B).

The proposed project would impact approximately 6 acres of estuarine emergent wetlands and 1.3 acres of scrub-shrub and forested wetlands. These predominantly herbaceous wetlands consist of good quality, tidally influenced habitat, mostly comprised of southern wild rice (*Zizania aquatica*), bulltongue arrowhead (*Sagittaria lancifolia*), southern cattail (*Typha domingensis*), and softstem bulrush (*Schoenoplectus tabernaemontani*).

3.0 WETLAND AND SAV MITIGATION

3.1 Mitigation Approach

Compensatory mitigation for the potential loss of up to 6 acres of tidal marsh or marsh productivity and 16.1 acres of SAV would involve creation of approximately 41.2 acres of tidally influenced emergent wetland and SAV habitat. The proposed mitigation approach is to create approximately 9 ac of marsh and 32.2 ac of SAV habitat at a suitable location north of the Mobile Bay Causeway.

Emergent marsh and SAV habitat would be created by placement of dredged material in shallow bay bottom, to achieve appropriate subtidal and intertidal elevations for wetlands sustainable under anticipated sea level rise. Native marsh vegetation would be planted to achieve 9 ac of emergent wetlands. The proposed approach is to promote SAV establishment by creating subtidal depths suitable for colonization by SAV species occurring naturally at nearby locations.

Potential permanent impacts to 1.3 ac of scrub-shrub and forested wetland would be mitigated though the purchase of an appropriate number of credits at an approved mitigation bank that services Mobile and Baldwin Counties.

3.2 Alternatives Considered

An alternative SAV mitigation approach, suggested for consideration by the State Lands Division of the Alabama Department of Conservation and Natural Resources, would involve planting SAV at one or more sites in the Project vicinity.

An SAV planting approach was evaluated early in the mitigation planning process. Two upper Bay locations were identified as potential SAV transplant sites because they had SAV in the recent past, but are currently non-vegetated (Barry A. Vittor & Associates, Inc., 2016). The sites comprise 84 acres of bay bottom adjacent to existing SAV beds, and presumably are subject to the natural range of depths, salinity, sediment, and currents that support SAV in adjacent areas of the upper Bay.

The primary concerns about the practicability of a planting approach are related to the labor-intensive methods, impacts on donor stock beds, increased monitoring and adaptive management efforts, and the relative lack of overall success typically resulting from SAV planting projects.

A substantial number of transplant plugs from nearby donor beds would be required to achieve Project mitigation. Plugs would be collected from large beds in the immediate area of the mitigation sites to assure plants are acclimated to the ambient salinity, sediment, and current regimes. Priority for transplants would target areas of the donor beds with full to continuous coverage (≥ 50% bottom area cover), to maximize the likelihood of a well-developed root mat to maintain sufficient sediment binding during transplanting.

Plant plugs of about 1 ft^2 would be removed by hand if possible, but it is likely to require a shovel or spade. Removed plugs would be separated by at least 1 m, to minimize the amount of material removed and facilitate regeneration in donor beds. Secondary effects of transplant plug removal, such as prop scarring or trampling, would be minimized to the extent practicable, but there is an inherent trade-off between the availability of suitable transplants, impacts to donor sites, and the overall level of effort. The active planting approach would be at least partly experimental in nature.

Given the limited efficacy of SAV restoration through direct planting or seeding, for example in the Chesapeake Bay system (CBP STAC, 2011), the potential success of this alternative approach is deemed to be low. In the event that the proposed SAV mitigation effort is trending toward an unsuccessful outcome after three (3) years post-implementation, ALDOT's mitigation team will confer with the cognizant agencies to assess causes and potential corrective measures, which could include SAV planting or out-of-kind mitigation such as creation of additional marsh habitat.

3.3 Site Selection

Since the mitigation marsh and SAV habitat would be constructed without protective armoring, habitat creation north of the Highway 90 Causeway is more likely to persist through time than habitat constructed in upper Mobile Bay. Choccolatta Bay was considered as a possible location for new marsh and SAV habitat, but was dismissed due to public use concerns expressed by the ADCNR State Lands Division.

The area proposed for creation of tidal wetlands and SAV habitat is in Polecat Bay, approximately 8,600 ft (2,590 m) north of the Bayway (Figure 3). This site is near the Project and has water depths of around -4 ft MSL. There is adequate expansion area adjacent to the site, in the event that the spatial scope of the mitigation increases due to greater than expected resource impacts at the time of Project construction. If SAV occurs within the proposed mitigation site boundary at the time of Project construction, the location will be adjusted to avoid the SAV.

The hydrodynamic regime of Polecat Bay is relatively quiescent, with a lack of efficient hydraulic connection to adjacent rivers. Tidal exchange occurs at the confluence of upper Mobile Bay and the mouth of the Tensaw River.

3.4 Alternative Mitigation Designs

Two alternative mitigation designs are analyzed: A Marsh Island design (Figure 4) and a Marsh Terrace design (Figure 5). Each alternative would fill an area of approximately 43.5 acres of Polecat Bay bottom.

The marsh and terrace alternatives would each create approximately 9 ac of tidal marsh and 32.2 ac of SAV habitat. The island design has a central 9-ac area of emergent marsh and outer zone of SAV, whereas the terrace design includes seven marsh units each measuring 50-ft wide by 1,120 ft long (1.3 ac), with approximately 215 ft in between units. Figure 6 presents typical cross-sections for the alternative designs.

Tidal marsh would be created at elevations between 0 and +2 MSL. Lueth (1963) described low marshes of the Delta as occurring in a zone varying from a few inches below MLW to about one foot above it. High marsh generally occurs at less frequently flooded elevations, including above mean high tide. Published datums for the nearby Meaher Park tide gauge (NOAA Tide Station 8733839) are a mean tide level of 0.79 ft; mean high water at 1.53 ft; and mean low water at 0.05 ft.

SAV would be allowed to recruit naturally into the fill area at elevations between -3 ft and 0 MSL, which is the predominant range of naturally occurring SAV in upper Mobile Bay and the lower Delta. The subtidal target elevation would average approximately -2 ft. Water depths at SAV stations assessed in 2015 and 2016, inside and adjacent to the existing Bayway, range from 0.5 to 4.5 ft, with an average depth of 2.2 ft (±0.8).

3.5 Evaluation of Alternative Designs

Potential ecosystem functioning of the alternative mitigation designs was evaluated using a hydrogeomorphic (HGM) model approach. The HGM model approach uses mathematically derived indices to assess the capacity of wetlands to perform specific ecological, geochemical, and hydrological functions. For the Mississippi/Alabama coastal zone, tidal marsh HGM was developed using local reference wetlands as sites to represent the natural wetland variability that occurs within the region (Schafer et al., 2007). Details of the HGM assessment methodology and the results of the analysis are presented in Appendix B.

The HGM assessment procedure uses a combination of landscape-scale information gathered and assessed in GIS, and field data to calculate the functional capacity of tidal marshes. The landscape-scale design variables include:

Wetland Patch Size
Mean Marsh Width
Aquatic Edge
Hydrologic Regime
Wave Energy Exposure
Adjacent Land Use

Field variables include:

Nekton Habitat Diversity
Mean Percent Cover Emergent Marsh Vegetation
Vegetation Height
Percent Cover of Invasive or Exotic Species
Percent Cover by Woody Plant Species
Wetland Indicator Status

When an HGM model variable is within the range of conditions observed in reference standard wetlands a variable sub-index value of 1.0 is assigned. As the condition deviates from that observed in reference wetlands, the variable sub-index is assigned based on the observed relationship between model variable condition and functional capacity (on a scale of 0.0 to 1.0).

For this analysis, assumptions regarding field conditions of the implemented mitigation alternatives were made based on their respective designs and the successful implementation of the mitigation plan. GIS-based measurements of the landscape variables were combined with the predicted field conditions using mathematical expressions to estimate five ecosystem functions attributed to tidal fringe wetlands in the AL/MS Gulf coast reference domain. These functions include:

Wave Attenuation
Biogeochemical Cycling
Nekton Utilization
Habitat for Tidal Marsh Dependent Wildlife
Maintenance of Characteristic Plant Community Structure

Formulas used to calculate Functional Capacity Indices (FCI) for each of the ecosystem functions are provided in Appendix B, along with sub-index values for the HGM, vegetation, and habitat diversity variables. Table 3-1 lists the FCI scores for each ecosystem function and their average for each mitigation site, as well as the Functional Capacity Units (FCU) for the five functions. Because the Terrace Alternative consists of seven separate marsh units, the HGM analysis was performed for a single terrace, and the sum of the FCUs multiplied by 7 to encompass the entire design.

Both alternatives are assumed to achieve at least 70% emergent herbaceous plant cover comprised of native species, to achieve a fully functional value (1.00) for Maintaining Plant Community Composition and Structure (Table 3-1). Both alternatives also score a fully functional value (1.00) for Biogeochemical Cycling, due to plant coverage assumptions and site characteristics that include normal tidal hydrology and natural land use in the surrounding area.

Table 3-1. Functional Capacity Index (FCI) and Functional Capacity Unit (FCU) values for the Marsh Island and Marsh Terrace Alternatives in Polecat Bay.

Alternative	HGM Function	FCI	FCU
Marsh Island	Wave Energy Attenuation	0.77	2.82
	Biogeochemical Cycling	1.00	3.64
	Nekton Utilization Potential	0.87	3.16
	Provide Habitat for Tidal Marsh Dependent Wildlife	0.88	3.19
	Plant Community Composition/Structure	1.00	3.64
		FCI Ave.: 0.90	FCU Sum: 16.45
Marsh Terrace	Wave Energy Attenuation	0.57	0.30
	Biogeochemical Cycling	1.00	0.52
	Nekton Utilization Potential	0.87	0.45
	Provide Habitat for Tidal Marsh Dependent Wildlife	0.80	0.41
	Plant Community Composition/Structure	1.00	0.52
		FCI Ave.: 0.85	FCU Sum: 2.20
			Sum x 7 = 15.40

The Island Alternative scored higher for Wave Energy Attenuation, due to greater average width than the Terrace Alternative. The Island Alternative also scored higher for its capacity to Provide Habitat for Tidal Marsh Dependent Wildlife, due to greater patch size.

Both alternatives scored 0.87 for Nekton Utilization Potential. The Nekton Utilization function is the potential marsh utilization by resident and transient adult or juvenile fish and macrocrustacean species. The FCI equation for Nekton Utilization includes metrics for Aquatic Edge, which is the length of vegetated, tidally connected marsh/water interface expressed as a proportion of total patch area; the Hydrologic Regime, which is the degree of alteration to normal tidal hydrology; and the Nekton Habitat Diversity variable, which is a measure of the nekton habitat heterogeneity of the alternative mitigation designs.

3.6 Alternatives Analysis

Terraces have been used to create tidal marshes for habitat restoration in systems altered by both human and natural caused degradation and loss. Along the Northern Gulf coast, terrace creation is most common in Louisiana. The terrace technique has not been used in Alabama. Apparently the technique to date has not been used for project-specific mitigation to compensate for impacts to Section 404 wetlands.

The Marsh Island Alternative is the preferred method of Project mitigation. The calculated FCI average for the Island Alternative (0.90) is marginally higher than the average for the Terrace Alternative (0.85), and the sum of the FCU values is higher for the Island Alternative (16.45) compared to the Terrace Alternative (15.40). Considering the entirety of ecosystem functions, the Island Alternative design has greater benefits for wildlife habitat and wave attenuation. The long-term persistence of the created marsh is also a primary concern, and terraces are likely to be more susceptible to erosive effects of storm-generated waves due to a narrower marsh surface.

Costs associated with each alternative are a significant consideration in selecting the most practicable mitigation approach. The Terrace Alternative would require an estimated 292,900 CY of sediment, whereas the Island Alternative would require roughly 234,900 CY of material.

Sediment placement represents the principal cost for wetland and SAV mitigation; a typical in-place cost of $13.00/CY has been observed for other marsh restoration projects in the Alabama coastal area, and provides a reasonable basis for estimating potential costs for Project mitigation. The estimated sediment volumes would result in a cost of over $3,807,700 for the terrace approach and a cost of about $3,053,700 for the island approach.

The total mitigation cost for 9 acres of marsh and 32.2 acres of SAV habitat is estimated at $4,731,745, including $350,000 for post-construction monitoring. A change in the mitigation scope, due to either additional or reduced impacts at the time of Project construction, would result in commensurate cost increases or decreases. Changes in sediment volume requirements would account for most of the cost increase or decrease. Some other costs, such as for marsh planting, would be modified to a lesser extent or would remain the same. The marsh component requires 11,700 CY of sediment per acre, for a total cost of $152,000 per acre added or subtracted. The SAV component requires 4,100 CY of sediment per acre, for a total cost of $53,300 per acre added or subtracted.

4.0 MITIGATION IMPLEMENTATION

Sediment Sources

It is estimated that approximately 325,000 cubic yards of material may be dredged from the construction channel that was used to build the existing Bayway. It is anticipated that the dredged material would be beneficially used to create the marsh island mitigation site; however, if the material is not deemed to be suitable for mitigation, it will be disposed of in a USACE-permitted disposal area with available capacity.

Alternative sediment sources for the mitigation include existing dredged material confined disposal facilities (CDFs) in the Mobile Harbor. Three CDFs in proximity to the mitigation site include the North Pinto Disposal Area, South Blakeley Disposal Area, and North Blakeley Disposal Area (Figure 7).

Another alternative for mitigation sediments potentially available in the near-term could be new work and maintenance material from Mobile Harbor improvements. The U.S. Army Corps of Engineers Mobile District is currently evaluating impacts that would result from the deepening and widening of 35 miles of the Mobile Harbor Channel and associated dredged material disposal alternatives. As part of this overall effort, dredged material evaluations are being conducted to determine possible beneficial use in accordance with regional sediment management practices (USACE, 2016). Representatives from the Alabama Port Authority, Federal and state agencies, and local experts are actively working with the District to identify and evaluate dredged material disposal alternatives and beneficial use of the new work material.

The target for sediment texture will be in the range of 50-75% sand, to provide sufficient capability for maintenance of the geomorphic design of the site. The perimeter of the created marsh will not be armored; rather, the margins of the "island" marsh will be allowed to weather with tidal and wave actions, to establish a normal angle of repose for the introduced sediment.

Emergent and submerged plant communities in oligohaline and freshwater environments are adapted to a range of sediment conditions for both grain size distribution and organic content. The soil in tidal freshwater marshes can be described as a waterlogged organic muck with varying amounts of sand, silt, and clay (Odum et al., 1984). Freshwater input structures soil properties, vertical accretion, and nutrient accumulation of tidal marshes (Craft, 2007). Marshes in the Mobile-Tensaw Delta are dependent on pulses of inorganic sedimentation due to high river discharge events and tropical storms (Smith et al., 2013).

Sediments north of the Causeway are generally mixed, with more fine-grained sediments than nearby locations south of the Causeway (Valentine and Sklenar, 2005). Newbolt et al. (2008) sampled 13 locations in nearby Choccolatta Bay SAV beds and found that percent sand varied from 40 to 72% and percent silt from 17 to 33%, with no significant differences between SAV habitat types (e.g., milfoil or wild celery). After mitigation site construction, equilibration is expected to occur through primary and detrital production and episodic inorganic deposition. These processes are expected to result in natural ranges of organic content and sediment texture at the mitigation site, similar to substrata supporting local emergent and submerged plant communities.

Borrow material will be sampled and analyzed to determine compliance with the Clean Water Act for open water placement. Ecological risk benchmarks to be considered during the mitigation implementation phase will be those contained in the United States USEPA/USACE Inland Testing Manual. Sediments will be evaluated for contaminants of concern, including semivolatile organic compounds (SVOCs; PCBs, PAHs, phenols, phthalates, and organochlorine pesticides) and heavy metals, including mercury.

In a study of embayments north of the Causeway (Valentine and Sklenar, 2005), Justin's Bay and Choccolatta Bay sediments had the highest concentrations of arsenic, chromium, copper, zinc, and aluminum, followed by Polecat Bay. Delvan Bay, just east of Polecat Bay, had the lowest sediment concentrations of these metals.

Sediment Placement

The Project mitigation site will be constructed within a levee/berm formed with on-site sediment. This levee material will be excavated from within the new marsh area and will serve to contain sediments discharged into the site via hydraulic pipeline or barge and clamshell. Once the marsh surface has become compacted and stabilized, the levee will be graded to an intertidal elevation, to assure exposure to natural fluctuations in tide levels.

Planting

Once the marsh surface has become stabilized, appropriate native marsh plants will be planted. Target species will include southern wild rice, bulltongue arrowhead, softstem bulrush, pickerel weed (*Pontederia cordata*), and arrow-arum (*Peltandra virginica*); other taxa may be considered, based on availability of transplant material and actual post-preparation site conditions. Transplants will be obtained from existing marsh habitats along the Mobile Bay Causeway, or from commercial wetland plant nursery suppliers. In the event that plants are taken from area marshes, no more than one square foot of marsh will be removed per square yard of vegetated surface, and transplants will consist of plugs that measure 4 to 6 inches square. Commercial transplant stock will consist of at least 3 viable stems with a healthy root ball, and will be a minimum of 4 inches square. Transplants will be nursery-acclimated to an average salinity of 5 ppt. The marsh plants will be spaced at 3-foot intervals across the created marsh surface. All transplant materials will be inspected for undesirable invasive plant species, such as torpedo grass (*Panicum repens*), to preclude introduction of exotic invasive species into the mitigation site.

Waterbottoms in the area around the marsh island will be elevated an average of 2 ft using sediments obtained from the same source used to create the island. This material will be placed hydraulically in layers, to minimize the potential for mud waves and formation of pockets of very fine material that may be less suitable for SAV colonization. SAV is expected to recruit naturally into the shallow area surrounding the marsh island. In Polecat Bay, SAV is mostly Eurasian watermilfoil, southern naiad, and wild celery.

5.0 ADAPTIVE MANAGEMENT STRATEGY

Tidal Marsh

A draft mitigation monitoring plan is included in Appendix C. Successful creation of tidal marsh is dependent upon three key variables: Selection of an appropriate project site, establishment of appropriate elevations, and presence of suitable sedimentary substrate. Secondary factors may include selection of appropriate plant species, healthy plant stock, and effects of severe weather on the marsh site. A thorough census of the transplanted marsh species will be performed approximately 6 months after planting. Replanting will be performed as necessary to maintain a density of at least 3,440 plants per acre (85% survivorship) during the first year post-construction. Should the created marsh exhibit transplant survival of less than 85%, a determination will be made of the probable cause(s) of the lack of success; corrective measures will be discussed with the cognizant agencies. These could involve re-planting with different emergent wetland species, use of alternative transplant sources, removal of undesirable invasive plant species, modification of site morphologies, or implementation of an alternative approach to mitigation.

The tidal marsh mitigation is expected to attain a level of cover of at least 70%, with a vegetative community comprised of native freshwater marsh species (such as arrow-arum, bulltongue arrowhead, cattail, marsh millet, pickerel weed, softstem bulrush, southern wild rice, threesquare), and coverage of exotic invasive plants of no more than 5%. The 70% native plant cover criterion is the minimum value for the fully functional vegetative coverage in the Tidal Marsh HGM Model. Data collected in the monitoring program will be used to calculate HGM metrics; mitigation for marsh impacts will be considered successful if the Functional Capacity Units (FCU) lost through shading are fully replaced.

SAV

SAV can be affected by environmental factors that are beyond the control of aquatic ecology specialists, and may include storm effects on sediment and water quality, incursions of exotic/invasive plant species, presence/absence of important microflora, and effects of drought or freshet conditions. The SAV success criterion is ≥50% coverage in the 32-ac subtidal zone of the mitigation site. The ≥50% criterion is the continuous cover standard used for recurring SAV mapping performed by the Mobile Bay National Estuary Program and Alabama State Lands Division in the Alabama coastal zone (Barry A. Vittor & Associates, Inc., 2004, 2010, 2015).

6.0 LONG TERM MANAGEMENT PLAN

After performance standards have been achieved, ALDOT will provide ongoing exotic species control as part of its management and maintenance of the marsh mitigation site. Areal coverage of exotic species must be ≤5% for the mitigation site to be in compliance with the Mitigation Plan. Depending on need and the nature of infestation, either a herbicidal treatment or hand-removal method would be used for long-term control of exotics on-site. Herbicidal treatment would apply a non soil-active herbicide rated for use in the marsh habitats.

In the event that the created SAV habitat is trending toward an unsuccessful outcome of less than 50% coverage after three (3) years post-implementation, ALDOT’s mitigation team will confer with the cognizant Federal and state agencies to assess causes and potential corrective measures. Corrective measures could include SAV planting or pursuit of an alternative mitigation approach that does not involve direct SAV habitat creation.

Financial Assurances

ALDOT agrees to allocate and budget annual funding for the exclusive purpose of fulfilling its obligations pursuant to the long-term management and maintenance of the mitigation site, once it has been determined to be in compliance with the performance standards criteria set forth in this mitigation plan. The foregoing long-term budgetary obligation shall continue so long as ALDOT manages the mitigation site.

ALDOT's allocated budgetary funding shall include but not be limited to (i) maintenance work described in the mitigation plan to ensure the high-quality state of the SAV and emergent wetland habitat is maintained (maintenance methods would include any of the necessary means described in the mitigation plan); including removal of exotics from marsh areas, and supplemental planting of emergent herbaceous species, and (ii) performance of monitoring and reporting, as described within this mitigation plan, to the Corps of Engineers.

Site Protection Instrument

Prior to approval of the Final Mitigation Plan, and prior to commencing the construction of the Project, ALDOT will enter into a Memorandum of Agreement with the Corps of Engineers, ADEM, and ADCNR State Lands Division on long-term protection and management of the mitigation site. Modifications of the MOA will be allowed at the discretion of the Corps of Engineers, in consultation with resource agencies as appropriate, and then only in exceptional circumstances. Mitigation for any impacts allowed under a modification will be required at the time of the modification. The signatory agencies shall be under no obligation to approve a modification requested by ALDOT.

7.0 REFERENCES CITED

Barry A. Vittor & Associates, Inc., 2016. Submerged Aquatic Vegetation Mapping in Mobile Bay and Adjacent Waters of Coastal Alabama in 2015. Prepared for the Mobile Bay National Estuary Program, Mobile, AL. 17 pp + appendices.

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APPENDIX A – FIGURES

Figure 1A

Field Points

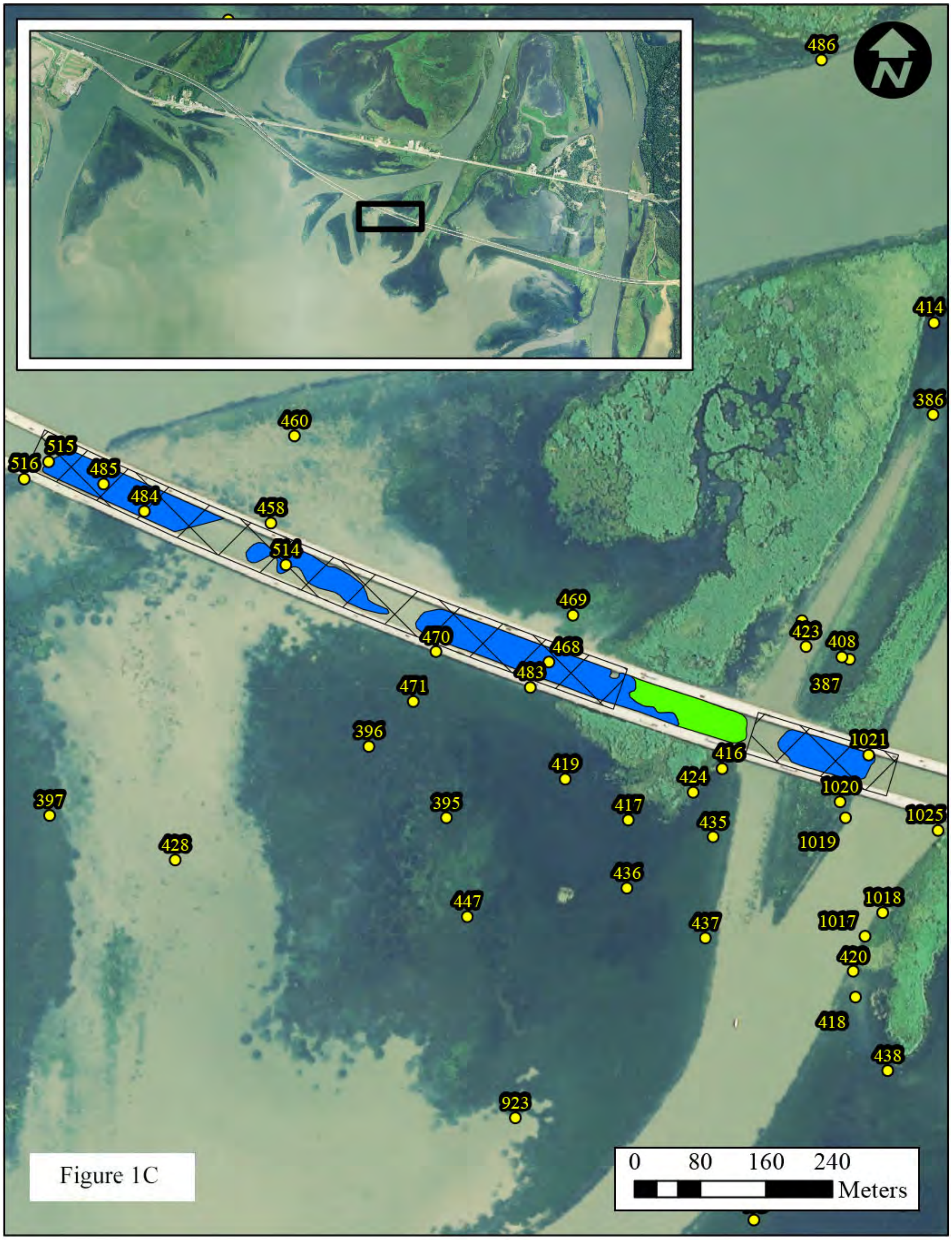
Wetland (0.18 acres)

Proposed dredging location

Field Points

Submerged Aquatic Vegetation (3.28 acres)

Proposed dredging location

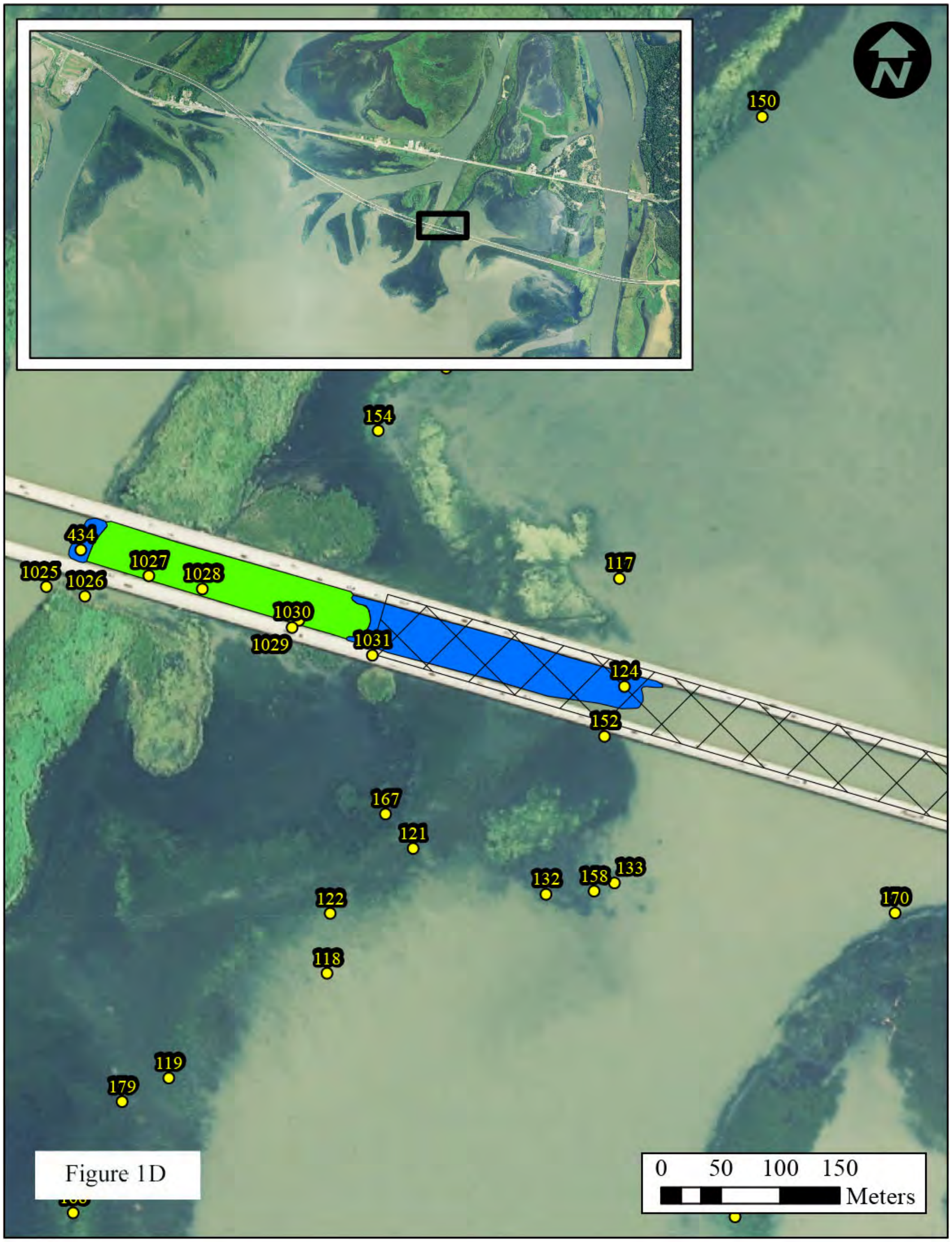


Field Points

Submerged Aquatic Vegetation (6.53 acres)

Wetland (1.19 acres)

Proposed dredging location



Field Points

Submerged Aquatic Vegetation (2.32 acres)

Wetland (2.2 acres)

Proposed dredging location

Field Points

Submerged Aquatic Vegetation (0.04 acres)

Wetland (0.32 acres)

Proposed dredging location

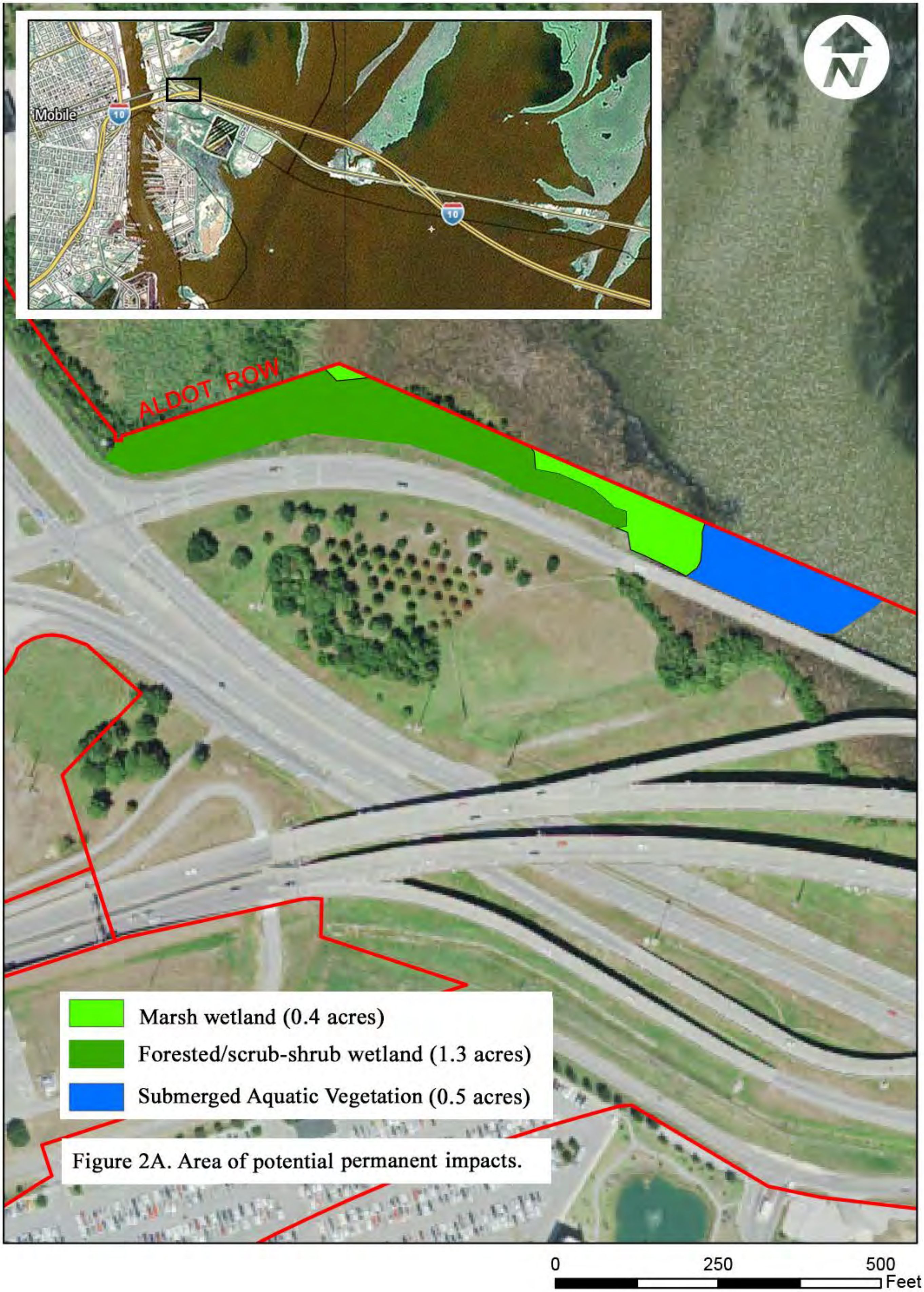


Figure 2A. Area of potential permanent impacts.

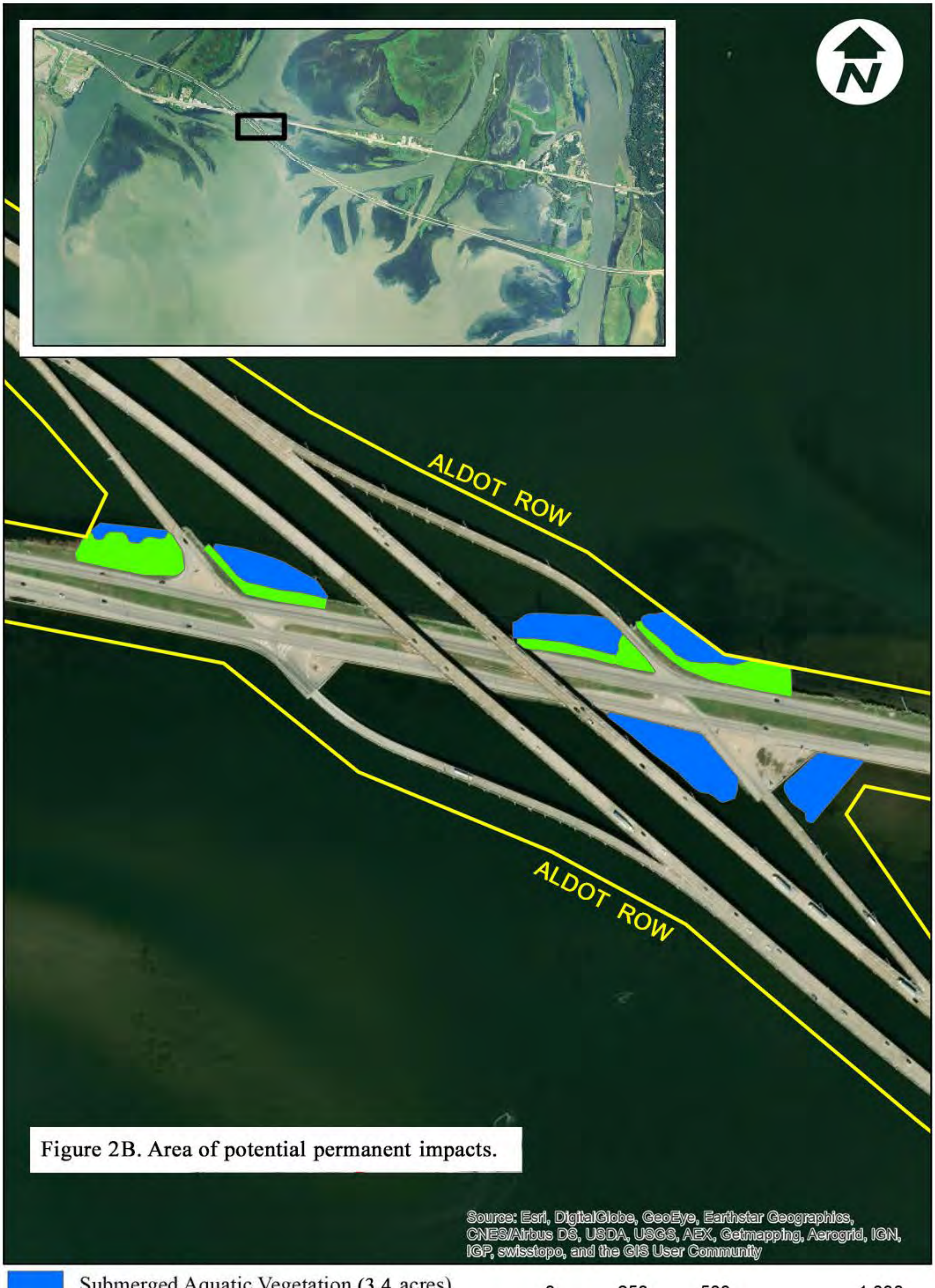


Figure 2B. Area of potential permanent impacts.

Submerged Aquatic Vegetation (3.4 acres)

Wetland (1.7 acres)

Figure 3. Proposed tidal marsh and SAV mitigation site.

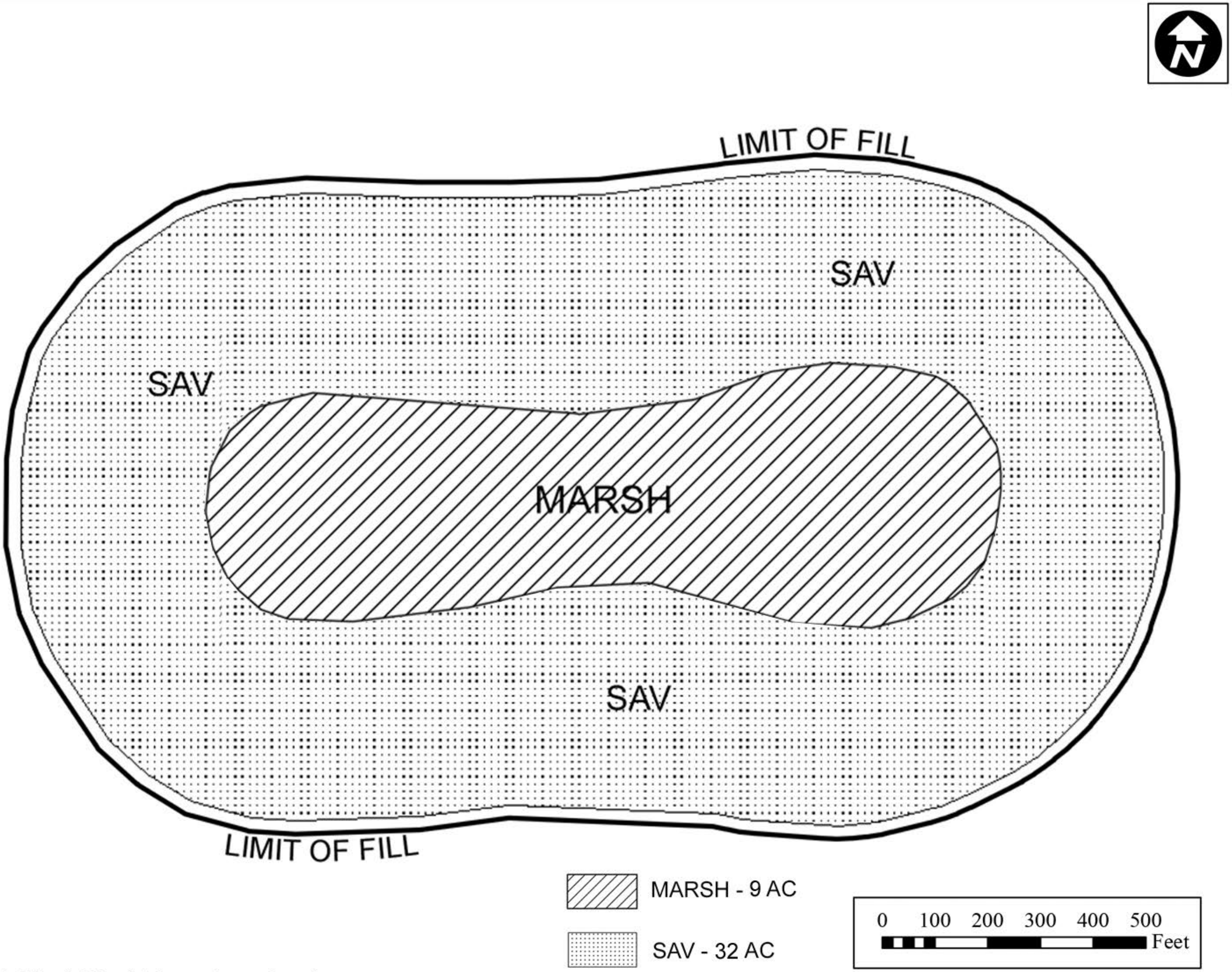


Figure 4. Marsh Island Alternative - plan view.

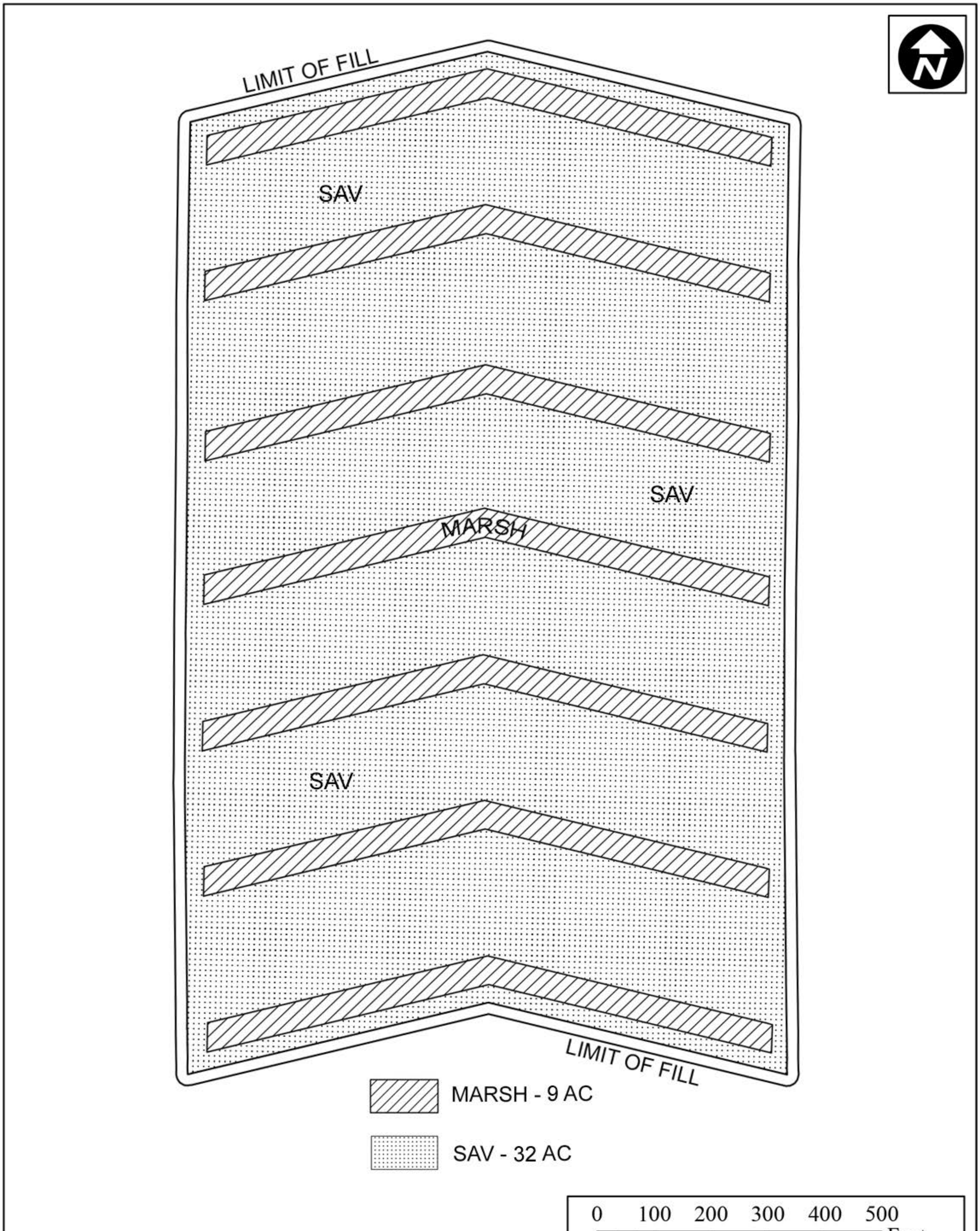


Figure 5. Marsh Terrace Alternative - plan view.

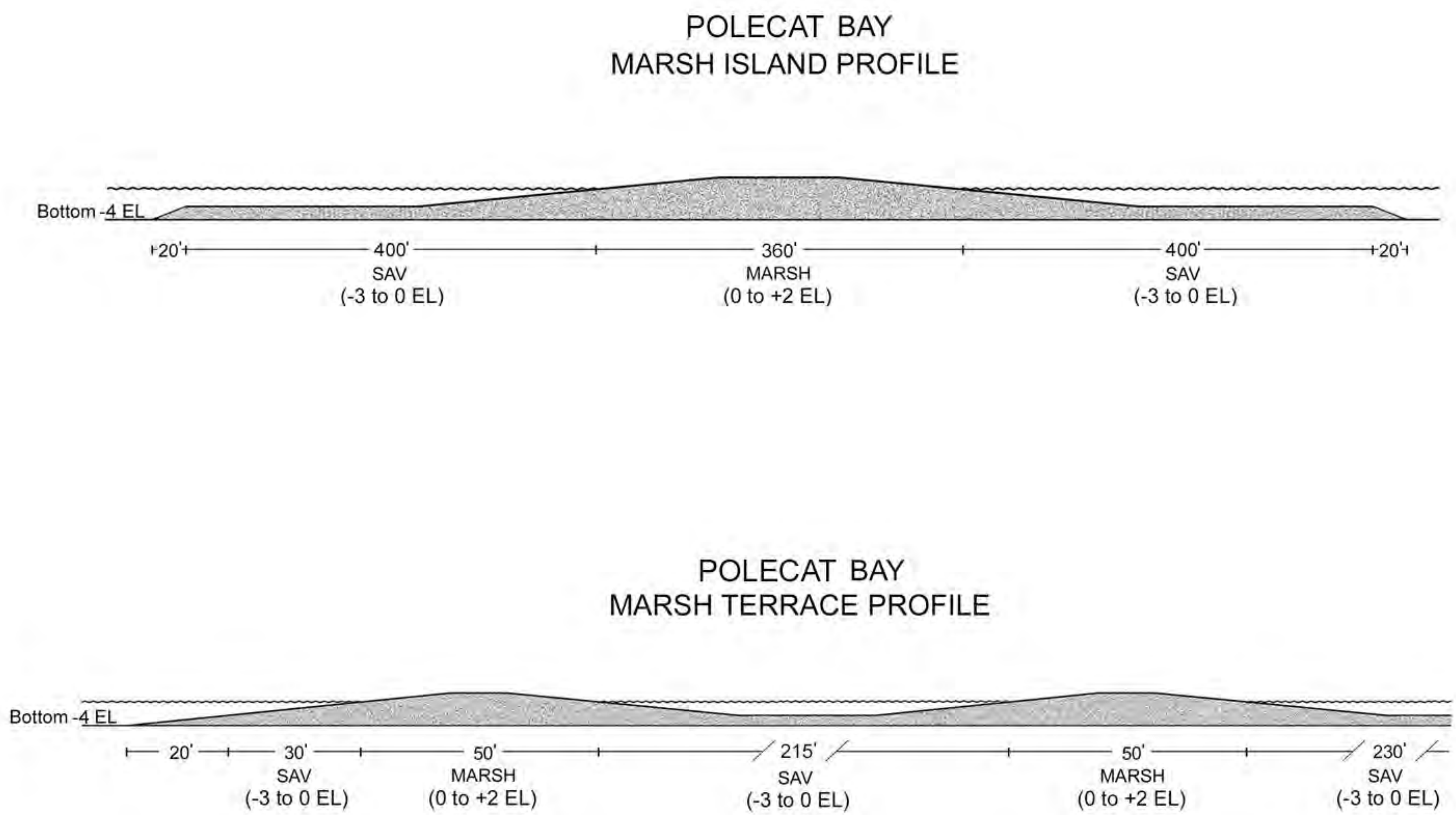


Figure 6. Typical cross-sections for the Marsh Island and Marsh Terrace Alternatives.

NOT TO SCALE

Figure 7. Location of dredged material confined disposal facilities (CDFs) as they relate to the proposed mitigation site.

APPENDIX B – TIDAL MARSH HGM ANALYSIS

Hydrogeomorphic (HGM) Model Analysis

Background

The Hydrogeomorphic (HGM) Approach is a collection of concepts and methods that uses mathematically derived indices to assess the capacity of a wetland to perform specific ecological, geochemical, and hydrological functions in comparison to similar wetlands within a geographic region. The HGM approach was originally developed to be used within the framework of the Federal Section 404 regulatory program permit review process to evaluate project alternatives, minimize project impacts, and determine compensatory mitigation requirements (Smith et al., 1995). Additional applications include the planning design and monitoring of habitat restoration projects outside the context of the Section 404 program.

The development of the HGM approach involves: 1) classification of wetlands within a defined region; 2) development of functional assessment models and indices, and 3) development and application of assessment protocols. The advantage of the HGM approach is that an individual site may be assessed for a suite of functions or a subset of functions, as determined by project management objectives. HGM is a rapid-assessment procedure designed to be implemented in a relatively short period of time at minimal expense (Shafer et al., 2007).

Classification

HGM classifies wetlands based on three separate criteria; geomorphic setting, water source, and hydrodynamics (Brinson, 1993). The classification criteria are used to group wetlands into five basic geomorphic classes at a continental scale (depressional, flat, slope, riverine and fringe wetlands). Flats can be further subdivided into organic and mineral flats, and fringe wetlands into lacustrine and tidal fringe. At a finer geographic scale, the three classification criteria are applied to identify regional wetland subclasses, which typically corresponds to existing, commonly recognized wetland types; for example oligohaline salt marsh along the Gulf of Mexico coastline (Shafer and Yozzo, 1998).

Reference Wetlands

In HGM, reference wetlands are sites selected to represent the variability that occurs within a regional wetland subclass. The reference domain is the geographic area represented by the reference wetlands. Ideally, the reference domain will mirror the geographic area encompassed by the regional wetland subclass; however, constraints on time, personnel, and fiscal resources, as well as agency jurisdictional boundaries often limit the size of a regional reference domain.

Reference wetlands establish the range and variability of conditions expressed by HGM model variables and provide data needed to calibrate HGM assessment models. Reference wetlands exhibiting the highest sustainable level of function across a suite of observed or documented functions are referred to as reference standard wetlands. When a model variable is within the range of conditions observed in reference standard wetlands a variable sub-index value of 1.0 is assigned. As the condition deviates from that observed in reference standard wetlands, the variable sub-index is assigned based on the observed relationship between model variable condition and functional capacity (on a scale of 0.0 to 1.0).

Assessment Protocol

The HGM assessment protocol is a series of tasks that allow the user to assess the functions of a particular wetland using the functional indices presented in a published Regional Guidebook. The first task in an HGM assessment is characterization, which involves describing the wetland and it's surrounding landscape, describing the proposed project and it's potential impacts, and identifying the wetland assessment areas (WAAs). The second task is collection of field data for model variables. The final task is analysis, which involves calculation of functional indices and units.

Models and Indices

An HGM assessment model is a simple representation of a wetland function. It defines the relationship among one or more wetland characteristics or processes (variables). Functional capacity is the ability of the wetland to perform a function relative the level of performance observed or measured in reference standard wetlands.

Variables are combined mathematically in a functional assessment model to produce a functional capacity index (FCI). The mathematical expressions used vary, depending on the type of interaction to be represented (e.g. fully or partially compensatory, cumulative, limiting, controlling, etc.). A complete discussion of variable interactions and model development is presented in Smith and Wakeley (2001). FCIs are multiplied by the wetland assessment area (typically in hectares) to produce functional capacity units (FCUs), which represent the "currency" used to determine mitigation ratios within the context of the Federal Section 404 regulatory program.

Mississippi/Alabama HGM Guidebook

The methodology employed in the data collection and HGM assessment generally follows the protocol described in the Mississippi/Alabama HGM Guidebook (Schafer et al., 2007). http://el.erdc.usace.army.mil/wetlands/guidebooks.cfm)

METHODS

Field Data Collection

Because the Marsh Island and Marsh Terrace Alternatives are conceptual, field assessment was not performed for this analysis. Assumptions were made regarding field conditions of the implemented mitigation alternatives, based on their respective designs and the successful implementation of the mitigation plan.

Desktop/GIS Assessment Variables

The HGM assessment procedure is twofold. First, site information is gathered and assessed in a GIS during the "desktop" component of the procedure. Wetland assessment areas (WAAs) are identified from maps and air photos (color infra-red is preferred, but high-quality true color air photos are acceptable, and were used in the current evaluations). A standardized scale is critical, and the methodology requires that all air photo work be conducted using a scale of 1:4800 (1 in. = 400 ft.). The following HGM variables were assessed during the desktop procedure:

V_{SIZE} (Wetland Patch Size): The size of the contiguous wetland patch within which the WAA occurs.

$V_{LANDUSE}$ (Adjacent Land Use): The proportion of the wetland perimeter occupied by various land use types.

V_{WIDTH} (Mean Marsh Width): The distance (m) that wind and vessel-generated waves must travel across intervening tidal fringe wetland (distance from the shoreline)

V_{EXPOSE} (Wave Energy Exposure): A qualitative classification of the potential for a wetland to attenuate wind and vessel-generated wave energy based on geomorphic setting and fetch distance – unitless.

V_{EDGE} (Aquatic Edge): The length (m) of vegetated tidally connected marsh/water interface or edge expressed as a proportion of total WAA area (ha).

V_{HYDRO} (Hydrologic Regime): The degree of alteration to the normal tidal hydrology typical of the subclass – unitless.

Field Assessment Variables

The HGM approach also incorporates site-specific information on vegetation metrics and habitat diversity collected in the field. The field assessments generated data on the following HGM variables:

V_{NHD} (Nekton Habitat Diversity): A measure of the heterogeneity of the site, based on comparison of the number of habitats actually present at a site relative to the number of possible habitats known to occur in the regional subclass.

V_{WHD} (Wildlife Habitat Diversity): A measure of the occurrence of habitat types known to support selected marsh-dependent wildlife species within the WAA.

V_{COVER} (Mean Percent Cover Emergent Marsh Vegetation): The mean total percent cover of native non-woody plant species with a wetland indicator status of OBL or FACW

V_{HEIGHT} (Vegetation Height): The most frequently occurring height of the plants within the tallest zone of the emergent marsh plant community.

V_{EXOTIC} (Percent Cover of Invasive or Exotic Species): The proportion of the site that is covered by non-native or invasive plant species.

V_{WOODY} (Percent Cover by Woody Plant Species): The proportion of the site that is covered by shrub-scrub or other woody plant species.

V_{WIS} (Wetland Indicator Status): The ratio of percent cover of FAC and FACU plants to the cover of emergent herbaceous wetland (OBL or FACW) plants.

Ecosystem Functions (FCIs and FCUs)

The data collected during the desktop and field assessments (i.e., the thirteen variables listed above) are combined using various mathematical expressions to estimate five ecosystem functions attributed to tidal fringe wetlands in the AL/MS Gulf coast reference domain (Schafer et al., 2007):

> Wave Attenuation: Ability of a wetland to attenuate wind and vessel-generated wave energy based on geomorphic setting and fetch distance
>
> Biogeochemical Cycling: The ability of a tidal wetland to receive, transform, and export various elements and compounds through natural biogeochemical processes.
>
> Nekton Utilization: The potential utilization of a marsh by resident and seasonally occurring non-resident adult or juvenile fish and macrocrustacean species.
>
> Provide Habitat for Tidal Marsh Dependent Wildlife: The capacity of a tidal marsh to provide critical life requisites to selected components of the vertebrate wildlife community.
>
> Maintain Characteristic Plant Community Structure: The ability of a tidal marsh to support a native plant community of characteristic species composition and structure.

Calculation of FCIs/FCUs

A Microsoft Excel file was provided by USACE-ERDC to facilitate data entry and to calculate FCIs for each of the functions assessed. Formulas used to calculate FCIs were:

Functional Capacity Equations	
Wave Energy Attenuation	FCI = $[(3V_{WIDTH} + V_{COVER}) / 4 \text{ x } V_{EXPOSE}]^{1/2}$
Biogeochemical Cycling	FCI = $[V_{HYDRO} \text{ x } V_{COVER} \text{ X } V_{LANDUSE}]^{1/3}$
Nekton Utilization Potential	FCI = $(V_{EDGE} + V_{HYDRO} + V_{NHD}) / 3$
Provide Habitat for Tidal Marsh Dependent Wildlife Species	FCI = $\{V_{SIZE} \text{ x Minimum } (V_{HEIGHT} \text{ or } V_{COVER}) \text{ x } ((V_{EDGE} + V_{WHD}) / 2)\}^{1/3}$
Maintain Plant Community Composition and Structure	FCI = (Minimum (V_{COVER} or V_{EXOTIC} or V_{WIS} or V_{WOODY})

The completed spreadsheets for the Marsh Island Alternative and Marsh Terrace Alternative are provided below. Because the Terrace Alternative consists of five separate marsh units, the HGM analysis was performed for a single terrace, and the sum of the FCUs multiplied by five to encompass the entire design.

FCI and FCU Calculations for the Tidal Fringe HGM Regional Subclass in the North Central Gulf of Mexico (Version of 04/2007)

Project:	**Bay Bridge Mitigation**		
WAA	Single Island	**Area (ha):**	**3.64**

Variable	Metric Value	Units	Subindex
V_{COVER}	>70%	%	1.000
V_{EDGE}	227	m/ha	1.000
V_{EXPOSE}	Moderate	NA	0.600
V_{EXOTIC}	< 5%	%	1.000
V_{HEIGHT}	100	cm	1.000
V_{HYDRO}	Open	NA	1.000
$V_{LANDUSE}$	Undeveloped	%	1.000
V_{NHD}	3	EA	0.600
V_{SIZE}	3.64	ha	1.000
V_{WIS}	0.0	%	1.000
V_{WOODY}	< 1%	%	1.000
V_{WHD}	tall robust vegetation + 1	EA	0.350
V_{WIDTH}	109	m	1.000

Function	Functional Capacity Index (FCI)	Functional Capacity Units (FCU)
Wave Energy Attenuation	0.77	2.820
Biogeochemical Cycling	1.00	3.640
Nekton Utilization Potential	0.87	3.155
Provide Habitat for Tidal Marsh Dependent Wildlife Species	0.88	3.193
Maintain Plant Community Composition and Structure	1.00	3.640
Overall Average	**0.904**	**16.447**

FCI and FCU Calculations for the Tidal Fringe HGM Regional Subclass in the North Central Gulf of Mexico (Version of 04/2007)

Project:	**Bay Bridge Mitigation**		
WAA	Individual Terrace	**Area (ha):**	**0.52**

Variable	Metric Value	Units	Subindex
V_{COVER}	>70%	%	1.000
V_{EDGE}	1,293	m/ha	1.000
V_{EXPOSE}	Moderate	NA	0.600
V_{EXOTIC}	<1%	%	1.000
V_{HEIGHT}	100	cm	1.000
V_{HYDRO}	Open	NA	1.000
$V_{LANDUSE}$	Undeveloped	%	1.000
V_{NHD}	3	EA	0.600
V_{SIZE}	0.52	ha	0.750
V_{WIS}	<1%	%	1.000
V_{WOODY}	< 1%	%	1.000
V_{WHD}	Tall robust vegetation + mudflats	EA	0.350
V_{WIDTH}	15	m	0.400

Function	Functional Capacity Index (FCI)	Functional Capacity Units (FCU)
Wave Energy Attenuation	0.57	0.299
Biogeochemical Cycling	1.00	0.520
Nekton Utilization Potential	0.87	0.451
Provide Habitat for Tidal Marsh Dependent Wildlife Species	0.80	0.414
Maintain Plant Community Composition and Structure	1.00	0.520
Overall Average	**0.848**	**2.204**

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APPENDIX C – DRAFT MONITORING PLAN

DRAFT MONITORING PLAN
PROPOSED TIDAL MARSH AND SAV MITIGATION PROJECT

ALABAMA DEPARTMENT OF TRANSPORTATION
I-10 MOBILE RIVER BRIDGE AND BAYWAY PROJECT

MOBILE AND BALDWIN COUNTIES
PROJECT DPI-0030(005)

Prepared for

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Mobile, AL 36606

Prepared by

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Mobile, Alabama 36695

January 30, 2019

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1.0 INTRODUCTION

This Plan outlines the draft monitoring program for the proposed mitigation of impacts to emergent wetlands and submerged aquatic vegetation (SAV) resulting from construction of the Interstate-10 Mobile River Bridge and Bayway Project. The Project design includes the replacement of the existing four-lane Bayway with a new eight-lane Bayway. The new Bayway would be constructed within the footprint (outside edge to outside edge) of the existing Bayway, except at the interchanges, where construction outside of the existing Bayway bridges and/or ramps but within ALDOT's right-of-way may be required to reduce lane closures and maintain traffic during construction. Up to 6 acres of estuarine emergent wetland and 16 acres of SAV would be affected by the addition of new Bayway spans.

Compensatory mitigation for Project impacts will involve the creation of tidally influenced emergent wetland and SAV habitat in Polecat Bay, approximately 8,600 ft (2,590 m) north of the Project. Creation of a 9-acre marsh island and a surrounding 32.2-ac area of SAV habitat would require fill across 43.5 acres of bay bottom with suitable sediments. Tidal marsh would be planted within the fill area at elevations between 0 and +2 MSL. SAV would be allowed to recruit naturally into the fill area at elevations between -3 ft and 0 MSL.

The 5-year monitoring program design includes post-construction observations and measurement of elevation, bathymetry, and shoreline changes, as well as assessment of vegetative cover, species composition, and areal extent of habitat.

2.0 MONITORING PROGRAM

2.1 Elevation, Bathymetry, and Shoreline Changes

Success of tidal marsh and SAV habitat creation depends in part on the stability of the sediment platform placed in open water via hydraulic dredge. It is expected that the sediment placement area will be altered over time by wave action, especially during normal wind and storm-driven wave action and high tide events. The success of the restoration effort will be measured in part by relative stability of the established marsh platform and adjacent bathymetric profile.

Prior to marsh planting, surface elevations within the mitigation site will be surveyed at 30 randomly selected locations after the placed sediment has stabilized and solidified sufficiently to allow final grading. The elevation survey will be repeated each year for five years after final grading, to determine whether target elevations have been met.

A bathymetric survey will be conducted annually to monitor subtidal depths. Four survey transects oriented along each cardinal direction (i.e., north, east, south, west) will extend perpendicularly from the mean high tide line to at least 300 ft into Polecat Bay, to encompass the entirety of the created SAV zone.

The marsh island shoreline will be assessed annually, using aerial imagery and ground-level survey techniques. After the marsh platform has been built and planted, semi-permanent markers will be installed at the mean high tide line at 10 to 15 points along the shoreline. Locations of these markers will be determined with land survey-quality GPS and will provide the baseline against which the shoreline location can be measured each year during the monitoring program.

2.2 Vegetation Monitoring

Tidal Marsh

The planted marsh will be monitored at one-year intervals for five years after completion of planting. In addition, a thorough census of the transplanted marsh species will be performed approximately 6 months after planting. Replanting will be performed as necessary to maintain a density of at least 3,440 plants per acre during the first year post-construction. In the event that transplant survival were to remain below 85% (3,440 plants per acre) after Year 1, additional replanting may be performed; possible corrective measures will be addressed in consultations with cognizant Federal and state agencies.

Marsh attributes will be assessed annually near the peak-growing season. Metrics will include percent cover estimates and the presence and extent of any exotic/undesirable species. Percent cover will be estimated from within five permanently marked quadrats established along each of five transects across the created marsh site; six randomly located quadrats will also be sampled during each annual survey, for a total of 31 quadrats sampled per annual survey. The average percent vegetative cover of the 31 quadrats will represent the total marsh coverage for the site. Color photographs of each quadrat, and of marsh conditions in north and south directions at each location, will be taken during each sampling event.

Observations will be made during each annual survey to document the presence and abundance any undesirable or exotic invasive plant species in the created marsh. These could include undesirable common cane (*Phragmites mauritianus* [=*australis*]) or exotic invasive torpedo grass (*Panicum repens*) and alligatorweed (*Alternanthera philoxeroides*). These plants will be physically removed as soon as discovered within the mitigation site, although common cane found along the fringing shoreline may be left in place if it contributes to erosion control.

The tidal marsh mitigation is expected to attain a level of cover of at least 70%, with a vegetative community comprised of native freshwater marsh species (such as arrow-arum, bulltongue arrowhead, cattail, marsh millet, pickerel weed, softstem bulrush, southern wild rice, threesquare), and coverage of exotic invasive plants of no more than

5%. The 70% native plant cover criterion is the minimum value for the fully functional vegetative coverage in the Tidal Marsh HGM Model (Shafer et al., 2007). The ≤5% invasive cover criterion is the standard typically prescribed by the Mobile District USACE for wetland mitigation projects. Data collected in the monitoring program will be used to calculate HGM metrics; mitigation for marsh impacts will be considered successful if the Functional Capacity Units (FCU) lost through shading are fully replaced.

Non-native alligatorweed (*Alternanthera philoxeroides*) is common in the wetland areas affected by the Project, and throughout the lower Mobile-Tensaw Delta. If alligatorweed becomes established at a density >5%, the cognizant agencies will be consulted to determine a remedial course of action, if necessary.

In the event that establishment of the marsh is unsuccessful (i.e., percent cover of native plants is less than 70% and mitigation for loss of FCUs is not accomplished), appropriate action will be taken to correct the deficiency; however, previous experience with projects in similar habitats suggests that nearly full coverage of the marsh restoration site should be achieved within three to five years of planting the specified species. Given suitable sedimentary substrate, marsh mitigation success is contingent primarily on appropriate site elevation, and to a lesser extent on invasive exotic coverage. Both site elevation and the extent of invasive coverage are readily controllable factors within the 5-year monitoring window. The monitoring plan will not be discontinued early unless three or more years of meeting the success criterion of ≥50% SAV coverage has been achieved in order to have assurance that the trend established is valid, not an outlier. If this criterion is met in less than five years, the marsh monitoring component of the program may be discontinued.

SAV

The SAV area of the mitigation site will be monitored at one-year intervals for five years after site construction. Monitoring will be performed during mid to late summer, coinciding with peak SAV biomass. SAV attributes to be assessed are percent cover and areal extent.

Percent SAV cover will be measured each monitoring period along four permanent and four randomly placed transects. The four permanent transects will be oriented along each cardinal direction (i.e., north, east, south, west), roughly in line with the bathymetric survey transects. Percent cover will be visually assessed within five quadrats along each of the permanent and random transects, for a total of 40 m^2 quadrats sampled per monitoring period. The average percent cover of the sampled quadrats will represent the total SAV coverage for the site.

The horizontal extent of SAV (i.e., inner and outer boundaries) will be delineated with GPS during each annual survey. A map of SAV extent will be included in each monitoring report.

The SAV success criterion is ≥50% coverage in the 24.5-ac subtidal zone of the mitigation site. The ≥50% criterion is the continuous cover standard used for recurring SAV mapping performed by the Mobile Bay National Estuary Program and Alabama State Lands Division in the Alabama coastal zone (Barry A. Vittor & Associates, Inc., 2004, 2010, 2015).

If alligatorweed or torpedograss becomes established in the SAV zone, these invasive plants would most likely occur in intertidal and shallow subtidal areas near the edge of the tidal marsh zone. The ≤5% invasive cover criterion will also apply to these species within the SAV mitigation zone, but the criterion will not apply to exotic invasive SAV, specifically Eurasian watermilfoil (*Myriophyllum spicatum*). Eurasian watermilfoil is common in Polecat Bay, and provides habitat for aquatic fauna.

In the event that the created SAV habitat is trending toward an unsuccessful outcome after three (3) years post implementation, ALDOT's mitigation team will confer with the cognizant agencies to assess causes and potential corrective measures, which could include SAV planting or out-of-kind mitigation such as creation of additional marsh habitat.

2.3 Reporting

An annual report will be prepared to present data on the status of the tidal marsh and SAV restoration project for up to five years following construction of the mitigation site. Site elevation, subtidal bathymetry, and shoreline locations within project site will be reported each year. Each annual report will also compare the marsh and SAV in the mitigation area with the success criteria. Marsh surface and bathymetric elevation data will be tabulated to provide a time-series of elevation measurements at each monitoring point, during the five-year monitoring period. Monitoring reports will be submitted to the cognizant agencies within six months of the monitoring event each year.

3.0 REFERENCES CITED

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Barry A. Vittor & Associates, Inc., 2010. Mapping of Submerged Aquatic Vegetation in Mobile Bay and Adjacent Waters of Coastal Alabama in 2008 and 2009. Prepared for the Mobile Bay National Estuary Program, Mobile, AL. 16 pp + appendices.

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Interagency Coordination on Draft Mitigation Plan

Summary of Interagency Coordination on Development of Draft Mitigation Plan since DEIS

The following is a summary of coordination activities that have occurred to develop the Draft Mitigation Plan since the 2014 DEIS. Copies of meeting minutes and dispositions of comments on the review drafts of the Draft Mitigation Plan follow this summary.

Date	Coordination Activity	Notes
March 4, 2015	Interagency Meeting	USACE, USFWS, NOAA-NMFS, and ADEM participated.
April 12, 2017	Interagency Meeting to discuss mitigation measures, mitigation ratios, and potential mitigation sites for wetlands and SAV	USACE, USFWS, NOAA-NMFS, and ADEM participated. USEPA, USCG, and ADCNR were invited to participate but were unable to attend.
July 25, 2017	Draft Mitigation Plan transmitted to agencies	Comments received from USEPA, NOAA-NMFS, and USFWS.
January 11, 2018	Disposition of comments from July 2017 review and revised Draft Mitigation Plan transmitted to agencies	Comments received from NOAA-NMFS, ADCNR, and USEPA.
April 12, 2018	Meeting with ADCNR to discuss comments on Draft Mitigation Plan	Identified potential areas for mitigation site.
August 27, 2018	Revised Draft Mitigation Plan and disposition of comments from January 2018 review transmitted to agencies	
August 28, 2018	Interagency Meeting to discuss status of project and Draft Mitigation Plan	USACE, USFWS, NOAA-NMFS, ADCNR, and ADEM attended; USEPA and USCG were invited but were unable to attend.
August 31, 2018	Meeting minutes and presentation from August 28, 2018 meeting transmitted to agencies	No comments received from agencies.
February 14, 2019	Interagency Meeting to discuss addition of localized dredging to project and Draft Mitigation Plan	USACE, ADCNR, and ADEM attended. NOAA-NMFS, USEPA, USCG, and USFWS were invited but were unable to attend.
February 21, 2019	Revised Draft Mitigation Plan, meeting minutes from February 12 meeting, and presentation from February 12 meeting transmitted to agencies.	Comments received from USFWS. Comment did not require changes to the Draft Mitigation Plan.

March 4, 2015 Interagency Meeting Minutes

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

RESUME OF MEETING

DATE OF MEETING: Wednesday, March 4, 2015 (1:30 pm)
LOCATION: ALDOT, Southwest Region Administration Conference Room
PURPOSE: Agency Update Meeting

ATTENDANCE	REPRESENTING	EMAIL	TELEPHONE
Bruce Porter	USFWS	Bruce_Porter@fws.gov	251-441-5864
Heather Young*	NMFS	Heather.Young@noaa.gov	
Joy Earp	USACE	joy.b.earp@usace.army.mil	251-694-4611
Glenn Cunningham	USACE	glen.a.cunningham@usace.army.mil	251-694-4077
Dylan Hendrix	ADEM	dhendrix@adem.state.al.us	251-304-1176
Lynne Urquhart	FHWA	Lynne.urquhart@dot.gov	334-274-6371
Alfedo Acoff	ALDOT – ETS / Design	acoffa@dot.state.al.us	334-242-6143
Natasha Clay	ALDOT – ETS / Design	clayn@dot.state.al.us	334-242-6315
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Paige Felts*	Volkert, Inc.	Paige.felts@volkert.com	251-968-7551
Kenny Nichols	Volkert, Inc.	kenny.nichols@volkert.com	251-342-1070
Thomas Lee	Volkert, Inc.	thomas.lee@volkert.com	251-342-1070
Jason Goffinet	Volkert, Inc.	jason.goffinet@volkert.com	770-298-9709
* = via conference call.			

Meeting Purpose: The purpose of the meeting was to update the agencies on the status of the project.

I. Introductions

The meeting began with everyone introducing themselves.

II. Review of Project Status

- DEIS signed on July 22, 2014.
- Public Hearings held on September 23 and September 29 , 2014.
- Preparing Draft FEIS.
- Developing Section 106 Programmatic Agreement for History.

- Conducting Archeological Resources Survey.
- Updating the Biological Assessment, and
- Conducting HazMat Studies.

III. Discussion
For reference purposes, the discussion has been categorized into the following topics. The topics are in chronological order as they were discussed.

a) Submerged Aquatic Vegetation Shading Impacts (Approximate):
   - Alternative A Shading Impacts: Approximately 76.25 acres total. (I-10 Bridge – 13 acres/I-10 Bayway Widening – 63.25 acres).
   - Alternatives B & B' (Preferred) Shading Impacts: Approximately 67.15 acres total. (I-10 Bridge – 3.9 acres/I-10 Bayway Widening – 67.15 acres).
   - Alternative C Shading Impacts: Approximately 65.35 acres total. (I-10 Bridge – 2.1 acres/I-10 Bayway Widening – 63.25 acres).

b) Navigation.
c) Threatened and Endangered Species / Biological Assessment.
d) Potential Construction Methods.

a. Submerged Aquatic Vegetation Shading
The NMFS stated that the past estimates that they had seen for submerged aquatic vegetation (SAV) impacts on this project were 17 acres and wanted to know why there was a change. Volkert stated that the 17 impacted acres were estimated from the actual footprint of the bridge.

Volkert stated that SAVs have not been surveyed in the area since 2001 and dramatic changes in SAVs occur from year-to-year in Mobile Bay. A new SAV survey would be needed prior to permitting.

Volkert stated that the SAV shading impacts listed in the DEIS were worst case scenario. The impacts also assumed that all of the shaded open water areas have SAVs. It was also mentioned that the existing Bayway has SAVs under it in certain locations, so the shading of the structure does not totally eliminate SAVs but does dramatically reduce the habitat.

FHWA stated that they want to receive input from agencies so that a draft mitigation plan can start to be developed. Volkert stated that this project may be a good opportunity to try and team with a project that is already planning to restore or create SAVs in the area. ADCNR was mentioned as an agency to potentially partner with. NMFS stated that the SAV mitigation needed to be "in-kind", which needs to be either restoring SAVs or growing them in a similar location. NMFS stated that SAVs usually have a ratio of 2-to-1 or 3-to-1 for direct impacts (dredge and fill) mitigation. NMFS also stated that shading in the past has been mitigated at a 2-to-1 ratio.

ADEM stated that there is an existing NCDOT study that examines the height of a bridge versus the impact to SAVs. NMFS added that a model was developed for a Texas project (South Padre Island Causeway) that demonstrated SAV loss as a result of shading over several years. The model demonstrated that a 100% loss of SAVs from shading is not necessary.

b. Navigation
USCG did not attend the meeting.

c. Threatened and Endangered (T&E) Species
USFWS stated that there are no additional T&E species of concern for this project except for manatees. A Biological Assessment will be prepared to evaluate the projects impacts to manatees. FHWA stated that T&E species may have to be revisited if preliminary engineering changes the construction techniques.

d. Potential Construction Methods
The DEIS commits to no dredging in the bay and construction would occur from barges. ADEM stated that they have no mitigation mechanism for dredging and filling of SAVs. To minimize impacts, the DEIS mentions leap-frogging barges as a potential construction technique. The barges would have to be shallow draft and not left in one spot for a long period of time to avoid compression of SAVs on the bottom. USFWS stated that it cannot be assumed that just because barges are being used that SAVs would be impacted. Volkert mentioned temporary compaction of SAVs would not be enough to kill the root system. The type of barge used would affect the amount of impact that would occur.

Top-down construction from a trestle was also mentioned by Volkert. This construction technique would utilize the existing I-10 Bayway structure where SAVs exist to minimize impacts. NMFS stated that they would prefer this technique in areas where SAVs exist.

The height of the I-10 Bayway has yet to be determined. The DEIS indicates that the I-10 Bayway will be widened; however, ALDOT is currently performing a storm surge analysis to determine how much of a problem the existing structure could have with a hurricane storm surge. ALDOT stated that the I-10 Bayway may have to be elevated if the storm surge analysis indicates it is necessary.

NMFS stated that 100% loss of SAVs should be anticipated under the footings of the bridge. NMFS would like to quantify this direct impact area.

A draft mitigation plan will be prepared for the FEIS. A final mitigation plan will be developed prior to construction. FHWA stated they would like to get as much detail as soon as possible in regards to SAV mitigation prior to construction.

ACTION ITEMS

ITEM	RESPONSIBILITY
Provide Draft meeting minutes	Volkert
Provide Final Meeting Minutes	Volkert
Prepare Draft Mitigation Plan	Volkert

Submitted By:
Thomas Lee, Volkert.

April 12, 2017 Interagency Meeting Minutes

thompson
ENGINEERING

April 26, 2017

REFERENCE: Interagency Coordination Meeting to Discuss Draft Mitigation Plan
Project No. DPI-0030(005)
I-10 Mobile River Bridge and Bayway Widening
Mobile and Baldwin Counties, Alabama

An interagency coordination meeting was conducted on April 12, 2017, in Building O of the Alabama Department of Transportation (ALDOT) Southwest Region complex.

A sign-in sheet is attached. Handouts provided to meeting attendees are also attached.

The following is a summary of the discussion that occurred during the meeting:

PROJECT UPDATE

- Initial Preliminary Engineering phase is wrapping up
- Since last interagency meeting and approval of the Draft Environmental Impact Statement (DEIS), refinements to Alternative B' have been made, including interchanges, high level bridge, and the Bayway widening
- Numerous studies have been conducted
- A Supplemental DEIS will be prepared to address changes in the project since the DEIS was signed.
- Bayway:
    - Four lanes (two in each direction) will be built between the existing I-10 Bayway bridges for a total of 8 lanes across Mobile Bay.
    - Storm surge analysis indicated the need to elevate the new structures.
    - New lanes will be constructed at a higher elevation (approximately 13-16 feet higher) than existing lanes.
    - New lanes would be 1 foot above floodplain elevation, which is estimated to be approximately 34 feet high at this time.
    - From the east side of Mobile River to just west of the Mid-Bay Interchange (Tensaw River), all eight lanes will be constructed at a higher elevation than the existing Bayway lanes. From just west of the Mid-Bay Interchange to just west of US 90/98 in Daphne, only the new lanes will be higher than existing elevations.
- Construction Methodology:
    - Dredging will not be used.
    - All construction equipment will be placed between existing I-10 Bayway spans in previous construction channel.
    - Top-down construction is being considered along with leap-frogging barges.
    - USFWS Incidental Take Permit conditions include limits on length of time barges and construction equipment can be left in one place.
    - Monitoring will be conducted during construction and demolition.
- Public Hearing is anticipated for the Fall of 2017, with a combined Final EIS (FEIS) and Record of Decision (ROD) around the end of 2017.
    - Will give public opportunity to:

   - Review SDEIS and changes in project since DEIS
   - Draft Mitigation Plan to be included in SDEIS
   - Give opportunity to public to comment on mitigation and project

DRAFT MITIGATION PLAN

- Types of impacts
  - No impacts would occur as a result of excavation or filling
  - Shading impacts would occur under spans
  - Assumption is that all SAVs and wetlands between existing I-10 Bayway bridges would be impacted (total loss) whether from shading or construction impacts.
    - If nothing is growing now, then it is not likely that anything will grow in the Build condition.

- Estimated quantities of impacts
  - 12.2 acres of SAV
  - 3.9 acres of emergent tidal wetlands
- Wetlands
  - Wetland locations and acreages are more static than SAVs and less likely to change between now and permitting/construction
  - There are no mitigation banks for emergent tidal wetlands.
  - Mitigation will be in-kind.
  - Goal is to find location to restore area(s) from fastland to emergent tidal
  - Impacted wetlands are good quality, mixed community with invasive and exotic species
  - Mitigation Concept:
    - Location: Chocolatta Bay
    - Type of Mitigation: Tidal marsh creation
    - Will be able to stay out of SAVs
    - Would implement a sediment structure, would not be armored
    - Could withstand sea level rise
    - Would require containment dike and beachy material
    - Don't expect heavy metals or PCBs, but sediment will be tested for contamination. If contaminated, a different site will be selected.
  - Other locations for mitigation site:
    - Alabama State Port Authority is studying a disposal site in the Upper Mobile Bay, which might be an option, but timing is unknown at this point.
    - Polecat Bay is another option but is not ideal for marsh creation or terracing because of contaminated sediment.
    - Look for marsh creation site with approximately 3-foot water depths (can be problematic because areas with 3-foot depths can get into SAV areas)
  - Comments from NOAA NMFS:
    - NMFS generally wants 1.5 acres created for every impacted area, so approximately 6 acres would be needed for this project
    - Not opposed to marsh island
    - Would like for team to consider marsh terraces

        - Less expensive
        - No need for hydraulic dredging
        - Can create terraces with standard cross-sections with enough linear feet to meet mitigation requirements
        - Allows for SAVs to populate along the edge ("edge effect"), which is important habitat
        - Could be done in Chocolatta Bay or other shallow areas without SAVs
        - Terracing has been successfully implemented in Louisiana and Texas
    - Comments from ADEM:
        - Why not fortify existing marshes as mitigation?
        - Response: Intent was to stay north of the Causeway, and nothing north of the Causeway met the requirements for fortifying existing marshes.
    - Comments from ADCNR:
        - Concerned about user group impacts (i.e., duck hunters) – need to make sure access to waterways is not blocked by created marsh island(s)
        - ADCNR State Lands owns water bottoms
    - A Hydrogeomorphic (HGM) Analysis of marsh needs to be conducted.
        - HGM value will likely be low for existing marsh
        - Agencies want team to go ahead and perform HGM Analysis to provide baseline for quality of impacted wetlands.
- Essential Fish Habitat (EFH)
    - Wetlands and SAVs are EFH.
    - Where SAVs and/or wetlands do not exist, there's mud and sediment with limited productivity.
    - Driving pilings will not constitute a substantial adverse effect on EFH; therefore, a detailed analysis is not required, and agencies will not request mitigation for unvegetated habitat.
    - Mitigation provided for SAVs and wetlands will suffice for EFH.
    - Agencies will not require mitigation for unvegetated habitat.
    - Disposal of concrete rubble to be placed offshore in ADCNR-approved fish reef habitat is good, but it is not considered in-kind mitigation for impacts to mud bottoms.
        - Dimensions and quantities of concrete rubble to be disposed of are unknown at this time and will be coordinated with ADCNR closer to permitting and construction.
    - NOAA NMFS to send example 404(b)(1) Essential Fish Habitat Assessment
        - SDEIS discussion of EFH should be structured in same manner as 404(b)(1).
- SAVs
    - SAVs have been mapped by Vittor four times since 2002
        - Not static from year to year
        - Will be different in quantity and location at time of permitting and construction

        - An updated survey to map locations and quantities of SAVs at time of permitting will be required for Final Mitigation Plan to define actual impacts.
            - NOAA NMFS stated that the survey should be performed in the spring/summer (April 1-September 30) to capture most SAVs.
    - Comments from NOAA NMFS:
        - SAV mitigation is risky
        - Need to identify limiting factor(s), such as water depth, uplands, etc.
        - Need to use appropriate types of sediment and water depths for highest likelihood of success
        - Good place for SAV mitigation is adjacent to existing SAV beds (i.e., spoil areas)
        - Recommend creating a SAV area adjacent to marsh creation site
        - Ratio for mitigation is needed due to risk of mitigation
        - Exotic and invasive species provide food and habitat, so NOAA NMFS is not opposed to those species
        - Would consider creating more marsh to mitigate for SAV impacts
        - Will provide recommended mitigation ratios via e-mail
        - Design for SAV mitigation needs to be discussed in future, but NMFS will likely push for marsh terracing in open water areas
        - Will provide examples of successful marsh terraces in other parts of Gulf Coast
        - Could consider implementing a combination of mitigation measures to include:
            - Marsh terracing,
            - Signage to prevent prop scarring and prop wash and wake on SAV beds (create no motor zones or no wake zones),
            - Breakwaters along navigation channels to allow SAVs to populate behind breakwaters, and
            - Marsh creation.
    - Comments from ADCNR:
        - Have you compared 2002-2015 surveys to get an idea of where SAVs previously existed?
        - Response: Yes. There are plenty of areas of suitable size where SAVs used to exist.
        - Upper Mobile Bay is susceptible to turbidity and total suspended solids
        - Have seen a substantial shift to exotic and invasive species, with a wider spatial distribution of exotics and invasives
    - Comments from ADEM:
        - Current rules do not allow for impacts to SAVs
        - Will discuss internally to determine appropriate mitigation ratio
        - Variance will be required separately from normal permitting process
    - Comments from USACE:
        - No large-scale SAV restoration/mitigation project has been performed in Mobile area.
        - Small-scale mitigation project in Cotton Bayou was successful (transplanted SAVs are thriving).
        - SAV mitigation is new territory on regulatory side.

        - Introduction of invasive species is part of USACE evaluation process and will be discussed at a later point in time.
    - Comments from USFWS:
        - Manatees eat SAV.
        - Extra SAV would be good for manatees.
        - Manatees inhabit areas surrounding Causeway.
        - USFWS may not want to trade off SAV creation for marsh creation.
        - Concerned about construction conditions, which will be addressed in Biological Opinion and Incidental Take Permit issued for project.

NEXT STEPS

- NOAA NMFS to provide suggested mitigation ratios.
- NOAA NMFS to provide examples of successful marsh terraces.
- Thompson Team to update Draft Mitigation Plan based on input from this meeting and input to be received from NOAA NMFS.
- Draft Mitigation Plan will be re-circulated with meeting minutes to agencies for review.
    - Review and comment period will be 30 days after transmittal of updated Draft Mitigation Plan.
- Draft Mitigation Plan will be included in the SDEIS.

The Thompson Engineering Team is proceeding on the basis that this report is an accurate accounting of the meeting and the resulting decisions. If this report is inconsistent with your records, please advise.

Attachments:

- Sign-In Sheet
- Meeting Handouts (Agenda, Draft Mitigation Plan, SAV and Wetland Boundary Mapping, and Bayway Typical Sections)

AGENDA

ALDOT Mobile River Bridge and Bayway Widening
Draft Mitigation Plan
Project No. DPI-0030(005)

Date: April 12, 2017 Time: 13:30

Location: ALDOT Southwest Region Office - Building O
1701 West I-65 Service Road North, Mobile, AL
Call-in: 251-459-8676, 305011#

Invitees:

Edwin Perry – ALDOT	Lynne Urquhart – FHWA	Glen Cunningham - USACE
Andrew Wood – ALDOT	Mark Bartlett – FHWA	Joy Earp - USACE
Steve Walker – ALDOT	Tim Heister – FHWA	Rosemary Hall - USEPA
Matt Erickson – ALDOT	Bruce Porter – USFWS	Calista Mills - USEPA
Natasha Clay – ALDOT	Scott Brown – ADEM	Jeff Jordan - ADCNR
Brian Aaron – ALDOT	Sheri Zettle – USACE	Richard Hartman - NMFS
Patrick Harper – USFWS	Stephen O'Hearn – TE	Greg Lowe - TE
Steve Flukinger - TE	Tim Thibaut – BVA	Barry Vittor – BVA
Missi Shumer – SC		

Documents distributed: Agenda, Draft Mitigation Plan, SAV & Wetland Roll Map, Plan & Profile Roll Map (meeting location only), and Typical Section

1. Roll Call (O'Hearn)
2. Project Update (Perry)
3. Purpose of Meeting (Lowe)
4. Discussion of Draft Mitigation Plan (Vittor)
    a. SAV Impacts
    b. Wetland Impacts
5. Open Discussion (All)
6. Schedule (Lowe)
7. Summary and Wrap-up (Shumer)

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

SIGN-IN SHEET
Draft Mitigation Plan Meeting

DATE: April 12, 2017
LOCATION: ALDOT, Southwest Region

Name	Representing	Email	Phone
Edwin Perry III	ALDOT SW	perrye@dot.state.al	251-470-8243
Missi Shumer	Shumer Consulting / Thompson Team	missi@shumerconsulting.com	251-605-7252
Lynne A. Urquhart	FHWA	lynne.urquhart@dot.gov	334-274-6371
Jeff Jordan	ADCNR	jeff.jordan@dcnr.alabama.gov	251-621-1238
Keith Walker	ALDOT RTS	walkerk@dot.state.al.us	
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Steve Walker	ALDOT Design	walkers@dot.state.al.us	(334)242-6488
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J Scott Brown	ADEM - CZM/401 WQC	jsb@adem.state.al.us	251 304 1176
Tim Thibaut	Vittor & Assoc.	tthibaut@bvaenviro.com	251-605-2880

Name	Representing	Email	Phone
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Patrick Hickox	HDR	patrick.hickox@hdrinc.com	251/295-6874
Stephen OHearn	Thompson Eng	sohearn@thompsonengineering.com	251-665-5440
Patricia Harper	USFWS - on phone		
Natasha Clay	ALDOT - on phone		
Richard Hartman	NMFS - on phone		
Brandon Howard	NMFS - on phone		

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

thompson
ENGINEERING

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LEGEND

- Wetland Delineation*
- Bay Bridge SAV*
- DEIS Corridor Boundary
- FEIS Corridor Boundary

I-10 Mobile River Bridge & Corridor Improvements

*Vittor Wetland Delineation
TE Corridor Improvewments - Aug. 2016 Updates

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SUBMERGED AQUATIC VEGETATION, WETLANDS AVOIDED FEIS & DEIS CORRIDOR BOUNDARY

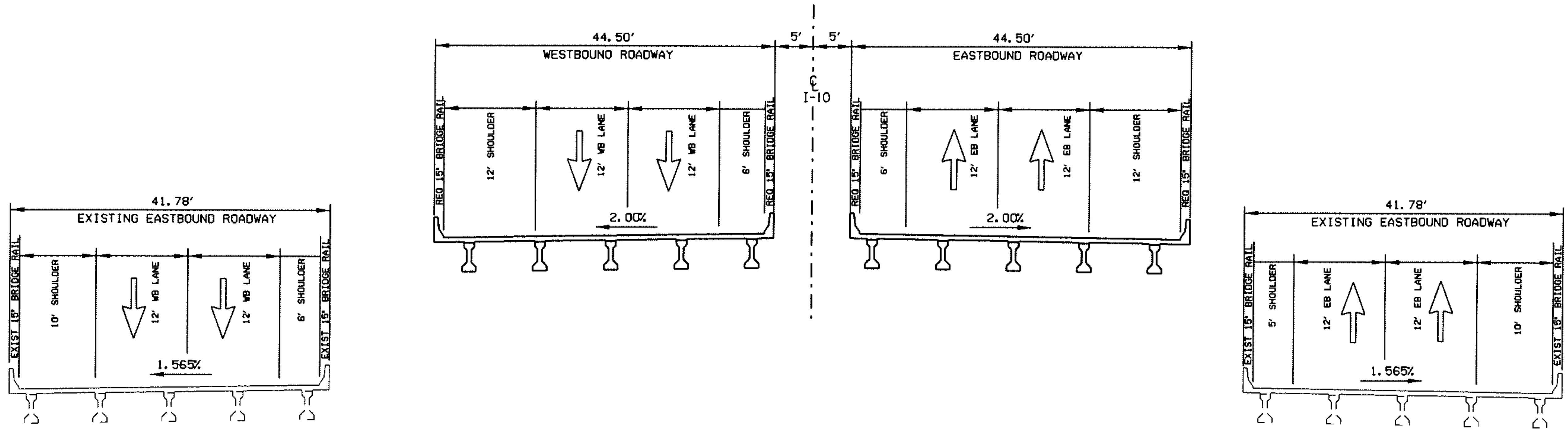
PROJECT NO.: 15-1101-0300

DATE: MARCH 2017

Coordinate System: NAD 1983 StatePlane Alabama West FIPS 0102 Feet
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 1,968,500.0000
False Northing: 0.0000
Central Meridian: -87.5000
Scale Factor: 0.9999
Latitude Of Origin: 30.0000
Units: Foot US

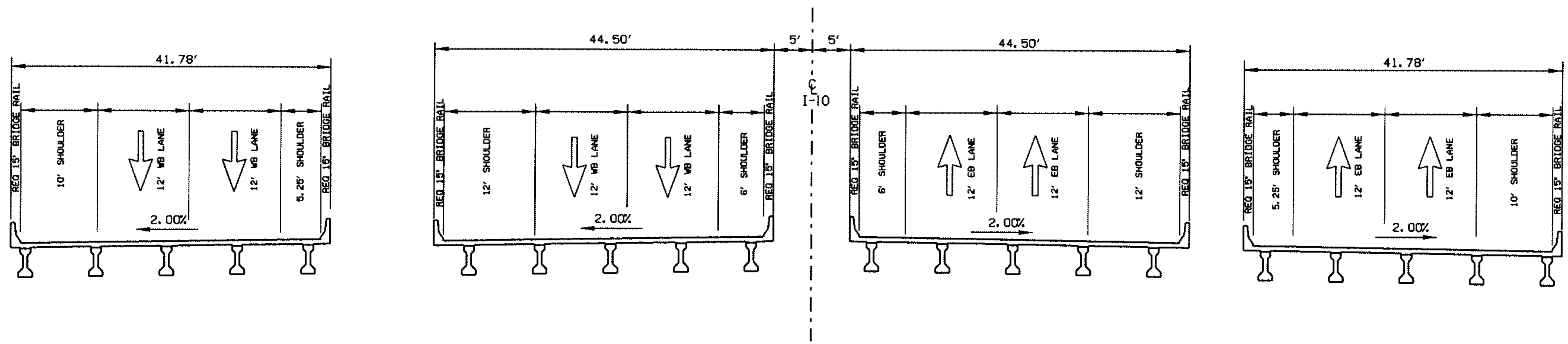
Date 3/20/2017 /

REFERENCE PROJECT NO	FISCAL YEAR	SHEET NO



TYPICAL SECTION BAYWAY MAINLINE

STA 654+00 TO STA 859+00



TYPICAL SECTION BAYWAY MAINLINE

STA 859+00 TO STA 874+25

RESPONSIBLE PE:	SUPERVISOR:	DESIGNER:	PLAN SUBMITTAL	ALABAMA DEPARTMENT OF TRANSPORTATION	NOT TO SCALE	SHEET TITLE	ROUTE
DATE:	DATE:	DATE:				TYP BW 001	F-62

July 25, 2017 Transmittal of Draft Mitigation Plan to Agencies

and

Comments Received

Missi Shumer

Subject: FW: Mobile River Bridge FEIS Draft Mitigation Plan

From: Perry, Edwin L.
Sent: Tuesday, July 25, 2017 8:59 AM
To: Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil) <Glen.A.Cunningham@usace.army.mil>; 'Brandon Howard - NOAA Federal' <brandon.howard@noaa.gov>; Joy Earp (joy.b.earp@usace.army.mil) <joy.b.earp@usace.army.mil>; Bruce Porter (Bruce_Porter@fws.gov) <Bruce_Porter@fws.gov>; Scott Brown <jsb@adem.state.al.us>; hall.rosemary@epa.gov; mills.calista@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; Rusty Swafford <rusty.swafford@noaa.gov>
Cc: Steve Flukinger <sflukinger@thompsonengineering.com>; Steve O'Hearn (sohearn@thompsonengineering.com) <sohearn@thompsonengineering.com>; Greg Lowe (glowe@thompsonengineering.com) <glowe@thompsonengineering.com>; Hickox, Patrick <Patrick.Hickox@hdrinc.com>; Missi Shumer <missi@shumerconsulting.com>; Heisler, Timothy (FHWA) <timothy.heisler@dot.gov>; Urquhart, Lynne (FHWA) <Lynne.Urquhart@dot.gov>; Bartlett, Mark (FHWA) <Mark.Bartlett@dot.gov>; Ericksen, Matthew <ericksenm@dot.state.al.us>; Wood, Andrew <wooda@dot.state.al.us>; Walker, Steve <walkers@dot.state.al.us>; Clay, Natasha <clayn@dot.state.al.us>; 'Barry Vittor' <bvittor@bvaenviro.com>; 'McCarthy, Michael' <Michael.McCarthy@mottmac.com>
Subject: Mobile River Bridge FEIS Draft Mitigation Plan

Attached for your review and comment is a Draft Mitigation Plan for the above-referenced project. This plan has been developed based on the input received from the agencies at the meeting held on April 12, 2017.

We respectfully request that you review the attached information and provide any comments that you may have by **August 21, 2017**.

Please contact me if you have any questions.

Thanks,

EDWIN L. PERRY III, P.E.

ALDOT SOUTHWEST REGION

From: Porter, Bruce
To: Perry, Edwin L.
Cc: Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil); Brandon Howard - NOAA Federal; Joy Earp (joy.b.earp@usace.army.mil); Scott Brown; hall.rosemary@epa.gov; mills.calista@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; Rusty Swafford; Wood, Andrew
Subject: Re: Mobile River Bridge FEIS Draft Mitigation Plan
Date: Friday, July 28, 2017 10:19:44 AM

I have received the plan and the USFWS concurs and supports the NMFS comments made by Richard.

Bruce Porter
Alabama Ecological Services Field Office
Transportation Liaison
U.S. Fish and Wildlife Service
1208 Main Street
Daphne, Alabama 36526
(251) 441-5864
(251) 331-0835 (Cell)

Nobody cares how much you know until they know how much you care!!

On Thu, Jul 27, 2017 at 8:06 AM, Perry, Edwin L. <perrye@dot.state.al.us> wrote:

> I wanted to check with everyone to make sure they received the previous e-mail with the attached updated draft mitigation plan since it was a large file. If you could please reply to me and let me know.
>
> Thanks,
>
> **EDWIN L. PERRY III, P.E.**
> **ALDOT SOUTHWEST REGION**
> **I - 10 CORRIDOR ENGINEER**
> **1701 WEST I-65 SERVICE ROAD, N.**
> **MOBILE, AL 36618**
> **(251) 470-8243 (OFFICE)**
> **(251) 331-9452 (CELL)**
> **1*99*9004 (SOUTHERN LINC)**
> **(251) 478-5792 (FAX)**

From: Perry, Edwin L.
Sent: Tuesday, July 25, 2017 8:59 AM
To: Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil) <Glen.A.Cunningham@usace.army.mil>; 'Brandon Howard - NOAA Federal' <brandon.howard@noaa.gov>; Joy Earp (joy.b.earp@usace.army.mil) <joy.b.earp@usace.army.mil>; Bruce Porter (Bruce_Porter@fws.gov) <Bruce_Porter@fws.gov>; Scott Brown <jsb@adem.state.al.us>; hall.rosemary@epa.gov; mills.calista@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; Rusty Swafford <rusty.swafford@noaa.gov>
Cc: Steve Flukinger <sflukinger@thompsonengineering.com>; Steve O'Hearn (sohearn@thompsonengineering.com) <sohearn@thompsonengineering.com>; Greg Lowe (glowe@thompsonengineering.com) <glowe@thompsonengineering.com>; Hickox, Patrick <Patrick.Hickox@hdrinc.com>; Missi Shumer <missi@shumerconsulting.com>; Heisler, Timothy (FHWA) <timothy.heisler@dot.gov>; Urquhart, Lynne (FHWA) <Lynne.Urquhart@dot.gov>; Bartlett, Mark (FHWA) <Mark.Bartlett@dot.gov>; Ericksen, Matthew <ericksenm@dot.state.al.us>; Wood, Andrew <wooda@dot.state.al.us>; Walker, Steve <walkers@dot.state.al.us>; Clay, Natasha <clayn@dot.state.al.us>; 'Barry Vittor' <bvittor@bvaenviro.com>; 'McCarthy, Michael' <Michael.McCarthy@mottmac.com>
Subject: Mobile River Bridge FEIS Draft Mitigation Plan

Attached for your review and comment is a Draft Mitigation Plan for the above-referenced project. This plan has been developed based on the input received from the agencies at the meeting held on April 12, 2017.

We respectfully request that you review the attached information and provide any comments that you may have by **August 21, 2017**.

Please contact me if you have any questions.

Thanks,

EDWIN L. PERRY III, P.E.
ALDOT SOUTHWEST REGION
I - 10 CORRIDOR ENGINEER
1701 WEST I-65 SERVICE ROAD, N.

From: Richard Hartman - NOAA Federal
To: Perry, Edwin L.
Cc: Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil); Brandon Howard - NOAA Federal; Joy Earp (joy.b.earp@usace.army.mil); Bruce Porter (Bruce_Porter@fws.gov); Scott Brown; hall.rosemary@epa.gov; mills.calista@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; Rusty Swafford; Steve Flukinger; Steve O"Hearn (sohearn@thompsonengineering.com); Greg Lowe (glowe@thompsonengineering.com); Hickox, Patrick; Missi Shumer; Heisler, Timothy (FHWA); Urquhart, Lynne (FHWA); Bartlett, Mark (FHWA); Ericksen, Matthew; Wood, Andrew; Walker, Steve; Clay, Natasha; Barry Vittor; McCarthy, Michael
Subject: Re: Mobile River Bridge FEIS Draft Mitigation Plan
Date: Friday, July 28, 2017 7:40:53 AM

Mr. Perry - Staff of NOAA's National Marine Fisheries Service (NMFS), Habitat Conservation Division (HCD), have reviewed the draft mitigation plan designed to offset impacts to aquatic habitats resulting from the widening of Interstate Highway 10 (I-10) across Mobile Bay in Mobile and Baldwin Counties, Alabama. This mitigation plan addresses essential fish habitat conservation recommendations provided on this project by letter from the NMFS dated January 9, 2002.

According to the draft mitigation plan, project implementation is estimated to destroy 12.2 acres of submerged aquatic vegetation (SAV) and 3.9 acres of emergent marsh. Impacts to these habitats are expected to result from direct shading of vegetation. The Alabama Department of Transportation (DOT) has agreed to offset project impacts through the creation of similar habitats at a 1.5:ratio of mitigation to impact for marsh and a 2:1 ratio for SAV. The draft mitigation plan evaluates two alternatives to provide the necessary mitigation; (1) the creation of a marsh island with shallowing of adjacent deeper habitats to depths supportive of SAV, and (2) the creation of marsh terraces with shallowing of waterbottoms between the terraces to elevations supportive of SAV. According to the mitigation plan, based on better scores on a hydrogeomorphic (HGM) model assessment and lower costs, the marsh island alternative was selected as the preferred plan.

While HCD staff question some of the HGM ratings given the two alternative mitigation options, as well as the extreme difference in cubic yardage estimated to complete the two alternatives, we believe either has the potential to offset impacts to vegetated habitats associated with the proposed widening of I-10. As such, we support the creation of a six acre marsh island in Chocolatta Bay and the shallowing of 24 acres of deeper water around the island to elevations which would be supportive of SAV. It should be noted that SAV is already present in shallower water portions of Chocolatta Bay, suggesting this mode of mitigation for SAV should be successful.

Of concern to NMFS is that some of the required components of mitigation plans appears to be missing. Of greatest concern is the lack of success criteria to evaluate project performance against, and the lack of a monitoring and adaptive management plan. The NMFS believes these required components of a mitigation plan should be developed, in coordination with NMFS HCD, and included in the Final Environmental Impact Statement for this project. Further, any Record of Decision signed for this project should specifically require adherence with all components of a finalized mitigation plan.

We appreciate your consideration of our comments. Further coordination on this project should be routed to either Brandon Howard (brandon.howard@noaa.gov) or Richard Hartman (richard.hartman@noaa.gov). Should you have questions regarding the above comments, please contact me at (225) 389-0508, ext 203.

Richard Hartman
Fishery Biologist
NOAA/NMFS/HCD

On Tue, Jul 25, 2017 at 9:00 AM, Perry, Edwin L. <perrye@dot.state.al.us> wrote:

> Attached for your review and comment is a Draft Mitigation Plan for the above-referenced project. This plan has been developed based on the input received from the agencies at the meeting held on April 12, 2017.
>
> We respectfully request that you review the attached information and provide any comments that you may have by **August 21, 2017**.
>
> Please contact me if you have any questions.
>
> Thanks,
>
> EDWIN L. PERRY III, P.E.
> ALDOT SOUTHWEST REGION
> I - 10 CORRIDOR ENGINEER
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> (251) 478-5792 (FAX)

From:	Calli, Rosemary
To:	Perry, Edwin L.; Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil); Brandon Howard - NOAA Federal; Joy Earp (joy.b.earp@usace.army.mil); Bruce Porter (Bruce_Porter@fws.gov); Scott Brown; Mills, Calista; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; Rusty Swafford
Cc:	Steve Flukinger; Steve O"Hearn (sohearn@thompsonengineering.com); Greg Lowe (glowe@thompsonengineering.com); Hickox, Patrick; Missi Shumer; Heisler, Timothy (FHWA); Urquhart, Lynne (FHWA); Bartlett, Mark (FHWA); Ericksen, Matthew; Wood, Andrew; Walker, Steve; Clay, Natasha; Barry Vittor; McCarthy, Michael
Subject:	RE: Mobile River Bridge FEIS Draft Mitigation Plan
Date:	Friday, August 4, 2017 4:03:49 PM

Mr. Perry,

Thank you for the opportunity to provide comments on this draft mitigation plan for the Mobile River Bridge project. We have reviewed the document and provide the following comments:

Marsh Creation

Section 3.5 Alternatives Analysis

We request clarification as to why there is a large difference between sediment volumes required for the Terrace and Island alternatives (850,000 CY vs 150,000 CY) when the acreage of marsh to be created is the same.

Section 4.0 Mitigation Implementation

The source of sediment is described as "may be obtained from existing confined dredged material disposal sites in the area."

- The CDF sites should be identified.
- In case those sites are not used, alternatives and selection criteria should also be identified.

"Any such sediment will be evaluated for chemical contaminants such as heavy metals and petroleum hydrocarbons, PCBs, etc."

- The plan needs to provide specific plans regarding contaminants of concern to be evaluated (i.e., what is included in "etc."?). Depending upon the exposure history, other contaminants such as (but not limited to) agrichemicals and dioxins may be of concern, as well.
- What criteria are contaminant levels to be judged against to ensure the material is clean and appropriate for creation of healthy marsh?

The source sediment should also be evaluated in terms of grain size distribution (beyond 50-75% sand) and organic carbon content. These should be compared to reference standards or nearby material supporting target habitat types (both tidal marsh and SAV bed substrate) to help ensure success.

"A Project monitoring plan will be developed during approval of the final mitigation plan."

- ➢ A monitoring plan is one of the key elements of a compensatory mitigation plan and needs to be provided for agency review along with other elements of the plan.

Section 4.0 Adaptive Management Strategy

"Should the created marsh exhibit poor transplant survival and/or growth, a determination will be made of the probable cause(s) of the lack of success; corrective measures will be discussed with the cognizant agencies."

- ➢ The criterion of "poor transplant survival and/or growth" could be assumed to be any value outside of those used in calculating HGM FCIs, but should be made more explicit in the mitigation plan.

- ➢ The timelines for meeting success criteria need to be established. In particular, regarding timelines to achieve successful creation conforming to target HGM parameters, material obtained from a CDF will not necessarily have nutrient content and microbial community supportive of vegetation. Establishing these will take time and may inhibit successful establishment, so temporal losses may need to be addressed.

SAV Creation

The compensatory mitigation plan for creating 24 acres of SAV beds is described as, "SAV would be allowed to recruit naturally into the fill area at elevations between -3 ft and 0 MSL." The level of detail provided is insufficient for a compensatory mitigation plan. Whereas the marsh creation component can be expected to make use of HGM FCI subindices in the final mitigation plan, no such criteria exist or are suggested for this, the larger component of the compensatory mitigation plan. In particular, success criteria and timelines for meeting them need to be established, but all twelve requirements of a compensatory mitigation plan need to be addressed.

Compensatory Mitigation Plan elements

Some of these have been addressed above, but in order for the compensatory mitigation plan to be complete, the following elements need to be provided **for both marsh creation and SAV creation**:

- Performance standards. Ecologically-based standards that will be used to determine whether the mitigation project is achieving its objectives.
- Monitoring requirements. A description of parameters monitored to determine whether the mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting monitoring results to the DE must be included.
- Site protection instrument. A description of the legal arrangements and instrument including site ownership, that will be used to ensure the long-term protection of the mitigation project site.
- Mitigation work plan elements: plans for control of invasive plant species
- Long-term management plan. A description of how the mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management.
- Financial assurances. A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the mitigation project will be successfully completed, in accordance with its performance standards.

Please note my name change and new email address.

Rosemary (Hall) Calli
Aquatic Ecotoxicologist
U.S. Environmental Protection Agency
Region IV – Wetlands & Streams Regulatory Section

404.562.9846

Calli.Rosemary@epa.gov

From: Perry, Edwin L. [mailto:perrye@dot.state.al.us]
Sent: Tuesday, July 25, 2017 10:01 AM
To: Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil) <Glen.A.Cunningham@usace.army.mil>; Brandon Howard - NOAA Federal <brandon.howard@noaa.gov>; Joy Earp (joy.b.earp@usace.army.mil) <joy.b.earp@usace.army.mil>; Bruce Porter (Bruce_Porter@fws.gov) <Bruce_Porter@fws.gov>; Scott Brown <jsb@adem.state.al.us>; Calli, Rosemary <Calli.Rosemary@epa.gov>; Mills, Calista <Mills.Calista@epa.gov>; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; Rusty Swafford <rusty.swafford@noaa.gov>
Cc: Steve Flukinger <sflukinger@thompsonengineering.com>; Steve O'Hearn (sohearn@thompsonengineering.com) <sohearn@thompsonengineering.com>; Greg Lowe (glowe@thompsonengineering.com) <glowe@thompsonengineering.com>; Hickox, Patrick <Patrick.Hickox@hdrinc.com>; Missi Shumer <missi@shumerconsulting.com>; Heisler, Timothy (FHWA) <timothy.heisler@dot.gov>; Urquhart, Lynne (FHWA) <Lynne.Urquhart@dot.gov>; Bartlett, Mark (FHWA) <Mark.Bartlett@dot.gov>; Ericksen, Matthew <ericksenm@dot.state.al.us>; Wood, Andrew <wooda@dot.state.al.us>; Walker, Steve <walkers@dot.state.al.us>; Clay, Natasha <clayn@dot.state.al.us>; Barry Vittor <bvittor@bvaenviro.com>; McCarthy, Michael <Michael.McCarthy@mottmac.com>
Subject: Mobile River Bridge FEIS Draft Mitigation Plan

Attached for your review and comment is a Draft Mitigation Plan for the above-referenced project. This plan has been developed based on the input received from the agencies at the meeting held on April 12, 2017.

We respectfully request that you review the attached information and provide any comments that you may have by **August 21, 2017**.

Please contact me if you have any questions.

Thanks,

EDWIN L. PERRY III, P.E.
ALDOT SOUTHWEST REGION
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January 11, 2018 Transmittal of Revised Draft Mitigation Plan to Agencies, Disposition of Comments Received from Previous Review, and Comments Received from Agencies

ALABAMA
DEPARTMENT OF TRANSPORTATION

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

Kay Ivey
GOVERNOR

John R. Cooper
TRANSPORTATION DIRECTOR

January 11, 2018

Transmitted Via E-Mail

RE: ALDOT Project DPI-0030(005)
I-10 Mobile River Bridge and Bayway Project
Mobile and Baldwin Counties, Alabama
Draft Mitigation Plan

Dear Sir/Madam:

Attached for your review and comment is a revised Draft Mitigation Plan and the disposition of comments received for the above-referenced project. This plan was developed based on the input received from the agencies at the meeting held on April 12, 2017, and revised to address comments received from resource and regulatory agencies to date.

The revised Draft Mitigation Plan will be included in the Supplemental Draft Environmental Impact Statement (SDEIS). Comments received on the revised Draft Mitigation Plan will be addressed in the SDEIS. Correspondence related to the Draft Mitigation Plan may be e-mailed to perrye@dot.state.al.us or mailed to the following address:

Mr. Edwin L. Perry, III, P.E.
ALDOT – Southwest Region
Mobile River Bridge Project Office
107 Saint Francis Street
Suite 2100
Mobile, AL 36602

Should you have any questions or require additional information, please contact me at (251) 434-6801. Thank you for your continued cooperation and interest in this project.

Sincerely,

Edwin L. Perry, III, P.E.
I-10 Corridor Engineer

Attachment

List of Recipients:

Name	Agency/Organization	E-Mail Address
Kevin Anson	Alabama Department of Conservation and Natural Resources (ADCNR)	Kevin.anson@dcnr.alabama.gov
David Armstrong	ADCNR	David.armstrong@dcnr.alabama.gov
Steve Barnett	ADCNR	Steve.barnett@dcnr.alabama.gov
Carl Ferraro	ADCNR	Carl.ferraro@dcnr.alabama.gov
Amy Hunter	ADCNR	Amy.hunter@dcnr.alabama.gov
Jeff Jordan	ADCNR	Jeff.jordan@dcnr.alabama.gov
Lisa Laraway	ADNCR	Lisa.laraway@dcnr.alabama.gov
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Scott Brown	Alabama Department of Environmental Management (ADEM)	jsb@adem.state.al.us
Steve Walker	ALDOT, Design Bureau	walkers@dot.state.al.us
Natasha Clay	ALDOT, Environmental Technical Section (ETS)	clayn@dot.state.al.us
Matt Ericksen	ALDOT, Southwest Region (SWR)	Ericksenm@dot.state.al.us
Andrew Wood	ALDOT, SWR	wooda@dot.state.al.us
Mark Bartlett	Federal Highway Administration (FHWA)	Mark.bartlett@dot.gov
Tim Heisler	FHWA	Timothy.heisler@dot.gov
Lynne Urquhart	FHWA	Lynne.urquhart@dot.gov
Brandon Howard	NOAA Fisheries Service	Brandon.howard@noaa.gov
Richard Hartman	NOAA Fisheries Service	Richard.hartman@noaa.gov
Rusty Swofford	NOAA Fisheries Service	Rusty.swafford@noaa.gov
Glen Cunningham	U.S. Army Corps of Engineers (USACE), Mobile District	Glen.a.cunningham@usace.army.mil
Joy Earp	USACE, Mobile District	Joy.b.earp@usace.army.mil
Sheri Zettle	USACE, Mobile District	Sheri.m.zettle@usace.army.mil
Rosemary Calli	U.S. Environmental Protection Agency (USEPA)	Calli.rosemary@epa.gov
Calista Mills	USEPA	Mills.calista@epa.gov
Bruce Porter	U.S. Fish & Wildlife Service (USFWS)	Bruce_porter@fws.gov
Pat Hickox	Thompson Engineering Team	Patrick.hickox@hdrinc.com
Steve Flukinger	Thompson Engineering Team	sflukinger@thompsonengineering.com
Greg Lowe	Thompson Engineering Team	glowe@thompsonengineering.com
Steve O'Hearn	Thompson Engineering Team	sohearn@thompsonengineering.com
Missi Shumer	Thompson Engineering Team	missi@shumerconsulting.com

Interstate-10 Mobile River Bridge and Bayway Project
Responses to Comments on the 6-15-2017 Draft Monitoring Plan

Commenter No. 1 – Rosemary Calli, Environmental Protection Agency

Comment 1 - We request clarification as to why there is a large difference between sediment volumes required for the Terrace and Island alternatives (850,000 CY vs 150,000 CY) when the acreage of marsh to be created is the same.

The original dredged material volume estimate for the terrace design was miscalculated, and has been corrected in the revised Draft Mitigation Plan (p. 5, Section 3.5).

Comment 2 - The source of sediment is described as "may be obtained from existing confined dredged material disposal sites in the area."
- The CDF sites should be identified.
- In case those sites are not used, alternatives and selection criteria should also be identified.

Three CDFs in proximity to the proposed mitigation site have been identified in the revised Draft Mitigation Plan (p. 6, Section 4.0), including a map showing their locations (Appendix A, Figure 6). In addition, a brief discussion of potential alternative sediment sources has been inserted into Section 4.0 (p. 6).

Comment 3 - The plan needs to provide specific plans regarding contaminants of concern to be evaluated (i.e., what is included in "etc."?).

Sediments will be evaluated for contaminants of concern, including semivolatile organic compounds (SVOCs; PCBs, PAHs, phenols, phthalates, and organochlorine pesticides) and heavy metals, including mercury (p. 7, Section 4.0).

Comment 4 - What criteria are contaminant levels to be judged against to ensure the material is clean and appropriate for creation of healthy marsh?

Ecological risk benchmarks for sediments will be those contained in the United States Environmental Protection Agency (USEPA) Region 4 Risk Assessment Guidance for Superfund (RAGS) sediment screening values (p. 7, Section 4.0).

Comment 5 - The source sediment should also be evaluated in terms of grain size distribution (beyond 50-75% sand) and organic carbon content. These should be compared to reference standards or nearby material supporting target habitat types (both tidal marsh and SAV bed substrate) to help ensure success.

Information on natural ranges of sediment texture in tidal marshes and SAV beds, including specifically for Choccolatta Bay, has been included in the revised Draft Mitigation Plan (p. 6 and 7, Section 4.0).

Comment 6 - A monitoring plan is one of the key elements of a compensatory mitigation plan and needs to be provided for agency review along with other elements of the plan.

A Draft Monitoring Plan is now appended to the revised Draft Mitigation Plan (Appendix C).

Comment 7 - The criterion of "poor transplant survival and/or growth" could be assumed to be any value outside of those used in calculating HGM FCIs, but should be made more explicit in the mitigation plan.

Criteria for Year 1 plant survivorship (≥85%), marsh success cover (≥70%), and invasive species cover (≤5%) have been included in the revised Draft Mitigation Plan (p. 8, Section 6.0) and the Draft Monitoring Plan (p. 2 and 3, Section 2.2).

Comment 8 - The timelines for meeting success criteria need to be established. In particular, regarding timelines to achieve successful creation conforming to target HGM parameters, material obtained from a CDF will not necessarily have nutrient content and microbial community supportive of vegetation. Establishing these will take time and may inhibit successful establishment, so temporal losses may need to be addressed.

Timelines for success are included in the in the revised Draft Mitigation Plan (p. 8, Section 6.0) and the Draft Monitoring Plan for both marsh and SAV (p. 2 and 3, Section 2.2).

Comment 9 - The compensatory mitigation plan for creating 24 acres of SAV beds is described as, "SAV would be allowed to recruit naturally into the fill area at elevations between -3 ft and 0 MSL."

The level of detail provided is insufficient for a compensatory mitigation plan. Whereas the marsh creation component can be expected to make use of HGM FCI subindices in the final mitigation plan, no such criteria exist or are suggested for this, the larger component of the compensatory mitigation plan. In particular, success criteria and timelines for meeting them need to be established, but all twelve requirements of a compensatory mitigation plan need to be addressed.

A percent cover success criterion for SAV and a timeline for success have been included in the revised Draft Mitigation Plan (p. 9, Section 6.0) and the Draft Monitoring Plan (p. 2 and 3, Section 2.2).

Comment 10 - Some of these have been addressed above, but in order for the compensatory mitigation plan to be complete, the following elements need to be provided for both marsh creation and SAV creation:
- <u>*Performance standards*</u>*. Ecologically-based standards that will be used to determine whether the mitigation project is achieving its objectives.*

- *<u>Monitoring requirements</u>. A description of parameters monitored to determine whether the mitigation project is on track to meet performance standards and if adaptive management is needed. A schedule for monitoring and reporting monitoring results to the DE must be included.*
- *<u>Mitigation work plan elements</u>: plans for control of invasive plant species*

The Draft Monitoring Plan (Appendix C of the revised Draft Mitigation Plan) addresses performance standards, monitoring requirements, and mitigation work plan elements for both tidal marsh and SAV creation.

[Comment 10 (cont'd)] -
- *<u>Site protection instrument</u>. A description of the legal arrangements and instrument including site ownership, that will be used to ensure the long-term protection of the mitigation project site.*
- *<u>Long-term management plan</u>. A description of how the mitigation project will be managed after performance standards have been achieved to ensure the long-term sustainability of the resource, including long-term financing mechanisms and the party responsible for long-term management.*
- *<u>Financial assurances</u>. A description of financial assurances that will be provided and how they are sufficient to ensure a high level of confidence that the mitigation project will be successfully completed, in accordance with its performance standards.*

These items are addressed under separate cover.

Commenter No. 2 – Richard Hartman, NOAA National Marine Fisheries Service, Habitat Conservation Division

Of concern to NMFS is that some of the required components of mitigation plans appears to be missing. Of greatest concern is the lack of success criteria to evaluate project performance against, and the lack of a monitoring and adaptive management plan. The NMFS believes these required components of a mitigation plan should be developed, in coordination with NMFS HCD, and included in the Final Environmental Impact Statement for this project. Further, any Record of Decision signed for this project should specifically require adherence with all components of a finalized mitigation plan.

The revised Draft Mitigation Plan and the Draft Monitoring Plan address performance standards, monitoring requirements, and adaptive management approaches for both tidal marsh and SAV.

From:	Perry, Edwin L.
To:	Missi Shumer; Hickox, Patrick; Wood, Andrew; Dragotta, Stephanie A.; Clay, Natasha
Subject:	FW: Mobile River Bridge Revised SDEIS Draft Mitigation Plan
Date:	Tuesday, February 6, 2018 10:19:00 AM

See comments below.

EDWIN L. PERRY III, P.E.
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From: Brandon Howard - NOAA Federal [mailto:brandon.howard@noaa.gov]
Sent: Tuesday, February 06, 2018 10:07 AM
To: Perry, Edwin L. <perrye@dot.state.al.us>
Cc: Cunningham, Glen A CIV USARMY CESAM (US) <glen.a.cunningham@usace.army.mil>
Subject: Re: Mobile River Bridge Revised SDEIS Draft Mitigation Plan

Hi Edwin.

I've reviewed the draft plan. I understand the rational for choosing the marsh island alternative vs the terrace alternative. I only have two comments and they're related. The target marsh elevation should be the same as adjacent marsh in the area, or should be a maximum of 0.5' higher. It should not be any lower than adjacent marshes. The sites where you plan to get vegetation for planting would be a good place to get the correct elevation. Along the same lines, the target depths for SAV should be the same as those adjacent areas where SAV persists. Your range for marsh elevation is 0 to 2' MSL, and 0 to -3' MSL for SAV. We should have exact depths that we're targeting instead of ranges. This will be one of, if not the most, critical element for success. Having said that, the mitigation plan is very good and well put together. You guys did a really nice job on this.

Brandon

On Wed, Jan 31, 2018 at 4:14 PM, Perry, Edwin L. <perrye@dot.state.al.us> wrote:

> To help facilitate finalizing the Draft Mitigation Plan for inclusion in the SDEIS for the above-referenced project, we respectfully request that you submit any additional comments that you may have by **March 2, 2018**. If you did not receive a copy of the Draft Mitigation Plan that was sent by email January 11, 2018 or if you have any questions, please contact me.
>
> Thanks,
>
> EDWIN L. PERRY III, P.E.
> ALDOT SOUTHWEST REGION
> PRE-CONSTRUCTION ENGINEER
> 1701 I-65 WEST SERVICE RD. N.
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From: Perry, Edwin L.
Sent: Friday, January 19, 2018 9:36 AM
To: 'Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil)' <Glen.A.Cunningham@usace.army.mil>; 'Brandon Howard - NOAA Federal' <brandon.howard@noaa.gov>; 'Joy Earp (joy.b.earp@usace.army.mil)' <joy.b.earp@usace.army.mil>; 'Bruce Porter (Bruce_Porter@fws.gov)' <Bruce_Porter@fws.gov>; 'Scott Brown' <jsb@adem.state.al.us>; 'Calli, Rosemary' <Calli.Rosemary@epa.gov>; 'mills.calista@epa.gov' <mills.calista@epa.gov>; 'jeff.jordan@dcnr.alabama.gov' <jeff.jordan@dcnr.alabama.gov>; 'sheri.m.zettle@usace.army.mil' <sheri.m.zettle@usace.army.mil>; 'richard.hartman@noaa.gov' <richard.hartman@noaa.gov>; 'Rusty Swafford' <rusty.swafford@noaa.gov>; 'Kevin.anson@dcnr.alabama.gov' <Kevin.anson@dcnr.alabama.gov>; 'David.armstrong@dcnr.alabama.gov' <David.armstrong@dcnr.alabama.gov>; 'Steve.barnett@dcnr.alabama.gov' <Steve.barnett@dcnr.alabama.gov>; 'Carl.ferraro@dcnr.alabama.gov' <Carl.ferraro@dcnr.alabama.gov>; 'Amy.hunter@dcnr.alabama.gov' <Amy.hunter@dcnr.alabama.gov>; 'Greg.lein@dcnr.alabama.gov' <Greg.lein@dcnr.alabama.gov>; 'rob.grant@dcnr.alabama.gov' <rob.grant@dcnr.alabama.gov>
Cc: 'Hickox, Patrick' <Patrick.Hickox@hdrinc.com>; 'Missi Shumer' <missi@shumerconsulting.com>; Wood, Andrew <wooda@dot.state.al.us>; Clay, Natasha <clayn@dot.state.al.us>; Dragotta, Stephanie A. <dragottas@dot.state.al.us>
Subject: RE: Mobile River Bridge Revised SDEIS Draft Mitigation Plan

I wanted to check with everyone to make sure they received the previous e-mail (January 11, 2018) with the attached updated draft mitigation plan since it was a large file. If you could please reply to me and let me know.

Thanks,

Edwin L. Perry III, P.E.
ALDOT Southwest Region
Mobile River Bridge Project Manager
107 Saint Francis Street
Suite 2100
Mobile, AL 36602
(251) 434-6801 (Office)
(251) 331-9452 (Cell)
(251) 478-5792 (Fax)

From: Perry, Edwin L.
Sent: Thursday, January 11, 2018 12:06 PM
To: 'Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil)' <Glen.A.Cunningham@usace.army.mil>; 'Brandon Howard - NOAA Federal' <brandon.howard@noaa.gov>; 'Joy Earp (joy.b.earp@usace.army.mil)' <joy.b.earp@usace.army.mil>; 'Bruce Porter (Bruce_Porter@fws.gov)' <Bruce_Porter@fws.gov>; 'Scott Brown' <jsb@adem.state.al.us>; 'Calli, Rosemary' <Calli.Rosemary@epa.gov>; 'mills.calista@epa.gov' <mills.calista@epa.gov>; 'jeff.jordan@dcnr.alabama.gov' <jeff.jordan@dcnr.alabama.gov>; 'sheri.m.zettle@usace.army.mil' <sheri.m.zettle@usace.army.mil>; 'richard.hartman@noaa.gov' <richard.hartman@noaa.gov>; 'Rusty Swafford' <rusty.swafford@noaa.gov>;

'Kevin.anson@dcnr.alabama.gov' <Kevin.anson@dcnr.alabama.gov>;
'David.armstrong@dcnr.alabama.gov' <David.armstrong@dcnr.alabama.gov>;
'Steve.barnett@dcnr.alabama.gov' <Steve.barnett@dcnr.alabama.gov>;
'Carl.ferraro@dcnr.alabama.gov' <Carl.ferraro@dcnr.alabama.gov>;
'Amy.hunter@dcnr.alabama.gov' <Amy.hunter@dcnr.alabama.gov>;
'Lisa.laraway@dcnr.alabama.gov' <Lisa.laraway@dcnr.alabama.gov>;
'Greg.lein@dcnr.alabama.gov' <Greg.lein@dcnr.alabama.gov>
Cc: 'Steve O'Hearn (sohearn@thompsonengineering.com)' <sohearn@thompsonengineering.com>; 'Greg Lowe (glowe@thompsonengineering.com)' <glowe@thompsonengineering.com>; 'Hickox, Patrick' <Patrick.Hickox@hdrinc.com>; 'Missi Shumer' <missi@shumerconsulting.com>; 'Heisler, Timothy (FHWA)' <timothy.heisler@dot.gov>; 'Urquhart, Lynne (FHWA)' <Lynne.Urquhart@dot.gov>; 'Bartlett, Mark (FHWA)' <Mark.Bartlett@dot.gov>; Ericksen, Matthew <ericksenm@dot.state.al.us>; Wood, Andrew <wooda@dot.state.al.us>; Walker, Steve <walkers@dot.state.al.us>; Clay, Natasha <clayn@dot.state.al.us>; 'McCarthy, Michael' <Michael.McCarthy@mottmac.com>; Dragotta, Stephanie A. <dragottas@dot.state.al.us>
Subject: Mobile River Bridge Revised SDEIS Draft Mitigation Plan

Attached for your review and comment is a revised Draft Mitigation Plan for the above-referenced project. This plan was updated based on the comments received from the resource and regulatory agencies to date. Also attached is the disposition of comments received and cover letter.

Comments received on the revised Draft Mitigation Plan will be addressed in the Supplemental Draft Environmental Impact Statement (SDEIS).

Please contact me if you have any questions.

Thanks,

EDWIN L. PERRY III, P.E.
ALDOT SOUTHWEST REGION
MOBILE RIVER BRIDGE PROJECT MANAGER
107 SAINT FRANCIS STREET
SUITE 2100
MOBILE, AL 36602
(251) 434-6801 (OFFICE)
(251) 331-9452 (CELL)
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Brandon Howard
Fishery Biologist
Habitat Conservation Division
NOAA Fisheries Service

Louisiana State University
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Baton Rouge, LA 70803

Office: 225-389-0508, x207

Web	*www.nmfs.noaa.gov*
Facebook	*https://www.facebook.com/NOAAFisheries/*
Twitter	*www.twitter.com/noaafisheries*
YouTube	*www.youtube.com/usnoaafisheriesgov*

STATE OF ALABAMA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
64 NORTH UNION STREET, SUITE 468
MONTGOMERY, ALABAMA 36130
(334) 242-3486
FAX (334) 242-3489

KAY IVEY
GOVERNOR

CHRISTOPHER M. BLANKENSHIP
COMMISSIONER

EDWARD F. POOLOS
DEPUTY COMMISSIONER

March 12, 2018

Mr. Stephen M. O'Hearn
Thompson Engineering
2970 Cottage Hill Road, Suite 190
Mobile, Alabama 36606

RE: Alabama Department of Transportation I-10 Mobile River Bridge and Bayway Project
Draft Mitigation Plan

Dear Mr. O'Hearn:

The Alabama Department of Conservation and Natural Resources (Department) has conducted a review of the above noted draft mitigation plan for the I-10 Mobile River Bridge and Bayway Project. It is the Department's understanding that this mitigation plan is being prepared for the Alabama Department of Transportation (ALDOT) as part of the Environmental Impact Study being conducted as part of the project's regulatory review. Specifically, the draft mitigation plan outlines proposed mitigation for impacts to wetlands and submerged aquatic vegetation (SAV) which will be impacted by the construction of the project.

Based on our review of the draft mitigation plan, the proposed mitigation for impacts to wetlands and SAVs would be to construct a 30 acre sediment "platform" in Choccolatta Bay. This sediment platform would then be planted with emergent wetland vegetation and native SAV species.

The draft mitigation plan has been reviewed by the various Divisions of the Department, including the Wildlife and Freshwater Fisheries Division, the Marine Resources Division and the State Lands Division. Based on this review, all three Divisions have expressed concerns with the proposed mitigation plan:

1. Based on recent field observations, there are scattered patches of rooted SAVs within the proposed mitigation area. Further, Choccolatta Bay as a whole contains approximately 1,000 acres of SAV habitat. As such, the proposed mitigation area is already considered to be productive fisheries habitat.
2. Given the depth of Choccolatta Bay, the soft unconsolidated nature of the bottom sediments in Choccolatta Bay and the distance from a deep water channel, it is unclear to the Department how significant quantities of sediment could be transported to the mitigation area and then placed and contained in such a manner which would not adversely impact existing natural resources.
3. The proposed mitigation area is located adjacent to the lands of the W.L. Holland Wildlife Management Area, which is owned and managed by the Department. This area is heavily used by anglers, hunters, kayakers, birdwatchers and other members of the public. Based on interactions with the public, there is already a perception that Choccolatta Bay has become shallower and sediment filled since the Highway 98 Causeway was constructed. Therefore, it is unclear to the Department that the further shallowing of a 30 acre portion of the middle of Choccolatta Bay would be appropriate or that such a proposal would be positively received by the members of the public.

The Department requests that the ALDOT consider alternate sites for the required mitigation. Staff from the various Divisions of the Department is willing to meet with the ALDOT and Thompson Engineering to discuss possible alternative sites. Possible alternative sites may include un-vegetated waterbottoms south of the I-10 Bayway or similar areas in portions of the lower Mobile-Tensaw Delta. However, any proposed alternative sites would require further field investigations to determine potential impacts to existing natural resources.

Thank you for providing the Department for the opportunity to comment on this draft mitigation plan. If you have any question concerning this letter or if you wish to arrange a meeting with our Division representatives, please contact Carl Ferraro with the State Lands Division Coastal Stewardship office in Spanish Fort at 251-621-1216.

Sincerely,

Christopher M. Blankenship
Commissioner

CC: Scott Brown, ADEM Field Office
Joy Earp, USACE
Patricia J. Powell, State Lands Division
Scott Bannon, Marine Resources Division
Chuck Sykes, Wildlife and Freshwater Fisheries Division

From:	Perry, Edwin L.
To:	Wood, Andrew; Dragotta, Stephanie A.; missi@shumerconsulting.com
Subject:	FW: Mobile River Bridge Revised SDEIS Draft Mitigation Plan
Date:	Wednesday, March 14, 2018 8:06:09 AM
Attachments:	image00001.png FollowUpComments-BaywayDraftMitPlan.docx

FYI

Edwin L. Perry III, P.E.
ALDOT Southwest Region
Pre-Construction Engineer
1701 I-65 West Service Rd. N.
Mobile, AL 36618
(251) 470-8220 (Office)
(251) 331-9452 (Cell)
(251) 478-5792 (Fax)

From: Calli, Rosemary [mailto:Calli.Rosemary@epa.gov]
Sent: Tuesday, March 13, 2018 3:57 PM
To: Glen Cunningham <Glen.A.Cunningham@usace.army.mil>; Bruce Porter <Bruce_Porter@fws.gov>; Brandon Howard - NOAA Federal <brandon.howard@noaa.gov>; jeff.jordan@dcnr.alabama.gov; jsb@adem.state.al.us; richard.hartman@noaa.gov
Cc: Perry, Edwin L. <perrye@dot.state.al.us>
Subject: FW: Mobile River Bridge Revised SDEIS Draft Mitigation Plan

Sorry, all – realized I hadn't cc'ed other agencies. EPA's follow-up on the Bayway response to comments is attached.

From: Calli, Rosemary
Sent: Tuesday, March 13, 2018 10:29 AM
To: 'Perry, Edwin L.' <perrye@dot.state.al.us>
Subject: RE: Mobile River Bridge Revised SDEIS Draft Mitigation Plan

Mr. Perry – Thank you for providing the response to comments concerning the Interstate 10 Mobile River Bridge and Bayway Project, with clarifications and additional detail. The attached concerns and questions for further clarification remain, particularly regarding the source of sediment for the project.

Thank you,
Rosemary

Please note my name change and new email address.

Rosemary (Hall) Calli
Aquatic Ecotoxicologist
U.S. Environmental Protection Agency
Region IV – Wetlands & Streams Regulatory Section

404.562.9846
Calli.Rosemary@epa.gov

From: Perry, Edwin L. [mailto:perrye@dot.state.al.us]
Sent: Thursday, January 11, 2018 1:07 PM
To: Cunningham, Glen A CIV USARMY CESAM (US) (Glen.A.Cunningham@usace.army.mil) <Glen.A.Cunningham@usace.army.mil>; Brandon Howard - NOAA Federal <brandon.howard@noaa.gov>; Joy Earp (joy.b.earp@usace.army.mil) <joy.b.earp@usace.army.mil>; Bruce Porter (Bruce_Porter@fws.gov) <Bruce_Porter@fws.gov>; Scott Brown <jsb@adem.state.al.us>; Calli, Rosemary <Calli.Rosemary@epa.gov>; Mills, Calista <Mills.Calista@epa.gov>; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; Rusty Swafford <rusty.swafford@noaa.gov>; Kevin.anson@dcnr.alabama.gov; David.armstrong@dcnr.alabama.gov; Steve.barnett@dcnr.alabama.gov; Carl.ferraro@dcnr.alabama.gov; Amy.hunter@dcnr.alabama.gov; Lisa.laraway@dcnr.alabama.gov; Greg.lein@dcnr.alabama.gov
Cc: Steve O'Hearn (sohearn@thompsonengineering.com) <sohearn@thompsonengineering.com>; Greg Lowe (glowe@thompsonengineering.com) <glowe@thompsonengineering.com>; Hickox, Patrick <Patrick.Hickox@hdrinc.com>; Missi Shumer <missi@shumerconsulting.com>; Heisler, Timothy (FHWA) <timothy.heisler@dot.gov>; Urquhart, Lynne (FHWA) <Lynne.Urquhart@dot.gov>; Bartlett, Mark (FHWA) <Mark.Bartlett@dot.gov>; Ericksen, Matthew <ericksenm@dot.state.al.us>; Wood, Andrew <wooda@dot.state.al.us>; Walker, Steve <walkers@dot.state.al.us>; Clay, Natasha <clayn@dot.state.al.us>; McCarthy, Michael <Michael.McCarthy@mottmac.com>; Dragotta, Stephanie A. <dragottas@dot.state.al.us>
Subject: Mobile River Bridge Revised SDEIS Draft Mitigation Plan

Attached for your review and comment is a revised Draft Mitigation Plan for the above-referenced project. This plan was updated based on the comments received from the resource and regulatory agencies to date. Also attached is the disposition of comments received and cover letter.

Comments received on the revised Draft Mitigation Plan will be addressed in the Supplemental Draft Environmental Impact Statement (SDEIS).

Please contact me if you have any questions.

Thanks,

Edwin L. Perry III, P.E.
ALDOT Southwest Region
Mobile River Bridge Project Manager
107 Saint Francis Street
Suite 2100
Mobile, AL 36602
(251) 434-6801 (Office)
(251) 331-9452 (Cell)

EPA follow-up comments re: response to comments concerning I-10 Bayway widening Draft Mitigation Plan

re: Comments 2-4, sediment source and contaminant evaluation criteria

The response indicates that the applicant plans to use Risk Assessment Guidance for Superfund (RAGS) for evaluating the sediment proposed for use for habitat creation.

- EPA assumes this is meant to indicate PRGs (Preliminary Remediation Goal criteria) from the RAGS guidance. However, these are clean-up values for known contaminated sites, typically soils, surface water, and groundwater, not aquatic sediments.
- These are not appropriate criteria, given that this is not a Superfund site, and that the goal is not cleanup of hazardous materials down to an acceptable risk level.
- If the sediments were in need of testing, the Inland Testing Manual should be used to evaluate the presence of contaminants.

However, this is habitat creation work, not hazardous site cleanup. Clean material should be sourced from a location that presents no reason to believe contaminants would be present.

- Pulling material from Confined Disposal Facilities such as Blakely Island for distribution elsewhere is not appropriate. These CDFs are intended to receive material for disposition, not act as a source.
- Given the variety of origins of material deposited in these facilities, it would be very difficult to know the comprehensive history of any material extracted and all potential contaminants so as to be able to perform an effective, comprehensive evaluation. Have the facility managers provided such a history and evaluation of potential contaminants present? Can extraction of material be achieved without affecting the integrity of management measures such as isolation of material and layering for containment?
- Much of the material in at least one of the CDFs comes from industrial areas such as the port of Mobile, and previous projects have been known to send material to the CDF with elevated levels of dioxins and PAHs, for example. Sediments with known contaminants are not appropriate for habitat creation source material.

The Draft Mitigation Plan also describes the possibility of using alternative sediment sources such as material dredged for the deepening and widening of the Mobile Harbor Channel.

- Material from the open portion of Mobile Bay (not from industrial port segments) from this project would be much more appropriate than sediments extracted from CDFs.

re: Comment 6, monitoring plan

On page 4 of the Draft Monitoring Plan (Appendix C of the Draft Mitigation Plan) is the statement, “If continuous SAV coverage of the site is achieved in less than five years after planting, the monitoring program will be discontinued.”

- What specifically is intended to establish that “continuous SAV coverage” has been achieved? EPA recommends three or more years of meeting the success criterion of ≥50% SAV coverage before early discontinuation of the monitoring program, so as to have assurance that the trend established is valid, not an outlier.

EPA follow-up comments re: response to comments concerning I-10 Bayway widening Draft Mitigation Plan

re: Comment 10, elements of a complete mitigation plan

The response to comments indicates that three components of the mitigation plan are provided under separate cover: site protection instrument, long-term management plan, and financial assurances.

- Has the applicant provided these descriptions? EPA requests a copy of these remaining mitigation plan elements.

April 12, 2018 ADCNR Meeting Minutes

MEETING MINUTES

Project No. DPI-0030(005)
I-10 Mobile River Bridge and Bayway
Coordination Meeting with ALDOT and FHWA

A status meeting with the Alabama Department of Conservation and Natural Resources (ADCNR) was conducted on April 12, 2018, at Five Rivers Resource Center. The following were in attendance:

NAME	ORGANIZATION	Email
Carl Ferraro	ADCNR	Carl.ferraro@dcnr.alabama.gov
Roger Clay	ADCNR	Roger.clay@dcnr.alabama.gov
Steve Barnett	ADCNR	Steve.barnett@dcnr.alabama.gov
Thomas Harms	ADCNR	Thomas.harms@dcnr.alabama.gov
Andrew Wood	ALDOT	wooda@dot.state.al.us
Stephanie Dragotta	ALDOT	dragottas@dot.state.al.us
Tim Thibaut	Vittor & Associates	tthibaut@bvaenviro.com
Steve O'Hearn	Thompson Engineering	sohearn@thompsonengineering.com
Missi Shumer	Shumer Consulting	missi@shumerconsulting.com

The purpose of the meeting was to discuss comments received from the ADCNR on the Draft Mitigation Plan. The following is a summary of the discussion:

- **Draft Mitigation Plan**
    - The Draft Mitigation Plan will remain a draft until more detailed design is performed and actual impact quantities are determined.
    - Current process as part of Supplemental DEIS is to get input from agencies.
    - ADCNR asked where the mitigation ratios in the draft plan came from. ALDOT responded that the USACE deferred the ratios to NOAA-NMFS. NOAA-NMFS provided suggested ratios that are used in the Draft Mitigation Plan.
    - Agencies have agreed to proposed mitigation ratios of 1.5:1 for wetlands and 2:1 for SAV.
    - One location for marsh and SAV creation is preferred for monitoring purposes
- **Chocolatta Bay**
    - ADCNR's letter dated March 12, 2018 identified the following concerns about using Chocolatta Bay as a marsh creation site for mitigation:
        - Area is a productive fisheries habitat

        - Heavily used by public for recreational purposes
        - Rooted SAVs exist
        - Site is rebounding on its own
        - Constructability concerns related to material – muck
- **Other Potential Sites for Mitigation Area**
    - ALDOT acknowledged ADCNR's concerns about Chocolatta Bay
    - Discussion turned to looking at other available sites for mitigation in proximity to the proposed project
    - ADCNR had the following suggestions:
        - Find a location where water depths are both shallow and deep enough for marsh creation and SAV to exist
        - Look at areas both north and south of I-10
        - Sites south of I-10 may require armouring to protect against waves
    - Potential Sites for further consideration include:
        - Grand Bay – concerns about constructability and success/survivability
        - Polecat Bay – plenty of room for expansion if needed, likely contains appropriate water depths, protected from waves
        - Little Sand Island – would require ASPA approval, likely rock armouring to protect from waves, could be a good sediment source
    - Potential source for material – ASPA dredged material
    - Sources for SAV – Dauphin Island Sea Lab is working to harvest SAV seeds in the summer
- **Next Steps**
    - Vittor to evaluate the sites discussed during the meeting and identify a recommended site in the next version of the Draft Mitigation Plan
    - Draft Mitigation Plan will be sent back to the agencies with revised site location for review and comment – explain that proposed location for mitigation was changed due to concerns raised by ADCNR
    - Final Mitigation Plan will be prepared as part of permitting process in consultation with agencies

August 2018 Transmittal of Revised Draft Mitigation Plan to Agencies, Disposition of Comments Received from Previous Review, and Meeting Minutes from August 28, 2018 Interagency Meeting

From:	Wood, Andrew
To:	Glen.A.Cunningham@usace.army.mil; brandon.howard@noaa.gov; joy.b.earp@usace.army.mil; Bruce_Porter@fws.gov; jsb@adem.state.al.us; Calli.Rosemary@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; rusty.swafford@noaa.gov; Kevin.anson@dcnr.alabama.gov; David.armstrong@dcnr.alabama.gov; Steve.barnett@dcnr.alabama.gov; Carl.ferraro@dcnr.alabama.gov; Amy.hunter@dcnr.alabama.gov; Lisa.laraway@dcnr.alabama.gov; Greg.lein@dcnr.alabama.gov; Thomas.harms@dcnr.alabama.gov; Roger.clay@dcnr.alabama.gov; Douglas.A.Blakemore@uscg.mil; Missi Shumer; Hickox, Patrick; Bartlett, Mark (FHWA); Lynne.Urquhart@dot.gov; Heisler, Timothy (FHWA); Walker, Steve; Henry, Wade D; Clay, Natasha; Kayisavera, Dolha; Dragotta, Stephanie A.; Ericksen, Matthew; glowe@thompsonengineering.com; Beth Schiavoni
Cc:	Grant, Rob; Turner, William; Walker, Keith; Mobile River Bridge
Subject:	RE: Mobile River Bridge and Bayway Interagency Meeting
Date:	Monday, August 27, 2018 8:25:25 AM
Attachments:	2018-08-15_MRB Draft Mitigation Plan_REVISED.PDF 2018-August_MRB Draft Mitigation Plan Disposition of Comments.pdf

Attached are the latest Draft Mitigation Plan and disposition of agency comments.

-----Original Appointment-----
From: Wood, Andrew
Sent: Thursday, August 23, 2018 10:00 AM
To: Wood, Andrew; Glen.A.Cunningham@usace.army.mil; brandon.howard@noaa.gov; joy.b.earp@usace.army.mil; Bruce_Porter@fws.gov; jsb@adem.state.al.us; Calli.Rosemary@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; rusty.swafford@noaa.gov; Kevin.anson@dcnr.alabama.gov; David.armstrong@dcnr.alabama.gov; Steve.barnett@dcnr.alabama.gov; Carl.ferraro@dcnr.alabama.gov; Amy.hunter@dcnr.alabama.gov; Lisa.laraway@dcnr.alabama.gov; Greg.lein@dcnr.alabama.gov; Thomas.harms@dcnr.alabama.gov; Roger.clay@dcnr.alabama.gov; Douglas.A.Blakemore@uscg.mil; Missi Shumer; Hickox, Patrick; Bartlett, Mark (FHWA); Lynne.Urquhart@dot.gov; Heisler, Timothy (FHWA); Walker, Steve; Henry, Wade D; Clay, Natasha; Kayisavera, Dolha; Dragotta, Stephanie A.; Ericksen, Matthew; glowe@thompsonengineering.com; Beth Schiavoni
Cc: Grant, Rob; Turner, William; Walker, Keith; Mobile River Bridge
Subject: Mobile River Bridge and Bayway Interagency Meeting
When: Tuesday, August 28, 2018 10:30 AM-11:30 AM (UTC-06:00) Central Time (US & Canada).
Where: 107 St. Francis Street, Floor 21

Attached is the agenda for the Interagency Meeting next Tuesday.

Conference Call Number:
Number: 225-424-7331
Participants: 664559

From:	Wood, Andrew
To:	Glen.A.Cunningham@usace.army.mil; brandon.howard@noaa.gov; joy.b.earp@usace.army.mil; Bruce_Porter@fws.gov; jsb@adem.state.al.us; Calli.Rosemary@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; rusty.swafford@noaa.gov; Kevin.anson@dcnr.alabama.gov; David.armstrong@dcnr.alabama.gov; Steve.barnett@dcnr.alabama.gov; Carl.ferraro@dcnr.alabama.gov; Amy.hunter@dcnr.alabama.gov; Lisa.laraway@dcnr.alabama.gov; Greg.lein@dcnr.alabama.gov; Thomas.harms@dcnr.alabama.gov; Roger.clay@dcnr.alabama.gov; Douglas.A.Blakemore@uscg.mil; Bartlett, Mark (FHWA); Lynne.Urquhart@dot.gov; Heisler, Timothy (FHWA); Walker, Steve; Henry, Wade D; Clay, Natasha; Kayisavera, Dolha; glowe@thompsonengineering.com; Grant, Rob; Turner, William; Walker, Keith; Brown, Scott; lamar.pendergrass@dcnr.alabama.gov
Cc:	Missi Shumer; Patrick.Hickox@hdrinc.com; Ericksen, Matthew
Subject:	Mobile River Bridge and Bayway Interagency Meeting
Date:	Friday, August 31, 2018 9:09:03 AM
Attachments:	2018-08-28 Interagency Meeting Minutes (DRAFT).pdf

All,

Thank you again for attending Interagency Meeting for the Mobile River Bridge and Bayway Project. Attached are the draft meeting minutes and the presentation. Please review and let us know if there are any errors or omissions that need to be corrected.

Thank you,

Andrew D. Wood, P.E.
ALDOT Southwest Region
Mobile River Bridge and Bayway Project Manager
107 Saint Francis Street, Suite 2100
Mobile, AL 36602
(251) 434-6802 (Office)
(251) 510-4361 (Cell)

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

DISPOSITION OF COMMENTS RECEIVED ON DRAFT MITIGATION PLAN

NOAA Fisheries

	Comment	Response
1.	The target marsh elevation should be the same as adjacent marsh in the area, or should be a maximum of 0.5’ higher. It should not be any lower than adjacent marshes. The sites where you plan to get vegetation for planting would be a good place to get the correct elevation.	The proposed design includes elevations appropriate for tidal marshes in the lower Delta. The plan is for a non-armored sediment base, which necessarily includes transitional areas with gentle slopes. The design will allow for the creation of habitat diversity including low and high marsh. Additional information on marsh elevations in the mitigation area has been added to the revised document.
2.	Along the same lines, the target depths for SAV should be the same as those adjacent areas where SAV persists. Your range for marsh elevation is 0 to 2’ MSL, and o to -3’ MSL for SAV. We should have exact depths we are targeting instead of ranges. This will be one of, if not the most, critical element for success.	The proposed design includes elevations appropriate for SAV in the lower Delta. Additional information on SAV depths in the mitigation area has been added to the revised document.
3.	Having said that, the mitigation plan is very good and well put together.	Comment noted.

ADNCR

	Comment	Response
1.	Based on recent field observations, there are scattered patches of rooted SAVs within the proposed mitigation area. Further, Choccolatta Bay as a whole contains approximately 1,000 acres of SAV habitat. As such, the proposed mitigation area is already considered to be productive fisheries habitat.	ALDOT and the Consultant Team met with the ADCNR on April 12, 2018, to discuss their comments. The Draft Mitigation Plan has been revised to consider alternative sites for marsh creation in order to alleviate ADCNR’s concerns about use of Choccolatta Bay.
2.	Given the depth of Choccolatta Bay, the soft unconsolidated nature of the bottom sediments in Choccolatta Bay and the distance from a deep water channel, it is unclear to the Department how significant quantities of sediment	

	Comment	Response
	could be transported to the mitigation area and then placed and contained in such a manner which would not adversely impact existing natural resources.	
3.	The proposed mitigation area is located adjacent to the lands of the W.L. Holland Wildlife Management Area, which is owned and managed by the Department. This area is heavily used by anglers, hunters, kayakers, birdwatches, and other members of the public. Based on interactions with the public, there is already a perception that Choccolatta Bay has become shallower and sediment filled since the Highway 98 Causeway was constructed. Therefore, it is unclear to the Department that the further shallowing of a 30 acre portion of the middle of Choccolatta Bay would be appropriate or that such a proposal would be positively received by members of the public.	
4.	The Department requests that ALDOT consider alternate sites for the required mitigation. Possible alternative sites may include unvegetated waterbottoms south of the I-10 Bayway or similar areas in portions of the lower Mobile-Tensaw Delta. However, any proposed alternative sites would require further field investigations to determine potential impacts to existing natural resources.	

USEPA

	Comment	Response
1.	Re: Comments 2-4, Sediment Source and Contaminant Evaluation Criteria The response indicates that the applicant plans to use Risk Assessment Guidance for Superfund (RAGS) for evaluating the sediment proposed for use for habitat creation. - EPA assumes this is meant to indicate PRGs (Preliminary Remediation Goal criteria) from the RAGS guidance. However, these are clean-up values for known contaminated sites, typically soils, surface water, and groundwater, not aquatic sediments. - These are not appropriate criteria, given that this is not a Superfund site, and that the goal is not cleanup of hazardous materials down to an acceptable risk level. - If the sediments were in need of testing, the Inland Testing Manual should be used to evaluate the presence of contaminants.	The reference to RAGS has been removed and replaced with reference to the Inland Testing Manual.

	Comment	Response
2.	However, this is habitat creation work, not hazardous site cleanup. Clean material should be sourced from a location that presents no reason to believe contaminants would be present. - Pulling material from Confined Disposal Facilities (CDF) such as Blakely Island for distribution elsewhere is not appropriate. These CDFs are intended to receive material for disposition, not act as a source. - Given the variety of origins of material deposited in these facilities, it would be very difficult to know the comprehensive history of any material extracted and all potential contaminants so as to be able to perform an effective, comprehensive evaluation. Have the facility managers provided such a history and evaluation of potential contaminants present? Can extraction of material be achieved without affecting the integrity of management measures such as isolation of material an layering for containment? - Much of the material in at least one of the CDFs comes from industrial areas such as the port of Mobile, and previous projects have been known to send material to the CDF with elevated levels of dioxins and PAHs, for example. Sediments with known contaminants are not appropriate for habitat creation source material.	There are no contaminant threshold data available for habitat creation work. Dredged material from the CDFs, if used for mitigation, would be tested for contaminants prior to open water placement.
3.	The Draft Mitigation Plan also describes the possibility of using alternative sediment sources such as material dredged for the deepening and widening of the Mobile Harbor Channel. - Material from the open portion of Mobile Bay (not from industrial port segments) from this project would be much more appropriate than sediments extracted from CDFs.	If the timing works between future channel expansion and Project mitigation, new work sediments from Port expansion will be considered.
4.	RE: Comment 6, Monitoring Plan One page 4 of the Draft Monitoring Plan (Appendix C of the Draft Mitigation Plan) is the statement, "If continuous SAV coverage of the site is achieved in less than five years after planting, the monitoring program will be discontinued." - What specifically is intended to establish that "continuous SAV coverage" has been achieved? EPA recommends three or more years of meeting the success criterion of ≥50% SAV coverage before early discontinuation of the monitoring program, so as to have assurance that the trend established is valid, not an outlier.	The Mitigation Plan and Monitoring plan have been revised to include 5 years of post-construction monitoring for created wetlands and SAV.

	Comment	Response
5.	RE: Comment 10, Elements of a Complete Mitigation Plan The response to comments indicates that three components of the mitigation plan are provided under separate cover: site protection instrument, long-term management plan, and financial assurances. - Has the applicant provided these descriptions? EPA requests a copy of these remaining mitigation plan elements.	These components have been added to the Draft Mitigation Plan.

Mobile River Bridge and Bayway Project Interagency Meeting

Date: August 28, 2018

Time: 10:30 a.m.

Location: Mobile River Bridge and Bayway Project Office, 107 St. Francis Street, Floor 21, Mobile, AL 36602

MEETING MINUTES

I. Welcome/Introductions

ALDOT opened the meeting by welcoming everyone and thanking the agencies for participating in the meeting. Each attendee stated their name and who they represented.

II. Purpose of Meeting

The purpose of the meeting was to:

- Update agencies on status of project and changes that have occurred since the last meeting in April 2017;
- Get input from the agencies on the future environmental permitting process; and
- Answer questions about the project and the P3 process.

III. Project Update

a. Project Scope

ALDOT explained that the project includes:

- Modifications to seven interchanges along the I-10 corridor between Broad Street and US-90/US-98 on the Eastern Shore;
- Construction of a new cable-stayed bridge with a minimum vertical clearance of 215 feet over the Mobile River;
- Replacement of the Bayway with eight lanes at an elevation higher than the 100-year storm surge.

- The Wallace Tunnel and Bankhead Tunnel will remain open.

ALDOT has shortlisted three teams that are currently pursuing the project. These teams are not allowed to contact the agencies directly at this time. All communications with agencies regarding this project must go through ALDOT. Confidentiality is extremely important on this project, as this is a very competitive process to get to project award.

The most recent version of the animation showing the proposed main span bridge and high level approaches was shown during the meeting.

b. Status of Supplemental DEIS

The Consultant Advisory Team gave an update on the status of the Supplemental Draft Environmental Impact Statement (SDEIS), which is currently in preparation. The SDEIS is being prepared to address major changes in project since approved DEIS. These major changes include: tolling, P3 procurement process instead of a design-bid-build process, refinements in the preferred alignment especially at interchanges, replacement of the Bayway instead of widening, and updated traffic counts and projections. Environmental commitments have been updated, and a Draft Mitigation Plan for potential wetland, essential fish habitat, and submerged aquatic vegetation impacts has been developed in coordination with the agencies.

The SDEIS is scheduled to be submitted to FHWA for legal sufficiency review the week of September 3, 2018. ALDOT anticipates approval of the SDEIS by the end of 2018. Public Hearings are expected to be held in January 2019, and an approved combined Final EIS/Record of Decision (ROD) should be obtained in February 2019.

The SDEIS will maintain ALDOT and FHWA's project construction approach described in the DEIS that can be built as presented and minimizes impacts to human and natural resources. Alternative B' (Preferred Alternative) in the SDEIS can be constructed. It is important to note that because the Bayway is being replaced at a higher elevation (approximately 8-10 feet higher than the existing Bayway bridges), there are some changes in the environmental commitments related to the footprint of the new Bayway and the ramps at the East Tunnel, Mid-Bay and Daphne Interchanges.

c. P3 Process

ALDOT is using a Public-Private-Partnership delivery method for the Mobile River Bridge and Bayway Project, which is different than their traditional design-bid-build.

A Public Private Partnership (P3) describes a contractual arrangement between a Department (public authority) and a Developer (private entity) to design, build, finance, operate and maintain (DBFOM) an asset.

P3 has been successfully used in the US for large scale projects and is promoted by USDOT to promote creativity, efficiency, and capital to address complex transportation problems facing State and local governments.

ALDOT chose to use a P3 for the following reasons:

- Limited funding capacity on one of the largest transportation projects in the US.
- Leverages private sector expertise and range of financial resources.
- Risk transfer – market (tolling) revenues, construction costs, schedule, operations and maintenance costs, liability (construction defects, operations)

The concession period will be 55 years, with 5 years for construction and 50 years for maintenance and operations. Funding for the project will come from toll revenue, grants and public subsidies.

As part of the development of proposals, Concessionaires are encouraged to submit "Alternative Technical Concepts (ATCs)" for ALDOT's approval. This process is intended to allow proposing teams the opportunity to incorporate innovation and creativity into the Proposals and typically include methods for improving construction efficiency and contractor preferred means and methods.

Following contract award, the Concessionaire will be responsible for submitting permit applications, conducting updated wetland and SAV surveys, and preparing a Final Mitigation Plan for their specific design and construction means and methods.

ALDOT will be responsible for preparing updated NEPA documents (such as re-evaluations of the FEIS/ROD), if required to address changes that may be proposed by the selected team. ALDOT will be involved in all coordination activities with the selected team and agencies as the project progresses. The selected team will perform updated SAV and wetland surveys and prepare permit application(s) and submit permits to agencies for approval. The selected team will also prepare the Final Mitigation Plan and construct and monitor the mitigation site.

d. Updates to Draft Mitigation Plan

The agencies have received multiple versions of the Draft Mitigation Plan. Comments received on the Draft Mitigation Plan have been used to update the plan over the course of the last year or so.

The latest version of the plan and a disposition of comments were submitted to the agencies on Monday, August 27, 2018.

Primary changes in the latest Draft Mitigation Plan include:

- Addressing ADCNR's comments about location of previously proposed mitigation site. ALDOT and the consultant team met with ADCNR and identified potential sites, did some additional research on the potential sites identified in that meeting, and recommended a site that will accommodate sufficient mitigation for the project while minimizing/avoiding impacts on recreational users and provide sufficient protection to the created marsh island.

e. As mentioned earlier, the proposing teams indicated that constructing new ramps at the three interchanges along the Bayway within the existing footprint of the Bayway bridges while maintaining traffic during construction would be very difficult. Now that the project has changed from widening the Bayway to replacing the Bayway at a higher elevation, the need to have some flexibility with regard to the footprint at the interchange locations has been raised. The latest Draft Mitigation Plan accounts for the potential for permanent impacts at areas within ALDOT's existing right-of-way at each of the East Tunnel, Mid-Bay, and US-90/US-98 interchanges along the Bayway.

f. Next Steps/Anticipated Schedule

- SDEIS Approval: End of 2018
- FEIS/ROD Approval: February 2019
- Proposals from Teams: Summer 2019
- Team Selection/Conditional Award: Fall 2019
- Construction Begins: 2020

IV. Discussion

ALDOT stated that the proposing teams would like to meet with/interact with the agencies directly (with ALDOT participation). ALDOT asked whether the agencies would be willing to have meetings with the proposing teams after the FEIS/ROD is approved, but before the Final Proposals are due from the teams. The agencies indicated that they would be open to ALDOT setting up a day for each team to meet separately from the other teams with the agencies and ask questions, similar to what ALDOT did at the utility forum. It is anticipated that this meeting would occur in March 2019 and that each team would have about an hour to meet with the agencies.

ADCNR asked if ALDOT anticipates a large difference in impacts among the different teams' approaches to the project. ALDOT stated that the approaches to the project vary among the teams. ALDOT will not know which ATCs will be incorporated into the project until after a team has been selected, which will occur months after the FEIS/ROD is approved.

ADCNR asked if the Bayway construction would start on the Mobile side and then progress toward Daphne. ALDOT responded that this would be up to the proposing teams but based on the project schedule, multiple construction fronts and directions are anticipated.

ADCNR asked if the old Bayway bridge would be removed including piles. ALDOT stated that the piles will be cut 2’ below the existing mudline.

ADCNR voiced concerned about maintaining access for recreational boaters in Mobile Bay. During construction, access between the existing Bayway bridges would be limited due to potential safety concerns. Following construction, access should be similar to what currently exists. The current design plan allows for a gap between the Bayway bridges that should be sufficient to accommodate recreational boaters.

ADCNR noted that access to businesses, boat ramps, Meaher State Park, Five Rivers, etc. along the Causeway must be maintained before, during, and after construction. ALDOT explained that a Traffic Management Plan and construction sequencing plan will be required from the teams to make sure access to resources along the Causeway is maintained.

ADCNR asked whether the Spanish Fort Causeway Master Plan had been reviewed as part of the proposed project. Meaher State Park may be surrounded by construction projects related to this project and the Spanish Fort Causeway Master Plan projects. Meaher State Park offered to provide updated information regarding park users and improvements that will be constructed in the future using RESTORE Act funds that have been allocated to the park.

ADEM asked if the tunnels would remain open once the project is constructed. ALDOT stated that the tunnels will remain open.

ADEM asked if the proposed project would be constructed within the existing footprint of the Bayway bridges. ALDOT stated that Alternative B’, as presented in the SDEIS, is within the existing footprint (edge of bridge to edge of bridge) of the Bayway except for at the three interchange locations, where flexibility has been given to go outside of the existing footprint of the bridges as long as construction remains within ALDOT’s existing right-of-way. In order to maintain traffic on the existing I-10 interchange ramps during construction, construction of new ramps outside of the existing bridge ramp footprint may be required.

V. Closing

ALDOT stated that meeting minutes would be prepared and distributed to the meeting attendees for review and comment prior to providing the minutes to the proposing teams for their use/information. ALDOT stated that additional comments and questions should be sent to Andrew Wood (ALDOT) at wooda@dot.state.al.us. ALDOT thanked everyone for attending the meeting and asked that the agencies e-mail or call with any questions they may have.

Attachments:

1) PowerPoint Presentation

2) Sign-In Sheet

Mobile River Bridge and Bayway Project Interagency Meeting

Date: August 28, 2018

Time: 10:30 a.m.

AGENDA

I. Welcome/Introductions

II. Purpose of Meeting

III. Project Update

  a. Status of Supplemental DEIS

  b. P3 Process

  c. Updates to Draft Mitigation Plan

  d. Next Steps/Anticipated Schedule

IV. Discussion

V. Closing

MOBILE RIVER BRIDGE & BAYWAY

Interagency Coordination Meeting

August 28, 2018

MobileRiverBridge.com

ALABAMA DEPARTMENT OF TRANSPORTATION

Today's Agenda

- Welcome / Introductions
- Purpose of Meeting
- Project Update
- Discussion
- Closing

MOBILE RIVER BRIDGE & BAYWAY

Purpose of Meeting

MOBILE RIVER BRIDGE & BAYWAY

Today's Meeting

- Provide updates since April 2017 meeting
- Get input on future permitting process
- Answer questions about what agencies can expect as project progresses

MOBILE RIVER BRIDGE & BAYWAY

Project Update

MOBILE RIVER BRIDGE & BAYWAY

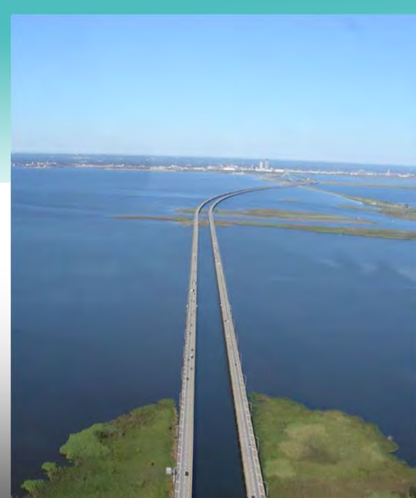
Proposed Alignment/Alternative B’

MOBILE RIVER BRIDGE & BAYWAY

MOBILE RIVER BRIDGE & BAYWAY

Status of Supplemental DEIS

- Legal sufficiency review submittal next week
- Refinements to Preferred Alternative B′, addition of tolling, P3 process, updated commitments, Draft Mitigation Plan
- Replacement of Bayway rather than widening



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P3 Process

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Project Funding – P3 Delivery

- "A Public Private Partnership (P3) describes a **contractual arrangement** between a Department (**public authority**) and a Developer (**private entity**) or connection with the design, build, financing, operations and maintenance (DBFOM) of an asset that will be used by or is otherwise a valuable project."
- Concession period – 55 years = 5 years construction + 50 years maintenance and operation

MOBILE RIVER BRIDGE & BAYWAY

Project Funding - Why use a P3

- Limited funding capacity on one of largest transportation projects in U.S.
- Leverages private sector expertise and range of financial resources
- Encouraged by U.S. DOT to promote creativity, efficiency, and capital to address complex transportation problems facing state and local governments
- Risk Transfer – market (tolling) revenues, construction costs, schedule, operations and maintenance costs, liability

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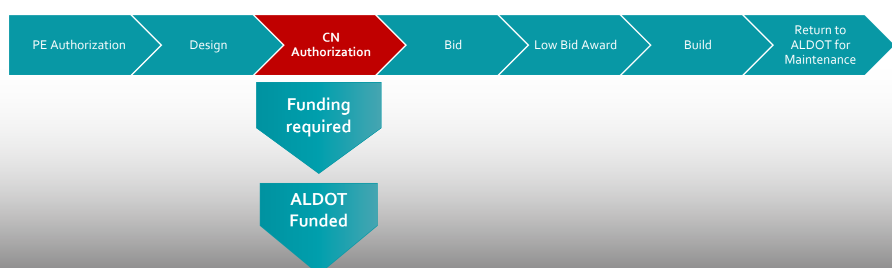
Normal Process: Design – Bid – Build



* All risk on ALDOT

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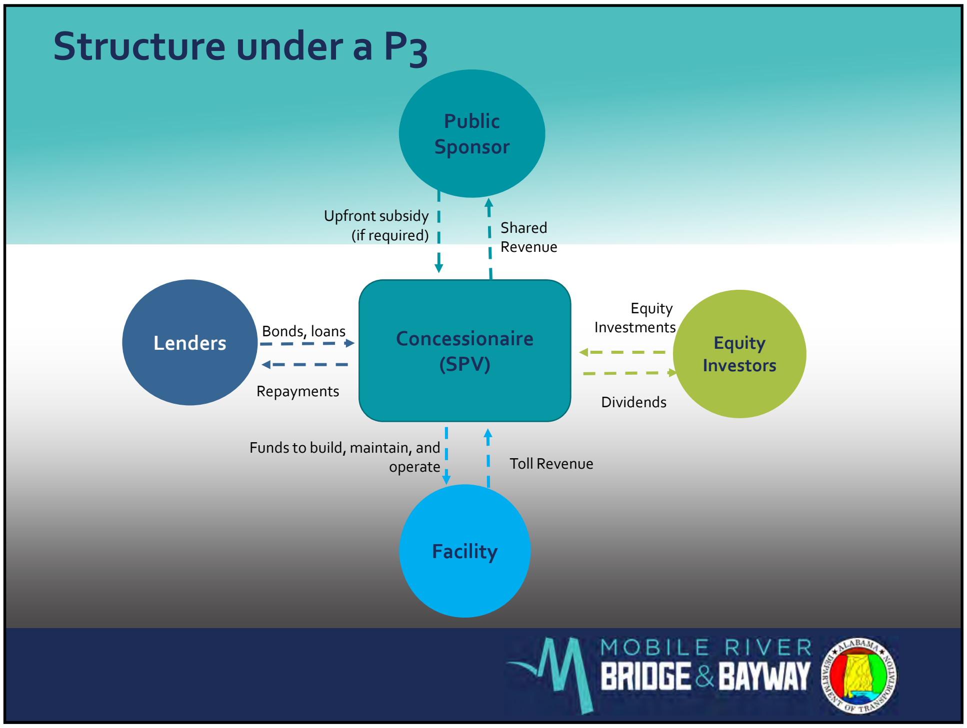
Structure under a P3
Public Sponsor
Upfront subsidy (if required)
Shared Revenue
Lenders
Bonds, loans
Repayments
Concessionaire (SPV)
Equity Investments
Dividends
Equity Investors
Funds to build, maintain, and operate
Toll Revenue
Facility
MOBILE RIVER
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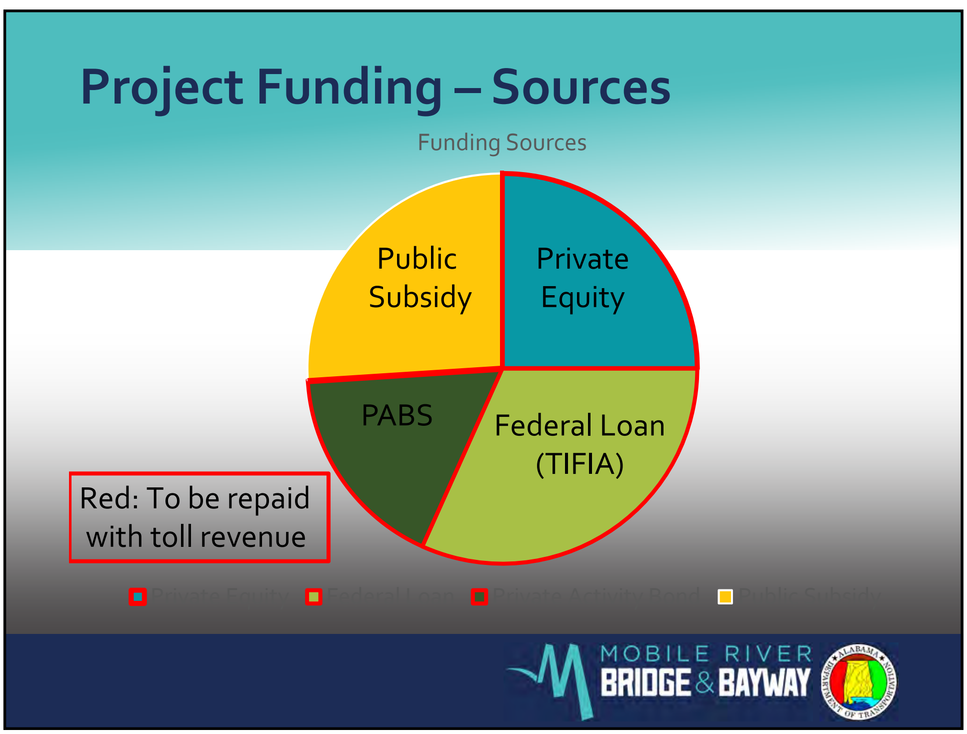
Project Funding – Sources
Funding Sources
Public Subsidy
Private Equity
PABS
Federal Loan (TIFIA)
Red: To be repaid with toll revenue
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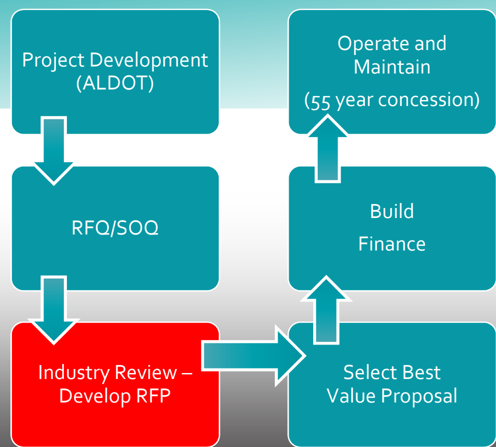
P3 Process



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Roles and Responsibilities in P3

- Concessionaire Responsibilities
  - Alternative Technical Concepts (ATCs)
  - Contract Award
  - Updated Wetland and SAV Surveys
  - Final Mitigation Plan, Construction, Monitoring
  - Permit Applications
- ALDOT Role
  - NEPA Document Updates
  - Permitting Discussions
- Agency Coordination prior to Contract Award

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Updates to Draft Mitigation Plan

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Draft Mitigation Plan

- Revised marsh creation site
  - Addresses ADCNR comments
- Potential permanent impacts at Bayway interchanges
  - East Tunnel, Mid-Bay, US 90/US 98


DRAFT MITIGATION PLAN

ALABAMA DEPARTMENT OF TRANSPORTATION
I-10 MOBILE RIVER BRIDGE AND BAYWAY PROJECT

MOBILE AND BALDWIN COUNTIES
PROJECT DPI-0030(005)

Prepared for

Thompson Engineering, Inc.

Prepared by

Barry A. Vittor & Associates, Inc.

August 15, 2018

MOBILE RIVER BRIDGE & BAYWAY

Next Steps/Anticipated Schedule

Schedule – Proposal Schedule

Milestone	Anticipated Date
Meetings with Shortlisted Teams / ATC Process	October 2018 – February 2019
SDEIS Approval	December 2018
Combined FEIS/ROD Approval	February 2019
Receive Concessionaire Proposals	Summer 2019
Select Preferred Concessionaire	Fall 2019
Begin Construction	2020

MOBILE RIVER BRIDGE & BAYWAY

Follow our progress
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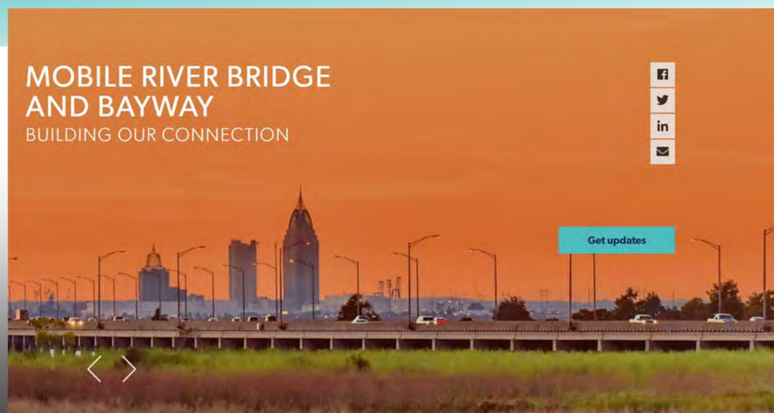

MOBILE RIVER BRIDGE & BAYWAY

MOBILE RIVER BRIDGE & BAYWAY

Mobile River Bridge and Bayway Project Interagency Meeting

SIGN IN SHEET

Date August 28, 2018
Time 10:30 a.m.
Location Mobile River Bridge and Bayway Project Office
107 St. Francis St., Suite 2100

NAME	REPRESENTING	E-MAIL	PHONE
Missi Shumer	Shumer Consulting	missi@shumerconsulting.com	251-605-7252
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Brown, J. Scott	ADEM	jsb@adem.state.al.us	251 304 1176
Carl Ferraro	ADCNR-SLD	carl.ferraro@DCNR.ALABAMA.Gov	251-621-1216

February 14, 2019 Interagency Meeting
Minutes and Presentation

Mobile River Bridge and Bayway Project Interagency Meeting

Date: February 14, 2019

Time: 10:00 a.m.

MEETING MINUTES

I. Welcome/Introductions

II. Project Status/Update

a. Alternative B'
   i. Reviewed location/alignment
   ii. 215-foot air draft clearance over Mobile Harbor Navigation Channel
   iii. Bayway will be replaced at higher elevation above the 100 year storm elevation

b. Animation showing the proposed project was played for attendees

c. Public Private Partnership (P3)
   i. Will be used to design, build, finance, operate and maintain project for 55-year term
   ii. Project cost is approximately $2 billion (almost double ALDOT's annual budget)
   iii. Limited funding available, transfers some risk from ALDOT to developer
   iv. 55-year concession agreement
   v. ALDOT will remain involved in the project to ensure environmental commitments and quality control standards are met

d. NEPA Status
   i. SDEIS in process to evaluate changes since DEIS was signed in 2014
   ii. Anticipate signature in April 2019
   iii. Anticipate approval of FEIS/ROD in August 2019
   iv. Proposals from teams will be due in December 2019
   v. Team will be selected in the spring of 2020
   vi. Construction to begin in 2020

III. Construction Methodologies

a. Top down / segmental barges

   i. DEIS called out segmental barges between existing Bayway

      1. At the time of the DEIS, Bayway was proposed to be widened to the inside, not replaced

   ii. SDEIS calls for replacing entire Bayway at a higher elevation

      1. Allows for segmental barges and top down construction methodologies, must stay within existing footprint of existing Bayway (outside to outside edge), except at interchange ramps

   iii. Proposed Bayway typical section – eight lanes and up to 8 feet higher than existing bridges

b. Localized dredging within previous construction channel

   i. At the August 2018 meeting, we were not proposing dredging in SDEIS; teams would be responsible for handling dredging needs during permitting

   ii. ALDOT is considering adding localized dredging to SDEIS

      1. Benefits of localized dredging include:

         a. Substantial cost savings that ALDOT can share if we go ahead and add dredging now

         b. Reduction in construction time with fewer impacts to traffic

         c. Would allow barges to float rather than rest on Bay bottoms in shallow areas

   iii. Limits of dredging

      1. Within previously disturbed channel used to construct existing Bayway

      2. In areas with less than 6 feet of water depth

      3. Only in open water areas without wetlands

   iv. Estimates of quantities were developed based on the following assumptions and available information:

      1. As-built drawings from original Bayway construction showed a construction channel that was 125 feet wide and 8 feet deept

      2. Bathymetric survey done by ALDOT for full length of Bayway (see attached presentation for snapshot); areas in orange color have 6 feet or more depth; areas in between vary from 1 to 6 feet depending on location

      3. Proposed dredging would be constrained between existing Bayway structures and would be 6 feet deep, providing a 2-foot buffer between original dredge depth and proposed dredge depth

      4. Approximately 3.5 to 4 miles would need to be dredged to achieve 6 feet of depth, 125 feet wide = approximately 325,000 CY – could change

depending on areas where the selected team may choose to use top down construction

v. Disposal

1. Original dredge material was course sand and was pumped into what is now Five Rivers, expect material to have a higher percentage of silt than original but expect it to be suitable for marsh island creation
2. Mitigation site is accessible to team for beneficial use for marsh island
3. Soil/sediment testing would occur as part of permitting process to ensure it is suitable for mitigation site
4. If not suitable, would be disposed of in a USACE-permitted disposal site
5. Will be up to the winning team to determine suitability and conduct marine archaeology for mitigation site prior to placing material
6. Process for using pre-designated USACE disposal sites would be handled by the USACE, Mobile District, Operations Division, not Regulatory Division

IV. Draft Mitigation Plan

a. Proposed project may impact approximately 16 acres of SAV and 6 acres of emergent wetland between existing spans of Bayway – mainly concentrated around shoal area at Blakeley River

b. SDEIS and Draft Mitigation Plan assumes 100% loss of SAVs due to shading

c. No SAV or emergent wetlands are located under existing Bayway

d. Proposed mitigation that was agreed upon by agencies involves the creation of a marsh island with approximately 9 acres of emergent marsh (1.5:1 mitigation ratio) and suitable conditions for 32 acres of SAV (2:1 mitigation ratio)

e. Approximately 240,000 CY material is needed to create marsh island

f. Draft Mitigation Plan will be updated to account for localized dredging with estimated quantities presented during meeting

i. Will be sent to agencies the week of February 18 for review and comment

g. There were no objections to adding dredging

h. Section 7 Consultation with USFWS

i. USFWS was unable to participate in today's meeting, but ALDOT will consult with USFWS regarding the Incidental Take Permit

V. Next Steps

a. Adding dredging shouldn't delay proposed project schedule

b. Final permitting and implementation of mitigation plan will be responsibility of the selected team

VI. Closing

a. ADEM Question: Where does project actually start?
    i. Broad Street is where project starts, approaches start going up around Virginia Street
    ii. Broad Street and Virginia Street interchanges will remain in place
b. Will there be any impacts to Baker Street at ASPA?
    i. No.
c. ADEM will have to issue variance to authorize impacts to SAV.
    i. Since SAV impacts are being mitigated, this will not be a problem, just part of the permitting process.
    ii. Will require public notice for 15 days.

Mobile River Bridge and Bayway Project Interagency Meeting

SIGN IN SHEET

Date February 14, 2019
Time 10:00 a.m.
Location Mobile River Bridge and Bayway Project Office
107 St. Francis St., Suite 2100

NAME	REPRESENTING	E-MAIL	PHONE
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Tim Thibaut	Vittor & Assoc.	tthibaut@bvaenviro.com	251-633-6100
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Mark Rainey	ADEM	Mark.Rainey@adem.alabama.gov	251 304 1176

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Stephanie Dragotta	ALDOT- MRB	dragottas@dot.state.al.us	251-434-6812
Andrew Wood	ALDOT- MRB	wooda@dot.state.al.us	251-434-6802
Patrick Hickox	HDR	patrick.hickox@hdrinc.com	251-295-6874

Mobile River Bridge and Bayway Project Interagency Meeting

Date: February 14, 2019

Time: 10:00 a.m.

AGENDA

I. Welcome/Introductions

II. Project Status/Update

III. Construction Methodologies

  a. Top down / segmental barges

  b. Localized dredging within previous construction channel

IV. Draft Mitigation Plan

V. Next Steps

VI. Closing

MOBILE RIVER BRIDGE & BAYWAY

Interagency Coordination Meeting

February 14, 2019

MobileRiverBridge.com

ALABAMA DEPARTMENT OF TRANSPORTATION

1

Today's Agenda

- Welcome/Introductions
- Project Status/Update
- Construction Methodologies
- Draft Mitigation Plan
- Next Steps
- Closing

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ALABAMA DEPARTMENT OF TRANSPORTATION

2

Project Status/Update

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3

Proposed Alignment/Alternative B’

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4

Animation

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5

Project Funding - Why use a P3

- Limited funding capacity on one of largest transportation projects in U.S.
- Leverages private sector expertise and range of financial resources
- Encouraged by U.S. DOT to promote creativity, efficiency, and capital to address complex transportation problems facing state and local governments
- Risk Transfer – market (tolling) revenues, construction costs, schedule, operations and maintenance costs, liability

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Roles and Responsibilities in P3

- Concessionaire Responsibilities
  - Design, Build, Finance, Operate, and Maintain
  - 55-Year Term
  - Compliance with environmental commitments
  - Updated Wetland and SAV Surveys
  - Final Mitigation Plan
  - Permit Applications/Modifications
  - Mitigation Implementation and Monitoring
- ALDOT Role
  - NEPA Document Updates
  - Permitting Discussions
  - Construction Quality Control

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Status of NEPA Process

- Three rounds of review conducted by ALDOT/FHWA to date
- Anticipated milestones:
  - SDEIS signed: April 2019
  - Public Hearings: May 2019
  - Combined FEIS/ROD approved: August 2019
- Proposal Due Date: December 2019
- Selection of Team: March 2020
- Construction Begins: Spring/Summer 2020

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Construction Methodologies

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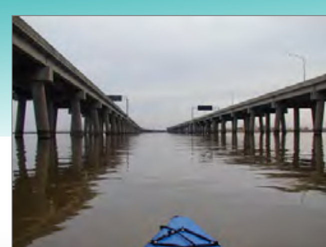
Bayway Construction

- DEIS Commitment
  - Segmented barges between existing Bayway bridges
  - Bayway would be widened to the inside
  - Remain within area between existing bridges



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Bayway Construction

- Supplemental DEIS
  - Bayway to be replaced at higher elevation due to AASHTO requirements for 100 year storm (up to 8 feet higher)
  - Remain within existing footprint (outside edge to outside edge) of existing bridges, except at ramps

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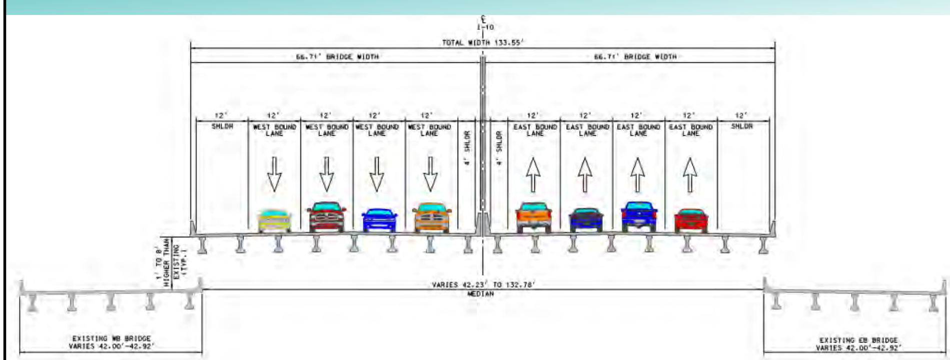
Bayway Proposed Typical Section



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Bayway Construction

- August 2018 meeting: Dredging, if implemented, would be part of Concessionaire's means and methods in permitting
- ALDOT is considering adding localized dredging to SDEIS

Reasons:
- Cost Savings
- Construction Time Savings
- Would allow barges to float and help with delivery of material

Limits:
- Within previously disturbed construction channel
- Only in areas where there is insufficient depth to float barges (<6 feet) between existing Bayway bridges
- No dredging in wetlands

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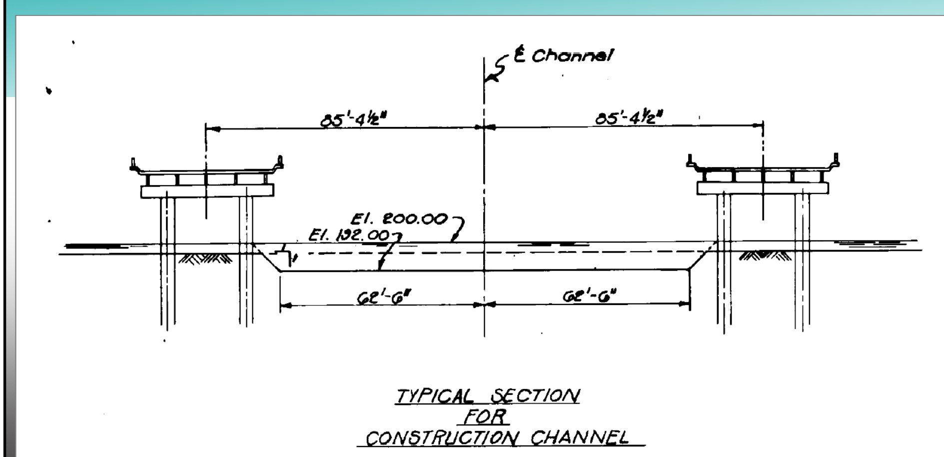
Original Dredged Channel



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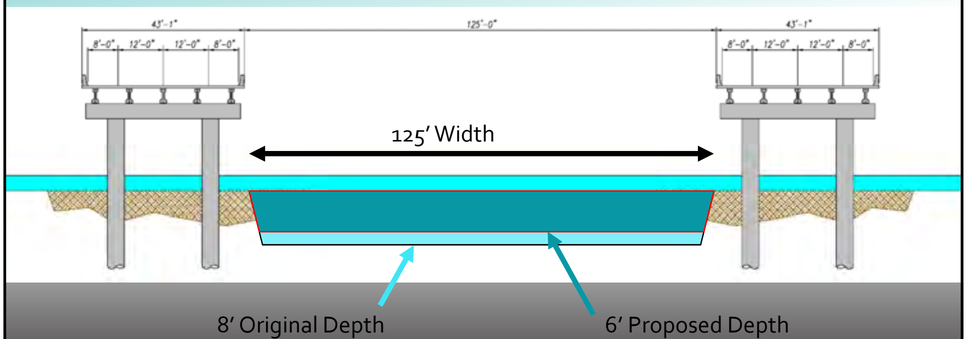
Localized Dredging



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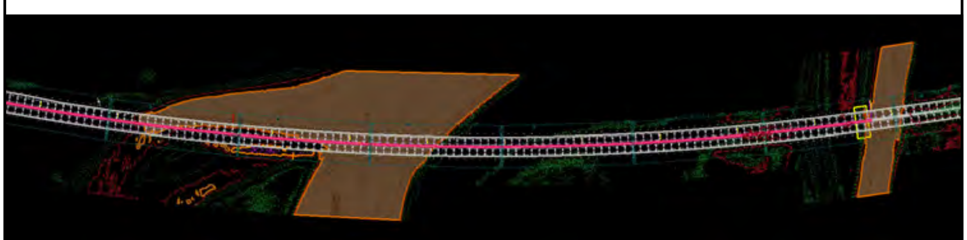
Localized Dredging

- Bathymetry shows areas with less than 6 feet of depth



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Localized Dredging

- Estimated Quantities

Distance (miles)	Width (feet)	Depth (feet)	Volume (cubic yards)
~3.5 – 4	125	6	~300,000

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Disposal

- Beneficial Use for marsh island creation at mitigation site
- USACE-permitted disposal site(s)

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Draft Mitigation Plan

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Draft Mitigation Plan

- Involves marsh island creation for SAV and wetland impacts (43.5 acres)
  - 2:1 SAV
  - 1.5:1 Wetlands
- Assumes all SAV between and under existing Bayway bridges would no longer exist (due to shading)

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Draft Mitigation Plan

- Changes required to add localized dredging
- Timeframe for agencies to review and comment

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Section 7 Consultation

- Updates to Incidental Take Permit
  - Alabama red-bellied turtle
  - Gulf sturgeon
- Manatee
  - Biological Assessment

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Next Steps

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Anticipated Schedule

Milestone	Anticipated Date
Meetings with Shortlisted Teams / ATC Process	October 2018 – May 2019
Draft Mitigation Plan Updated (based on input from agencies)	March 2019
SDEIS Signature	April 2019
Combined FEIS/ROD Approval	August 2019
Receive Concessionaire Proposals	December 2019
Conditional Award	March 2020
Begin Permitting and Construction	Spring/Summer 2020

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Closing

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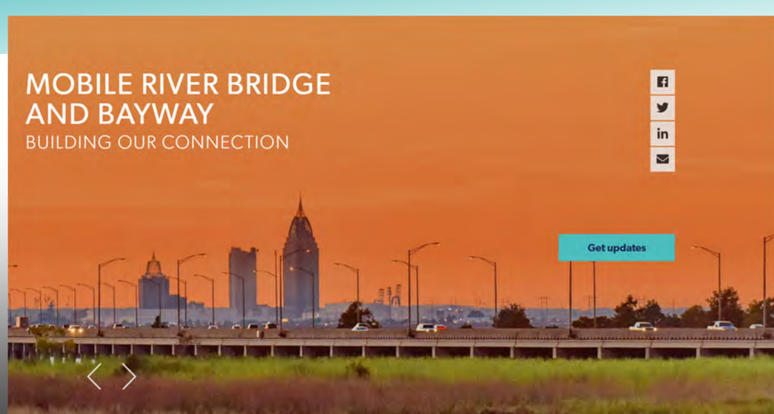

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Correspondence with Agencies, February 21, 2019 Transmittal of Draft Mitigation Plan to Agencies, and Responses Received

From:	Brandon Howard - NOAA Federal
To:	Wood, Andrew
Cc:	Missi Shumer
Subject:	Re: Interagency Meeting - Mobile River Bridge and Bayway Update
Date:	Friday, February 15, 2019 9:57:56 AM

That’s right. I’d forgotten that detail. So they will be mitigated. I have no objection to that.

On Feb 15, 2019, at 9:52 AM, Wood, Andrew <wooda@dot.state.al.us> wrote:

> Thanks. Just to go ahead and let you know since it will be a few days before we get the revised plan to you, there are SAVs located in the some of the areas we have identified for potential dredging. In the prior draft mitigation plan, we had assumed a complete take of SAVs between the existing Bayway bridges due to shading from the new structures. The mitigation ratio for SAVs is 2 to 1.
>
> **From:** Brandon Howard - NOAA Federal <brandon.howard@noaa.gov>
> **Sent:** Friday, February 15, 2019 9:27 AM
> **To:** Wood, Andrew <wooda@dot.state.al.us>
> **Cc:** Missi Shumer <missi@shumerconsulting.com>
> **Subject:** Re: Interagency Meeting - Mobile River Bridge and Bayway Update
>
> Thanks for the update. I’ll review the plan and get back to you if I have questions. The only thing that comes to mind as a potential issue is whether or not submerged aquatic vegetation is present in the dredge areas.
>
> Brandon
>
> On Feb 14, 2019, at 4:21 PM, Wood, Andrew <wooda@dot.state.al.us> wrote:
>
>> Brandon,
>>
>> Attached is the presentation that was discussed at the interagency meeting this morning. The main goal of the meeting was to solicit input from the agencies on the addition of localized dredging to the SDEIS and draft mitigation plan. As shown in the presentation, ALDOT is considering localized dredging in areas within the previously dredged construction channel between the existing Bayway structures that have insufficient water depths (less than 6 ft) to allow barges to float. No dredging would be allowed in wetland areas. The dredge material would be used at the mitigation site if suitable or disposed of at USACE-permitted sites.
>>
>> The representatives from the USACE, ADCNR, State Parks, and ADEM did not voice any concerns over the addition of localized dredging to the document at the meeting. A follow-up call was held with USFWS. USFWS stated Section 7 consultation would not need to be re-initiated but that

there would likely be some temperature or time restrictions put in place for when dredging operations could occur to minimize the potential for impacts to protected species.

Our plan is to distribute the revised draft mitigation plan next Wednesday for review. If you would like to have a call to discuss before or after you receive the mitigation plan, please let me know.

Thank you,

Andrew D. Wood, P.E.
ALDOT Southwest Region
Mobile River Bridge and Bayway Project Manager
107 Saint Francis Street, Suite 2100
Mobile, AL 36602
(251) 434-6802 (Office)
(251) 510-4361 (Cell)

From: Wood, Andrew
Sent: Friday, February 08, 2019 4:00 PM
To: 'Brandon Howard - NOAA Federal' <brandon.howard@noaa.gov>
Subject: RE: Interagency Meeting - Mobile River Bridge and Bayway Update

Thanks Brandon. Please let me know if you would like to have a phone call sometime after the meeting so we can fill you in on what was discussed. I am going to keep you on the list for the calendar invite so that you can see the agenda and any other updates posted to it.

From: Brandon Howard - NOAA Federal <brandon.howard@noaa.gov>
Sent: Thursday, February 07, 2019 10:34 AM
To: Wood, Andrew <wooda@dot.state.al.us>
Subject: Re: Interagency Meeting - Mobile River Bridge and Bayway Update

Hi Andrew.

I'm in the field in LA the 14th and completely booked the week of the 18th too unfortunately.

Brandon

On Thu, Feb 7, 2019 at 10:26 AM Wood, Andrew <wooda@dot.state.al.us> wrote:

All,

The Alabama Department of Transportation would like to hold an interagency meeting on the Mobile River Bridge and Bayway project to discuss project updates and construction methodologies. If everyone is available, we would like to hold the meeting the morning of February 14th. The meeting will be held at the Mobile River Bridge Project Office in the Trustmark Building, located at:
107 St. Francis Street, Floor 21, Mobile, AL 36608. A call-in number and Skype link will be provided as well.

We realize this is short notice so please respond and let me know if you are available to meet next Thursday morning. If you are not available, please let us know if you are available to meet the week of February 18.

A calendar invite will be sent to confirm the time tomorrow afternoon.

Thank you,
Andrew D. Wood, P.E.
ALDOT Southwest Region
Mobile River Bridge and Bayway Project Manager
107 Saint Francis Street, Suite 2100
Mobile, AL 36602
(251) 434-6802 (Office)
(251) 510-4361 (Cell)

--
Brandon Howard
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Habitat Conservation Division
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<image001.jpg>

Web	www.nmfs.noaa.gov
Facebook	https://www.facebook.com/NOAAFisheries/
Twitter	www.twitter.com/noaafisheries
YouTube	www.youtube.com/usnoaafisheriesgov

<2019-02-14_Interagency Meeting two per page.pdf>

From:	Wood, Andrew
To:	Steven.B.Crosson@usace.army.mil; dylan.c.hendrix@usace.army.mil; brandon.howard@noaa.gov; joy.b.earp@usace.army.mil; Bruce_Porter@fws.gov; jsb@adem.state.al.us; Calli.Rosemary@epa.gov; jeff.jordan@dcnr.alabama.gov; sheri.m.zettle@usace.army.mil; richard.hartman@noaa.gov; rusty.swafford@noaa.gov; John.Mareska@dcnr.alabama.gov; David.armstrong@dcnr.alabama.gov; Steve.barnett@dcnr.alabama.gov; Carl.ferraro@dcnr.alabama.gov; Amy.hunter@dcnr.alabama.gov; Lisa.laraway@dcnr.alabama.gov; Greg.lein@dcnr.alabama.gov; Thomas.harms@dcnr.alabama.gov; Roger.clay@dcnr.alabama.gov; Douglas.A.Blakemore@uscg.mil; Bartlett, Mark (FHWA); Heisler, Timothy (FHWA); Urquhart, Lynne (FHWA); Anna.bryant@dcnr.alabama.gov; lamar.pendergrass@dcnr.alabama.gov; Mark.rainey@adem.alabama.gov; Lacey.leaptrott@adem.alabama.gov; jsb@adem.state.al.us
Cc:	Dragotta, Stephanie A.; Ericksen, Matthew; Missi Shumer; Henry, Wade D; Walker, Steve
Subject:	Mobile River Bridge and Bayway - Revised Draft Mitigation Report
Date:	Thursday, February 21, 2019 3:51:33 PM
Attachments:	2018-02-14_Interagency Meeting MINUTES.pdf 2019-02-21_Mobile River Bridge Draft Mitigation Plan_Revised.pdf

Attached please find the revised Draft Mitigation Plan that now includes localized dredging within the previous construction channel between the existing Bayway bridges. Also attached are the meeting minutes and the presentation from the interagency meeting held February 14, 2019.

ALDOT requests comments on the Draft Mitigation Plan be returned by **March 8, 2019**. If additional time is needed to review or if you have any questions, please let me know.

Thank you again for meeting with us and helping to move the project forward.

Andrew D. Wood, P.E.
ALDOT Southwest Region
Mobile River Bridge and Bayway Project Manager
107 Saint Francis Street, Suite 2100
Mobile, AL 36602
(251) 434-6802 (Office)
(251) 510-4361 (Cell)

From: Porter, Bruce
To: Missi Shumer
Subject: Draft Mitigation Plan
Date: Thursday, February 28, 2019 10:16:28 AM

Good Morning Missi,

I know you thought your were rid of me but there is one last thing or loop I need to close.

The Service has no comments on the mitigation plan. We feel that it is a good document and treats the resources well. Thanks for the opportunity.

Bruce Porter
Alabama Ecological Services Field Office
Transportation Liaison
U.S. Fish and Wildlife Service
1208 Main Street
Daphne, Alabama 36526
(251) 441-5864
(251) 709-8345 (Cell)

Nobody cares how much you know until they know how much you care!!

APPENDIX G

Storm Surge Analysis

MOTT MACDONALD

I-10 Mobile River Bridge and Bayway Project - Storm Surge Impact Analysis Level 3

April 17, 2018

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Montgomery, Alabama 36110

I-10 Mobile River Bridge and Bayway Project - Storm Surge Impact Analysis Level 3

April 17, 2018

Alabama Department of Transportation

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
0	4/17/18	K. Walling P. McLaughlin J. Todd	V. Curto	J. Carter	Level 3 Analysis

Document reference: 362887 | 1 | 0

Information class: Standard

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Executive summary

The primary goal of this report is to provide an accurate and robust analysis associated with environmental conditions and forces from tropical storms and hurricanes on the Mobile Bay Bayway Bridge (MBBB), with the goal of facilitating the design of the bridge to mitigate damage from these forces. This report uses a Level 3 method of analysis proving a discussion of coastal processes associated with extreme storm events at the Mobile Bay Bayway Bridge site, an evaluation of changes to those coastal processes due to climate change over the project lifetime, and computation of forces from a range of the extreme storms on the existing Bayway Bridge. Results are intended to be used in the design of the MBBB which has been set to 100-yr Sea Level Rise and 100-yr storm event for the main spans, and 100-yr Sea Level Rise and 50-yr storm event for the ramps.

In the Level 1 analysis, the environmental conditions, primarily wind and storm surge elevation, were based on existing high-water mark data. Wave heights were computed by modeling a single, simple hurricane wind field across Mobile Bay that is elevated to a static surge elevation throughout the entire Mobile Bay and Gulf; the surge is not dynamically linked with the waves. The Level 1 method removes the dynamic coupling of wind, surge, and waves as well as ignores the possible variations in storms. Level 1 results are considered an initial estimate and a conservative scenario. Wave response to hurricanes is a complex process that is affected by the dynamics of the storm including surge, storm track, circulation currents, and wave generation and transformation processes on that dynamic field. The Level 3 assessment included such processes by modeling the coupled wind-surge-wave processes to produce the best-possible prediction of surge and waves at the site.

The Level 3 analysis included first a review of bathymetric data, existing flood insurance studies, and Reference Bridge geometric data. A review of existing climate change literature was conducted during Level 1 analysis (Mott MacDonald, 2016) to select the most appropriate Sea-Level Rise (SLR) scenario. Based on discussion with the project team and ALDOT, the 2017 (0-yr SLR), 2067 (50-yr SLR), and 2117 (100-yr SLR) were extracted from the IPCC RCP 8.5 median scenario projections and used in the storm surge model development.

Level 3 analysis involved the dynamically coupled modeling of wind, surge, and waves. The numerical modeling was conducted using the ADCIRC+SWAN model. Numerical simulations were conducted to calculate the wave height, water surface elevation, peak period, and velocity associated with a set of synthetics storms that could potentially impact the project area. Level 3 analysis employs a probabilistic framework to encompass the range of possible variations in the storm conditions. The set of reduced storms was extracted from the existing FEMA flood insurance study (FEMA, 2012). Sensitivity testing was conducted to select a reduced set of storms from the FEMA storm suite that reproduce the 50-, 100-, and 500-yr extremal statistics with reasonable accuracy. A set of 80 storms was selected that recreated the 50-, 100-, and 500-yr extremal conditions. After simulation of the storms, an extremal statistical analysis was performed on the model results to develop input parameters for the wave forces.

Because the wave forces depend on a combination of parameters coinciding in time, including water surface elevations (WSE), wave height, period, and current velocity, two separate methods were employed to determine the environmental conditions and wave forces: (1) The maximum WSE and associated wave height, period, and current velocity, and (2) the maximum wave height and the associated WSE, period, and current velocity. These wave results were further modified to account for the nonlinearity of wave crest asymmetry that occurs with large

waves in shallow water to determine the maximum wave crest elevation. Since the design elevations of the reference bridge are based on the maximum wave crest elevation, the resulting extremal environmental conditions correspond to the maximum crest elevation from Method 1 and Method 2 and the associated water levels. For the majority of the bridge, the governing case was Method 1, maximum water surface elevation and associated parameters at that time.

These wave conditions were used as input to the AASHTO guide specification calculations (AASHTO, 2008) to determine three design case force scenarios. The design cases evaluated are Design Case I: maximum vertical force and associated horizontal, pile, and slamming force, and Design Case II: maximum horizontal force and associated vertical, slamming, and pile force. These conditions were evaluated for scenarios that included all combinations of storms with return periods of 50-, 100-, and 500-yr at current time 2017, in 50 years (2067) and in 100 years (2117) for the existing bridge and reference bridge including all the ramps.

The design condition for the main spans were set as 100-yr SLR and 100-yr return period event. The surge and wave crest results indicate the Reference East Bound deck is not affected by wave action since the highest crest elevation does not impact the bottom of the deck. The smallest freeboard between the top of the crest and the bottom of the deck was found to be 3.5 ft at PGL station 68+088. Thus, the Reference East Bound bridge could be design at a lower elevation. Because the Reference East Bound deck is not affected by wave action under the design condition, the vertical and horizontal deck forces throughout the main span equaled zero.

The design condition for the ramps were set as 100-yr SLR and 50-yr return period event. The 100-yr SLR and 50-yr event surge and wave crest results indicate the ramps are partially submerged and the wave crests impact sections of the ramps. While completing the analysis, two caviats were found in the ASSHTO (2008) method for calcuating forces on ramps when submerged that leads to conservative loads. Therefore, should loads prove excessive, Mott MacDonald recommends a more sophisiticaed time series analysis of wave forces on the ramps using a 3D computational tool to accurately calculate the representative wave foreces at each ramp.

A final comparison between Level 1 and Level 3 analysis was performed on the Reference East Bound Bridge. In general, for the project design criteria, Level 3 analysis results show lower water surface and wave crest elevations when compared to the Level 1 analysis results. In some areas the different between Level 1 and Level 3 crest elevation is as high as 9 ft. Such areas correspond to the highest wave heights observed at the deeper channels. Level 3 surge elevations also showed lower values when compared to the Level 1 results, with Level 3 being 1.25 ft lower than Level 1 fairly uniformly along the bridge span.

Overall, Level 3 analysis results are considered more accurate and more robust. Hence, it is recommended to consider Level 3 results on the design of the I-10 Mobile River Bridge and Bayway Project.

1 Introduction

The primary goal of the Mobile Bay Bridge Storm Surge Impact Analysis is to describe the forces from tropical storms and hurricanes on the Mobile Bay Bayway Bridge (MBBB) for various levels of risk. To date, this analysis has been based on a Level 1 analysis based on the methods described in AASHTO (2008) and HEC-25 (2008 and 2014), with results presented in the Level 1 Report (Mott MacDonald, 2016). The Level 3 analysis is described in detail in this report.

1.1 Level 1 Analysis

Computation of the forces on the bridge requires knowledge of the storm surge elevation and corresponding wave conditions for a given risk level (return period). In the Level 1 analysis discussed in the Level 1 Report (Mott MacDonald, 2016), the environmental forcing conditions - primarily wind and storm surge elevation - were based on existing data. In the Level 1 analysis, wave heights at the bridge were computed by modeling a single, simple hurricane wind field across Mobile Bay, which was elevated to a static surge elevation throughout the entire Mobile Bay and Gulf basin. The surge level was developed based on historical data fit to an extreme value distribution. This resulted in what we expected to be a conservative scenario. The surge elevation was based on a limited historical record, and was not dynamically linked with the waves. For the Level 1 analysis, the surge and associated waves did not move through the Bay together – the surge was static at a constant, high elevation across the Bay and the waves were propagated into the site on that elevated water level. The Level 1 method removed the dynamic coupling of wind, surge, and waves, as well as ignored the possible variations to storm track and storm size. According to AASHTO (2008), the Level 1 results should only be used for planning purposes. A Level 1 analysis was conducted by MM in 2016 and the results were summarized in the Mobile Bay Bridge Storm Surge Impact Analysis report submitted to ALDOT (Mott MacDonald, 2016).

1.2 Level 3 Analysis

Wave response to hurricanes is a complex process that is affected by the dynamics of the storm including surge, storm track (which influences direction of the winds, the approach speed of the hurricane, wind velocity and fetch), circulation currents, and wave generation and transformation processes on that dynamic field. The Level 3 assessment includes modeling the coupled wind-surge-wave processes to produce the best-possible prediction of surge and waves at the site. In other words, the Level 3 assessment uses the best methods to simulate the physics accurately, where the Level 1 used simplifying assumptions to get to a conservative result.

The challenge with simulating the physics of a coastal storm correctly is that there are many possible variations in the storm conditions that may impact the site. For example, a very slow moving, large Category 1 storm can produce much larger storm surge than a very fast, but smaller Category 4 storm. Therefore, the Level 3 method employs a probabilistic framework to encompass the range of possible variations in the storm conditions. This probabilistic framework, called the JPM-OS (Joint Probability Method with Optimal Sampling) provides a method to quantify the statistics of the input storm parameters and output conditions (waves, forces) that provide an accurate level of risk associated with the resulting forces.

Level 3 analysis involves the modeling of a set of storms using the dynamically coupled wind-surge-wave model. A set of hundreds of unique storm events are developed based on 5 different fundamental parameters: storm track, storm speed, maximum wind speed, radius to max winds, and storm approach angle. Each storm is assigned a unique probability based on empirical data derived from the 5 fundamental parameters near Mobile Bay. Thus, the Level 3 analysis simulates hundreds of storms, whereas the modified Level 1 analysis only evaluated one storm scenario.

After modeling each storm event, the resulting surge elevations and wave heights are output for each point in the model domain. These surge and wave height data points are then fit to a probability distribution. This allows us to develop the surge and wave heights as a function of return period, along with error bounds derived through statistical means. With these results, we can then compute forces on the bridge elements using the storm surge elevation and associated wave conditions for a given return period. This Level 3 analysis provides the greatest reduction in uncertainty and accounts for probability in an objective manner.

1.3 Project Location and Extents

The project site is along Interstate Highway 10 (I-10) located in the northern end of Mobile Bay, and spans the eastern I-10 tunnel exit to bridge landing at Spanish Fort, AL as shown in Figure 1.

Figure 1. Project vicinity in northern Mobile Bay near Mobile, AL.

1.4 Project Design Criteria

Based on discussions with the project team and ALDOT, the bridge design lifetime is set at 100 years. In our analyses, we will use 2017 as the start of service life and 2117 as the end. The return period has been set as 100-yr for the main spans and 50-yr for the ramp (see Table 1)

Table 1: Project Design Criteria

Bridge Section	Return Period	Sea Level
Main Spans	100-yr	100-yr (2117)
Ramps	50-yr	100-yr (2117)

2 Review of Existing Data

For the Level 1 analysis, a comprehensive database of physical data and available knowledge on sea level rise, storm surge, and wave forces on bridge element relevant to Mobile Bay was developed. The data collection effort included compilation of existing and historical data from all available reports, design, and publications from previous studies and designs pertinent to the project area. In addition to the work for the Level 1 analysis, additional bathymetry and topography data was collected along the bridge for the Level 3 analysis.

2.1 Tides and Vertical Datums

Tides at Mobile Bay at mixed semidiurnal in character, with a mean range of 1.45 ft and a highest annual tide (not storm-induced) estimated at +3.86 ft (NOAA, 2013). Tide elevations at the nearest vertically controlled tide gage located in Mobile State Docks (NOAA Tide Gage 8737048) are shown in **Error! Reference source not found.** relative to NAVD88.

Table 2: Tide Elevations relative to NAVD88 at Mobile State Docks NOAA Tide Gage 8737048

Water level	Mobile, LA [ft NAVD88]
Mean Higher-High Water (MHHW)	1.15
Mean Sea Level (MSL)	0.34
Mean Lower-Low Water (MLLW)	-0.47
National Geodetic Vertical Datum of 1929 (NGVD29)	-0.085

2.2 Bathymetry and Topography Data

Two sets of bathymetry and topography data were available that have the required resolution at the project site. The first set was the bathymetry of the mesh used in the FEMA study (FEMA, 2011). The other set of data was new bathymetry and topography collected for ALDOT in 2017 (Tremble, 2017). The new data collected is shown in Figure 2.

Figure 2. Bathymetry and Topography data collected for ALDOT (Tremble, 2017)

2.3 FEMA Flood Insurance Study: Florida Panhandle and Alabama Data

For the Level 3 analysis, synthetic tropical storms, water surface elevations, and waves from the FEMA Flood Insurance Study (FIS) were used as a baseline for the no SLR design case.

2.3.1 Storm Characteristics

The FEMA FIS classify synthetic storms by 5 main characteristics. They are the angle of approach to the shoreline, the radius of maximum winds, the central pressure drop, maximum wind speed, and the forward speed of the storm. The 5 characteristics are shown in Figure 3. Each of the characteristics has a probability assigned to it. The probability of the characteristics that make up a given synthetic storm combine to give the probability of that storm. FEMA provided MM with the characteristics and probabilities of all 295 synthetic storms used in the FEMA study (Lettis Consultants International, 2012).

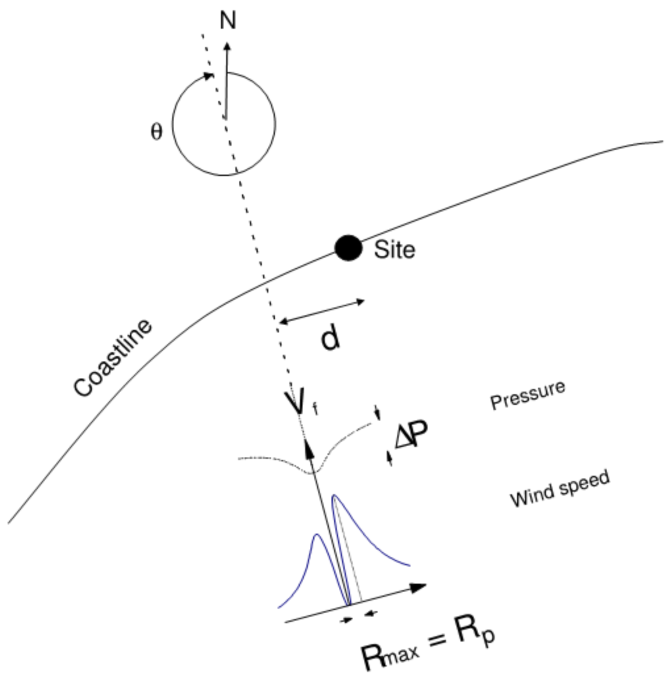

Figure 3. Storm Characteristics as it approaches the coast Source: (Lettis Consultants International, 2012)

2.3.2 Water Surface Elevations

To determine the designated design surge level, the probability of each synthetic storm is combined with the maximum water surface elevation (WSE) of each respective storm. The maximum WSE for each synthetic storm used in the FEMA study was provided to MM (FEMA, 2013a).

2.3.3 Waves

Wave forcing have a significant impact on storm surge. In the FEMA study, waves were added to the storm surge model in the form of radiation stresses at 30-minute time increments for each synthetic storm. The development of the radiation stresses is described in the Wave Setup Validation Report (Slinn, 2012). To recreate the FEMA study, MM was provided with the radiation stresses for each synthetic storm.

2.4 Bridge Geometry

To determine forces on the Existing and Reference Mobile Bay Bridge, the geometry of the structures must be known. Following AASHTO, (2008), the parameters shown on Figure 4 were extracted for the Existing and Reference Bridges.

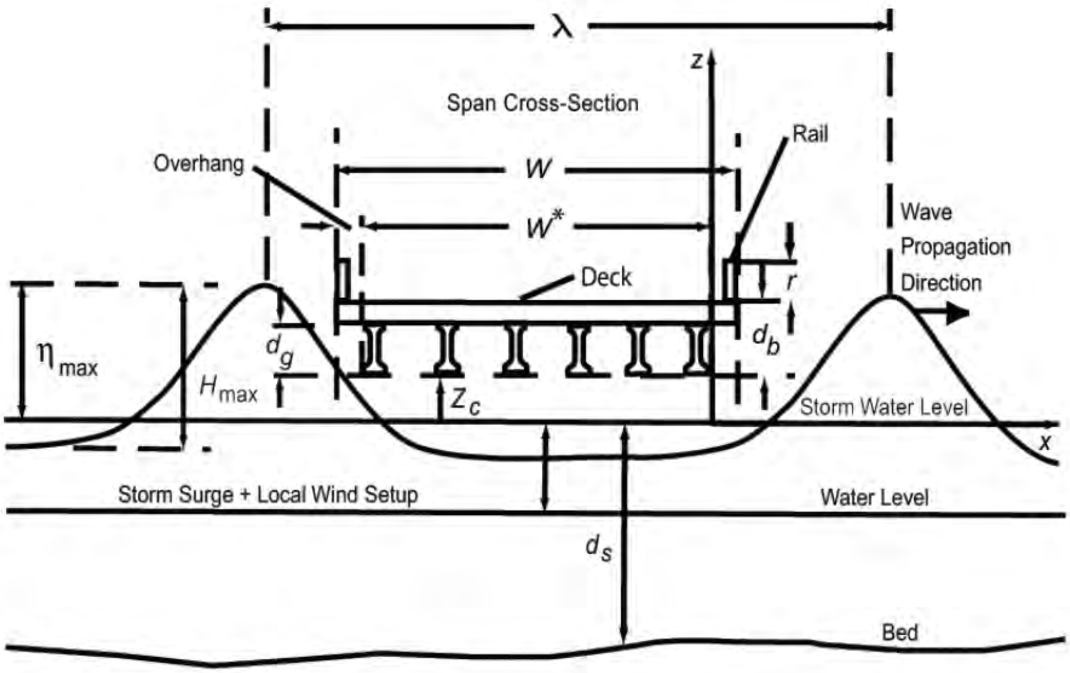

Figure 4. Parameters used in wave-induced force calculations (AASHTO, 2008)

2.4.1 Existing Bridge Geometry

The existing bridge geometry was extracted and digitized from as-builts drawings provided by ALDOT. Mott MacDonald extracted existing bridge geometry during Level 1 analysis (Mott MacDonald, 2016); the same bridge geometrical data was employed in in Level 1 analysis was used in this Level 3 study.

The Existing Mobile Bay Bayway Bridge consists of two spans in the east and west directions, 2 rises over bay channels, 3 horizontal curves, and 5 ramps. The main bridge deck elevation is 21.68 ft above 1971 mean sea level MSL. The typical superstructure section consists of 4 girders (3.75 ft high), a deck (28.67 ft wide and 0.63 ft thick), and a rail (3.17 ft high). Three different alternatives were found on the as-built drawings for the substructure: (A) 24 in square pile, (B) 36 in square pile, and (C) 54 in cylindrical pile. The as-built drawings do not specify which alternative was utilized or at what location. As there is uncertainty on the final construction, Alternative C, which is the most conservative alternative in terms of wave forces, was used in the analysis.

Another source of uncertainty is the vertical control of the bridge. No discussion on vertical control to a vertical datum or benchmark has been found on the as-built drawings. The plan elevations are referenced to 1971 MSL which is referred to as “200”. It is unclear if this is referenced to a local benchmark. MSL is not a constant vertical datum and varies over time. Historical records show MSL increased 0.18 ft from 1971 to the modern MSL reference at the NOAA gage at the Mobile State Docks, but without a more known vertical control, this in an unreliable adjustment. The as-built drawings were converted from 1971 MSL to current MSL using the historical records.

2.4.2 Reference Bridge Geometry

Mott MacDonald's structural team extracted the geometry and elevations from the reference bridge. All the elevations of the reference bride were provided at the trailing edge of the given bridge span because the trailing edge is the side of the bridge that is the most exposed to wave action. For full details of the extracted geometry see Appendix B. The reference bridge consists of 2 mains spans and 12 ramps for a total of 14 bridges (see Figure 5, Figure 6, Figure 7, Figure 8) and 1624 bents listed below. Based on discussions with the bridge team, 54 in cylindrical piles were assumed in the force calculations.

- East Bound, 581 bents
- West Bound, 582 bents
- East Tunnel A, 14 bents
- East Tunnel B, 27 bents
- East Tunnel C, 75 bents
- Eastern Shore A, 52 bents
- Eastern Shore B, 30 bents
- Eastern Shore D, 14 bents
- I-10 Business East Bound (I-10 Bus EB), 71 bents
- I-10 Business West Bound (I-10 Bus WB), 24 bents
- Midbay A, 30 bents
- Midbay B, 46 bents
- Midbay C, 37 bents
- Midbay D, 41 bents

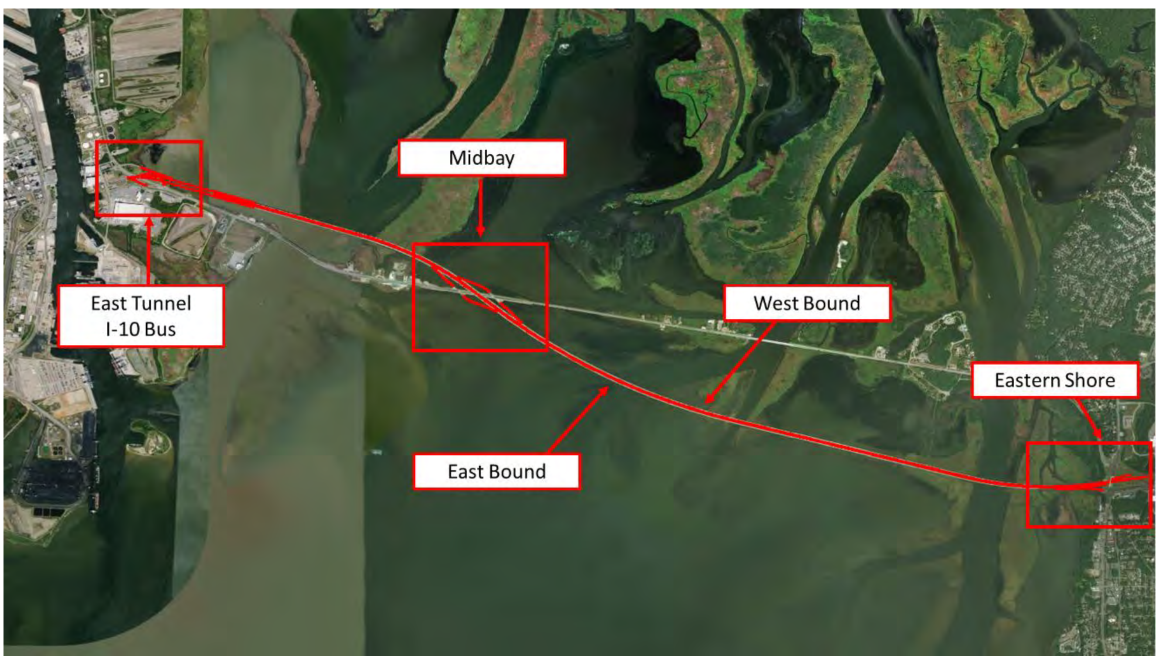

Figure 5. Overall Reference Bridge

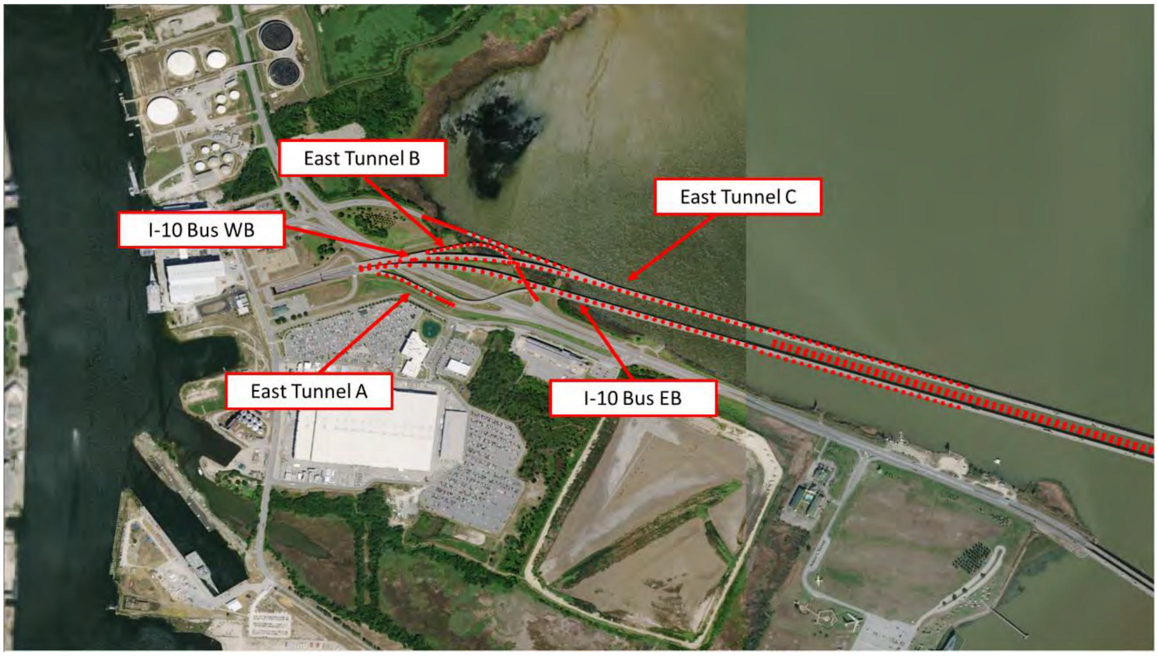

Figure 6. Reference Bridge: East Tunnel and I-10 Business ramps

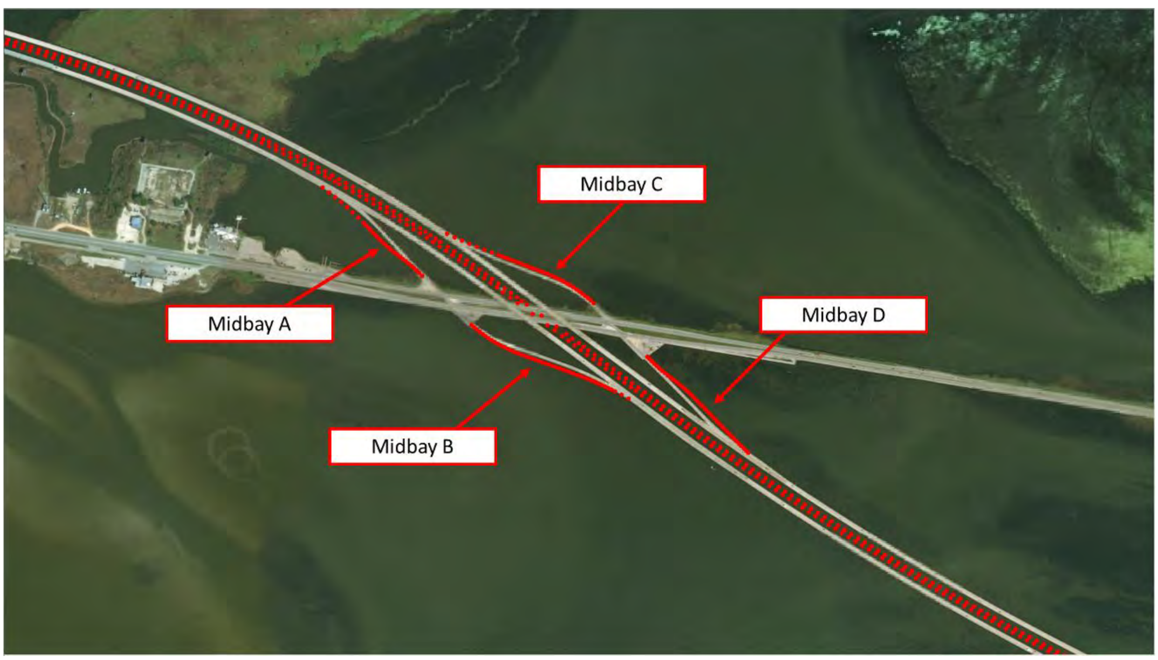

Figure 7. Reference Bridge: Midbay Ramps

Figure 8. Reference Bridge: Eastern Shore Ramps

3 Climate Change Considerations

Sea level has been observed to be rising across the globe and at an increasing rate in the Gulf of Mexico. Sea level rise (SLR) can increase the risk of coastal infrastructure damaged; it can enhance the surge resulting from hurricanes and thereby increase the hydrodynamic forces exerted by the water and waves on coastal bridges. Consequently, an evaluation of sea level rise projections on the Mobile Bay area and its effect on storm surge was performed for the Level 1 analysis (Mott MacDonald, 2016). Based on discussions with the project team and ALDOT, this Level 3 analysis employed the SLR projections recommended in Level 1 study (Mott MacDonald, 2016). The following section provides information on the SLR projections used in this Level 3 analysis.

3.1 Relative Sea Level Rise

The Level 3 analysis utilizes SLR projections set forth by the Intergovernmental Panel on Climate Change (IPCC). The IPCC was set up in 1988 by the World Meteorological Organization (WMO) and United Nations Environment Program (UNEP), and is endorsed by the United Nations General Assembly. The IPCC is the world body for assessing the science related to climate change to provide policymakers with regular assessments of the scientific basis of climate change, its impacts, and future risks. The IPCC assesses thousands of scientific papers published each year and identifies where there is agreement in the scientific community, where there are differences of opinion, and where further research is needed. The IPCC completed the Fifth Assessment Report in November 2014 with the participation of more than 830 scientists from over 80 countries evaluating more than 30,000 scientific papers (ASBPA, 2015).

The American Shore and Beach Presercation Association (ASBPA) suggests citing the IPCC values as the current most credible sea level rise projections for 2100, from a minimum of 0.9 ft for the lower limit of the most benign scenario, to 3.2 ft for the upper limit of the worst scenario (American Shore and Beach Presercation Association, 2015). In addition, the North Carolina Coastal Resources Commission Science Panel (2015) has recommended using the most recent report of the IPCC to provide scenario-based global sea level rise projections; “the scenarios chosen to model sea level rise over the next 30 years are the IPCC’s low greenhouse gas emissions scenario (RCP 2.6) and the high greenhouse gas emissions scenario (RCP 8.5), as all other [IPCC] scenario projections fall within the range of these two.”

Consequently, this analysis recommends the IPCC RCP 8.5 median scenario projection for analyzing the impact of sea level rise in the project area. The values of SLR used in the Level 3 analysis are provided in Table 3.

Table 3: Recommended SLR projection based on IPCC RCP 8.5 median scenario

Year	Recommended SLR projection [ft]
2017 (0-yr SLR)	0.00
2067 (50-yr SLR)	1.22
2117 (100-yrSLR)	3.04

4 Storm Frequency Analysis

The quantification of extreme water surface elevation and wave heights is a central component in determining design wave forces a bridge. Methods typically employed to calculate extremal wave and water surface elevation statistics include design storm analysis, historical gauge analysis, and joint probability analysis. Modern practices rely on the Joint Probability Method (JPM), introduced in (Ho, 1975). Results of the JPM analysis for the project site were obtained from LCIA (Lettis Consultants International, 2012) and FEMA (FEMA, 2013b). These results were analyzed and used to calibrate the JPM approach implemented in this study. The following Sections provide an overview of the JPM approach, discuss the incorporation of uncertainty terms into the JPM results, and compare the proposed JPM approach proposed for this study to previous results presented in the FEMA study (FEMA, 2013b).

4.1 Description of the JPM-OS Approach

The JPM approach describes a storm in terms of the storm parameters that have the greatest influence on storm surge. The parameters selected in the JPM employed to calculate storm surge include central pressure, storm radius, forward velocity, and storm heading. Statistical distributions are then calculated for each storm parameter based on historic data near the area of interest. The original work by (Ho, 1975) divided each storm parameter distribution into distinct segments, then proposed simulation of all possible combinations of storm parameters. This modern implementation of this approach was developed by (Resio, 2007) instead performs Optimal Sampling (JPM-OS) to select a smaller suite of representative storms for simulation. Based on the joint probability distributions developed for the storm parameters, occurrence probabilities are assigned to each storm in the synthetic storm suite. The storms are then simulated using a coupled wave and surge numerical model. For this study, a coupled ADCIRC-SWAN model was used to simulate the set of storms. Further discussion of the ADCIRC-SWAN model development is conducted in Section 5.

Once the JPM-OS suite of storms are simulated, a statistical analysis is performed to determine the Annual Exceedance Probability (AEP) at each point of interest. The AEP at each analysis point represents the probability of a storm exceeding a given water surface elevation. In this report, AEP values are reported as return periods, which are simply calculated as the inverse of the AEP value. The return period calculations performed in this study were conducted using Version 1.1 of the SURGE_STAT program obtained from the Federal Emergency Management Agency (FEMA) (FEMA, 2012). The program uses the following inputs to perform the extremal analysis:

- Numerical model results at each output point
- Recurrence rates for each storm
- Uncertainty parameters
- AEP values to extract from the results

A summary of the calculation performed by the SURGE_STAT program is described below. See (FEMA, 2013b) and (FEMA, 2012)for further discussion of the SURGE_STAT program methodology.

1. For each extraction point in the analysis, a water surface of elevation (WSE) histogram is developed using bins of width 0.1 ft., ranging from 0 to 36.09 ft.
2. The recurrence rate for each storm is summed into the appropriate bin.

3. The results of the histogram are then spread into adjacent bins to account for the uncertainty due to secondary parameters. See Section 4.2 for further discussion of the uncertainty terms.
4. The modified histogram is then summed from the highest bin to the lowest bin to form a cumulative distribution of WSE.
5. The WSE for the user specified AEP years is then interpolated from the cumulative WSE distribution curve.

The SURGE_STAT program was used to calculate the extremal water surface elevations using the methodology above. The program was also used to calculate extremal wave heights. However, quantification of uncertainty terms for waves has not been conducted in previous typical JPM-OS analyses. For example, (Slinn, 2012) analyzed extremal waves in Mobile Bay using JPM-OS results, and calculated the extremal wave heights as the cumulative sum of the probabilities of the rank ordered wave heights. Therefore, uncertainty terms were not included in the analysis of extremal waves using the SURGE_STAT program. When no uncertainty terms are used, the SURGE_STAT program does not perform the spreading in step 3. Without the spreading described in step 3, the program output is similar to calculating the cumulative probability of the rank ordered wave heights as described in (FEMA, 2012).

4.2 Uncertainty Discussion

There is inherent uncertainty involved when performing a JPM-OS analysis. This uncertainty is quantified by various error terms, which describe error due to “secondary factors”. This uncertainty is then combined into error terms that are used as input into the SURGE_STAT program. The error terms are used to quantify secondary quantities which are not implicitly included in model simulations. The error terms used in this study quantifies the uncertainty due to:

- *Astronomical tide level:* Error term used to represent the random phasing between storm surge and astronomical tide. This parameter is constant for a given project site.
- *Numerical model Error:* Error term that represents the difference between modeled and measured storm results. This parameter is constant for a given project site.
- *Idealized wind field Error:* Error term to describe uncertainty that is used when describing idealized wind fields. This parameter is constant for a given project site.
- *Error due to measurements*: Error term to describe uncertainty due to high water mark measurements. This parameter is constant for a given project site.
- *Holland B Parameter Uncertainty*: Error term that describes uncertainty due to the Holland B term (Resio, 2007). This parameter is scaled by the surge elevation.

The standard deviation associated with each error parameter is shown below, as described in (FEMA, 2013b) are shown below in Table 4.

Table 4: Uncertainty parameter standard deviation

Uncertainty Parameter	Standard Deviation	Value [ft]
Astronomical Tide	$\sigma_{\varepsilon 1}$	0.637
Holland B	$\sigma_{\varepsilon 2}$	0.15*surge elevation
Model Simulation[1]	$\sigma_{\varepsilon 3}$	1.730
Idealized Wind Field	$\sigma_{\varepsilon 4}$	1.180

Notes: [1] Model simulation uncertainty is calculated as the square root of the sum of the squares of model uncertainty (1.83 ft) and High-Water Mark (HWM) measurement uncertainty (0.60 ft).

Two separate uncertainty calculations are used as inputs into the SURGE_STAT program (FEMA, 2012). The constant uncertainty term is comprised of the uncertainty due to astronomical tide ($\sigma_{\varepsilon 1}$), model simulation ($\sigma_{\varepsilon 3}$), and idealized wind fields ($\sigma_{\varepsilon 4}$). The uncertainty associated with the Holland B parameter ($\sigma_{\varepsilon \rho}$) scales with water surface elevation. The calculation of each value is shown below in Equation 1 and Equation 2.

$$\boldsymbol{\sigma_{constant}} = \sqrt{\boldsymbol{\sigma_{\varepsilon 1}^2 + \sigma_{\varepsilon 3}^2 + \sigma_{\varepsilon 4}^2}} = \mathbf{2.19}\, \boldsymbol{ft} \qquad \textbf{Eq. (1)}$$

$$\boldsymbol{\sigma_{scaled}} = \mathbf{0.15} * \boldsymbol{WSE}(\,\mathbf{0.15}\, \boldsymbol{WSE}\,) \qquad \textbf{Eq. (2)}$$

These uncertainty parameters are input into the SURGE_STAT program used to spread the probability masses in each bin of the histogram to adjacent bins, as described in Section 4.1.

4.3 Storm Selection

The FEMA JPM results included 295 separate synthetic storms, with tracks that varied landfall positions from New Orleans, LA on the west to the Florida panhandle on the east. The analysis conducted in this report was only concerned with calculating the 50, 100, and 500-yr return period statistics at the project site. Therefore, it was hypothesized that a reduced set of storms could be simulated to calculate these extremal statistics, since many of the storms in the FEMA suite caused minimal surge at the project site. It is likely that these low surge storms did not contribute to the high return period storms under investigation in this study. Sensitivity testing was conducted to select a reduced set of storms that reproduce the 50, 100, and 500-yr statistics with reasonable accuracy. The sensitivity testing to select a reduced suite of storms was conducted as follows:

- Eight extraction points were selected along the existing Reference Mobile Bay Bridge alignment. See Figure 9 for a summary of the extraction points used in the sensitivity testing.
- At each extraction point, maximum water surface elevations were interpolated from the 295 runs conducted by FEMA.
- A filter elevation was varied at 0.1 ft. intervals between 1.1 to 6.0 ft. All storms that cause max elevations below the filter level were removed from the extremal analysis.
- The SURGE_STAT program was run for each filtered set of storms. Then the 50,100, and 500-yr return period levels were compared to the baseline data at each point.

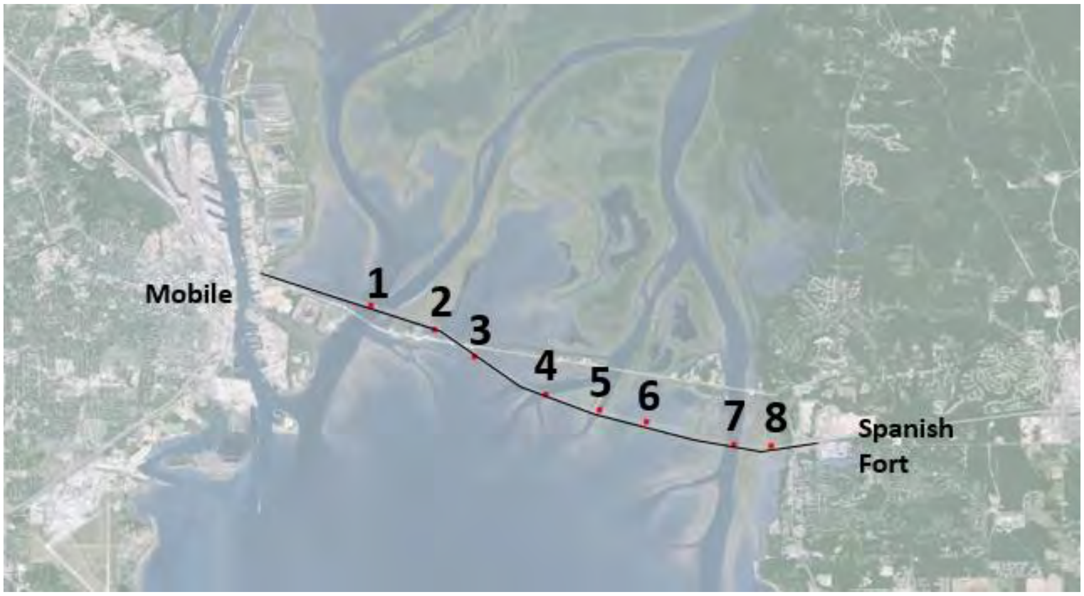

Figure 9. Extraction points used in sensitivity analysis.

A summary of the sensitivity testing is shown below in Table 5. Column 1 shows the number of storms represents the number of storms in the dataset left after filtering. Column 2 shows the filter elevation, which represents the water surface elevation below which all storms were removed from the dataset. Note that if a given storm caused elevations below the filter threshold at one point, but above at another point, the storm was left in the dataset. Finally, columns 3-5 of Table 5 represent the maximum change in extremal WSE across the eight extraction points when compared to the full storm suite.

Table 5: Summary of selected sensitivity testing case

Number of Storms	Filter Elevation [ft]	Max Change in 50yr WSE [ft]	Max Change in 100yr WSE [ft]	Max Change in 500yr WSE [ft]
120	3.0	-0.02	0.00	0.00
94	4.0	-0.04	-0.01	0.00
80	**4.5**	**-0.07**	**-0.01**	**0.00**
68	5.0	-0.14	-0.03	0.00
56	5.5	-0.20	-0.05	0.00
43	6	-0.46	-0.11	0.00

After sensitivity testing, a suite of 80 storms was selected as the final storm set to be simulated in ADCIRC-SWAN and used to develop the extremal statistics for this study. The reduced set of 80 storms resulted in a maximum change in WSE of -0.07 feet for the 50-yr WSE, and -0.01 feet for the 100-yr WSE when compared to the full suite. No change in WSE was noted for the 500-yr condition. The reduced set of storms was simulated using the coupled ADCIRC-SWAN model described in Section 5. The results of the model simulation were used as inputs into the extremal analysis, which is summarized in Section 6.

5 Storm Surge Model Development

The Storm Surge modeling was conducted using the ADCIRC+SWAN model. ADCIRC (Luettich & Westerink, 2015) is a 2-D circulation modeling tool based on shallow water equations that can be used to simulate water level fluctuations and current velocities forced by tides, winds, river flows, hurricanes and other natural forcing. ADCIRC uses unstructured triangular meshes under the finite element approach. The ADCIRC+SWAN version of the model features fully dynamic coupling with the unstructured SWAN (Delft, 2012) models for use in hurricane simulations (Dietrich, et al., 2011).

5.1 Mesh Development

The computational mesh used for the storm was a combination of the mesh developed for the FEMA Florida Panhandle Flood Insurance Study (FEMA, 2013a) and the mesh developed for the Level 1 analysis (Mott MacDonald, 2016). The final mesh had approximately 480,000 nodes and had a resolution ranging from 25 meters to 50 meters around the project location. The bathymetry and topography for the mesh was a combination of the FEMA bathymetry and the newly collected bathymetry discussed in Section 2.2. The mesh with the combined bathymetry is shown in Figure 10.

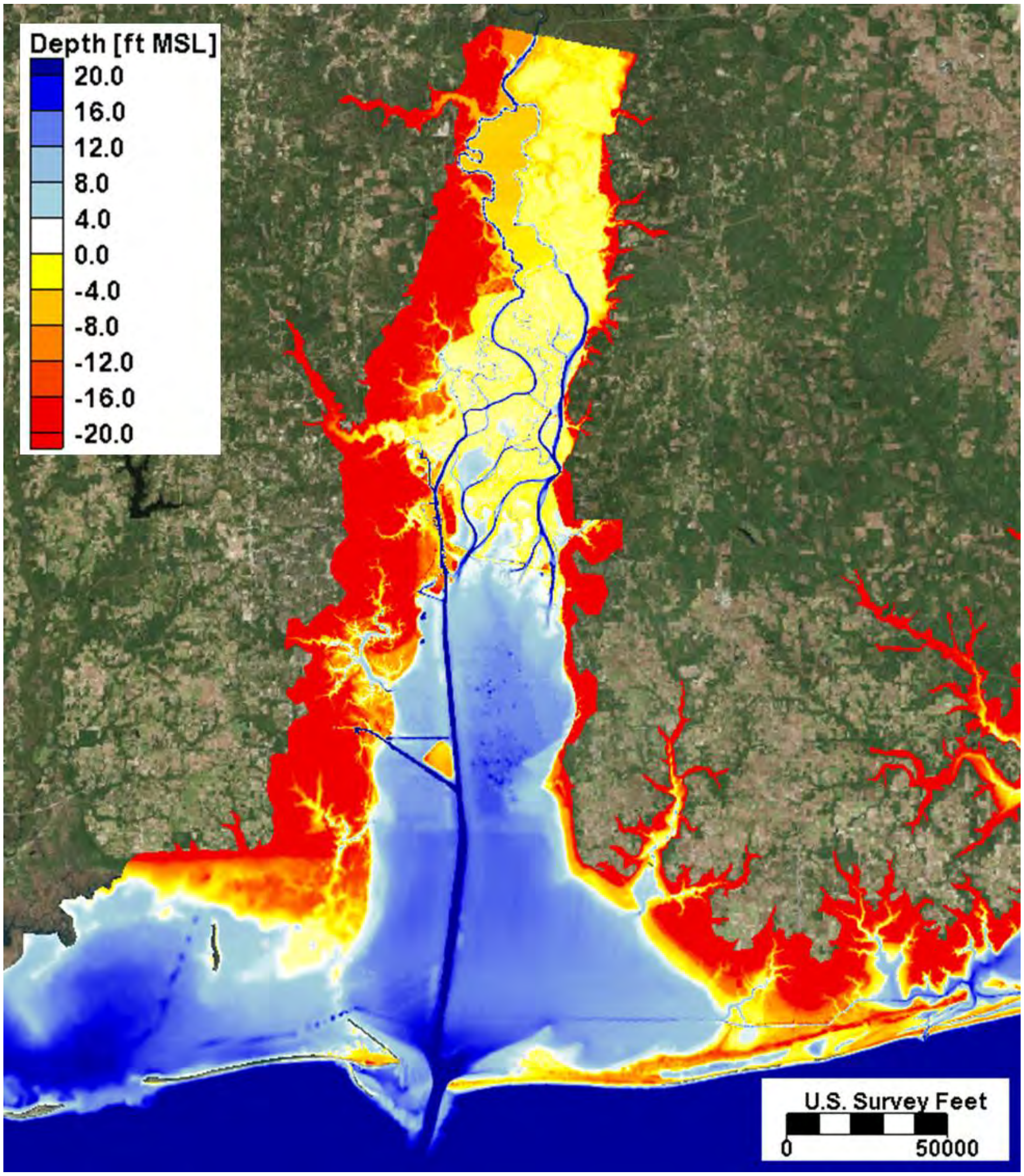

Figure 10. Computational Mesh with Bathymetry for Production Runs.

5.2 Model Input Parameters

5.2.1 Winds

The wind fields used in the modeling were provide by FEMA from the Florida Panhandle FIS study (FEMA, 2013a). The wind fields are synthetic storms developed from a statistical representation of historical storms that could or have occurred in the project area. 295 synthetic storms were developed for the FEMA study of which 80 were selected to be used in the modeling. The wind fields consisted of the 30-minute averaged winds for the synthetic storms. A wind multiplier was used in the modeling to covert the 30-minute winds to a 10-minute winds to be used in ADCIRC. A multiplier of 1.09 was used to be consistent with the FEMA study.

5.2.2 Nodal Attributes

Several input parameters have been calculated for initial calibration testing. The mesh roughness is an important input parameter because the roughness coefficient of the mesh influences the storm surge due to its impact with wind speed and inundation. To accurately estimate the roughness, land cover data was downloaded from the national land cover database (NOAA, 2006). Land cover data is the result of converting raw satellite data into different land categories. Based on these different types of land, an associated Manning's coefficient was applied to different areas of the mesh (Luettich & Westerink, 2015). The method's for calculating all the nodal attributes followed the same Method's outlined in the FEMA Florida Panhandle Study Reports (FEMA, 2011).

5.3 Model Testing

5.3.1 FEMA FIS recreation

Testing is necessary to verify the accuracy of the model set up before it is used in production runs. For the first step of testing, the input conditions from the FEMA study were used to recreate select storms from the Florida Panhandle study (FEMA, 2013a). The selected storms were the 2 that produced the largest surge at the Bridge (storms 231 and 247). Using the mesh, wind, and wave files provided by FEMA, the max elevation for both storms were exactly matched to the FEMA study.

5.3.2 Tightly coupled wave Method

The FEMA study used a loosely coupled wave method that calculated the waves separately from the surge by using an iterative process described in the Wave Validation report (Slinn, 2012). The method used in the FEMA study uses an older version of both ADCIRC and SWAN. To use the latest scientific advancements made in both ADCIRC and SWAN a new method was used for the production runs. The method uses a tightly coupled version of ADCIRC and SWAN, ADCSWAN, (Dietrich, et al., 2011). ADCSWAN runs both models concurrently and passes information back and forth between the models. ADCIRC provides SWAN with winds, water levels, and friction terms. SWAN provides ADCIRC with wave radiation stresses. The FEMA study applied wave forcing to the ADCIRC model every 30 minutes. To keep the methods similar, the coupling interval between ADCIRC and SWAN in the ADCSWAN model was set to 30 minutes. The coupling interval is how often ADCIRC and SWAN exchange information. The other main change between the FEMA study and the production runs is the computational mesh used. The development of the mesh used in the production runs was discussed in Section 5.1. The max elevations from the ADCSWAN method were compared with the FEMA study max elevations for select storms. Plots of the differences between the max elevations of the two methods are shown in Figure 11. The two storms shown in the figure represents the range of the differences observed between the two methods. Storm 231 represents the best agreement to the FEMA values at the project site with values within 0.1 ft of the FEMA values at the bridge. Storm 199 represents the least agreement at the bridge. For storm 199 the values at the bridge are 0.5 ft. higher than the FEMA values. For both storms there is a slight overprediction of values over land to the West of Mobile bay, but they don't affect the surge at the project site. When looking at all 80 storms, the new method produces slightly higher WSE at the bridge compared to the FEMA values by an average of 0.16 ft. The method is expected to have a slightly different result using a more refined mesh and dynamic coupling between the waves and surge; therefore, the average variation of 0.16 ft is considered reasonable.

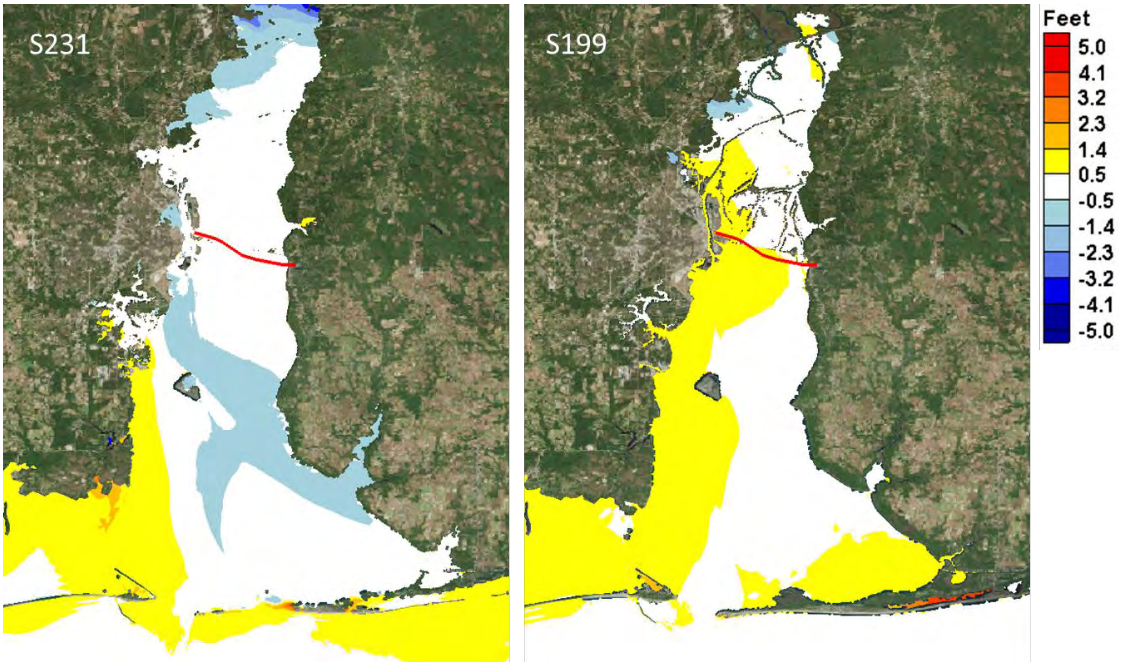

Figure 11: Difference of MM Max WSE and FEMA Max WSE (ft). Blue areas are where MM computes lower values than the FEMA WSE and yellow to red areas are where MM computes higher WSE.

6 Recurrence Interval Analysis

6.1 Extreme Conditions Comparison: MM vs FEMA

FEMA (FEMA, 2013b) computed extreme water surface elevations and wave conditions in the project vicinity. As discussed above, Mott MacDonald (MM) built upon the FEMA model to provide more accurate physics and to compute future conditions at the bridge. Therefore, we have compared the new MM model results for the present-day conditions to the FEMA results to confirm that the MM model produces reasonable results. We expect the results to be similar, but not the same, as those computed by FEMA.

As described in Section 4, a reduced set of 80 storms was selected from the full suite of 295 storms to develop the extremal statistics presented in this study. The set of 80 storms were first simulated using the ADCIRC-SWAN model developed by MM, as described in Section 5. Then, extremal statistics were developed at all 480,000 nodes in the MM grid for both waves and water surface elevations. The extremal statistics were developed with the SURGE_STAT program, using the methodology described in Section 4. The extremal wave and water surface elevations developed in the FEMA (2013b) study were then interpolated onto the MM grid for the 50, 100, and 500-yr results. Figure 12 show the difference between the FEMA and MM extremal water surface elevations, while Figure 13 shows the difference between the extremal wave heights computed in each study.

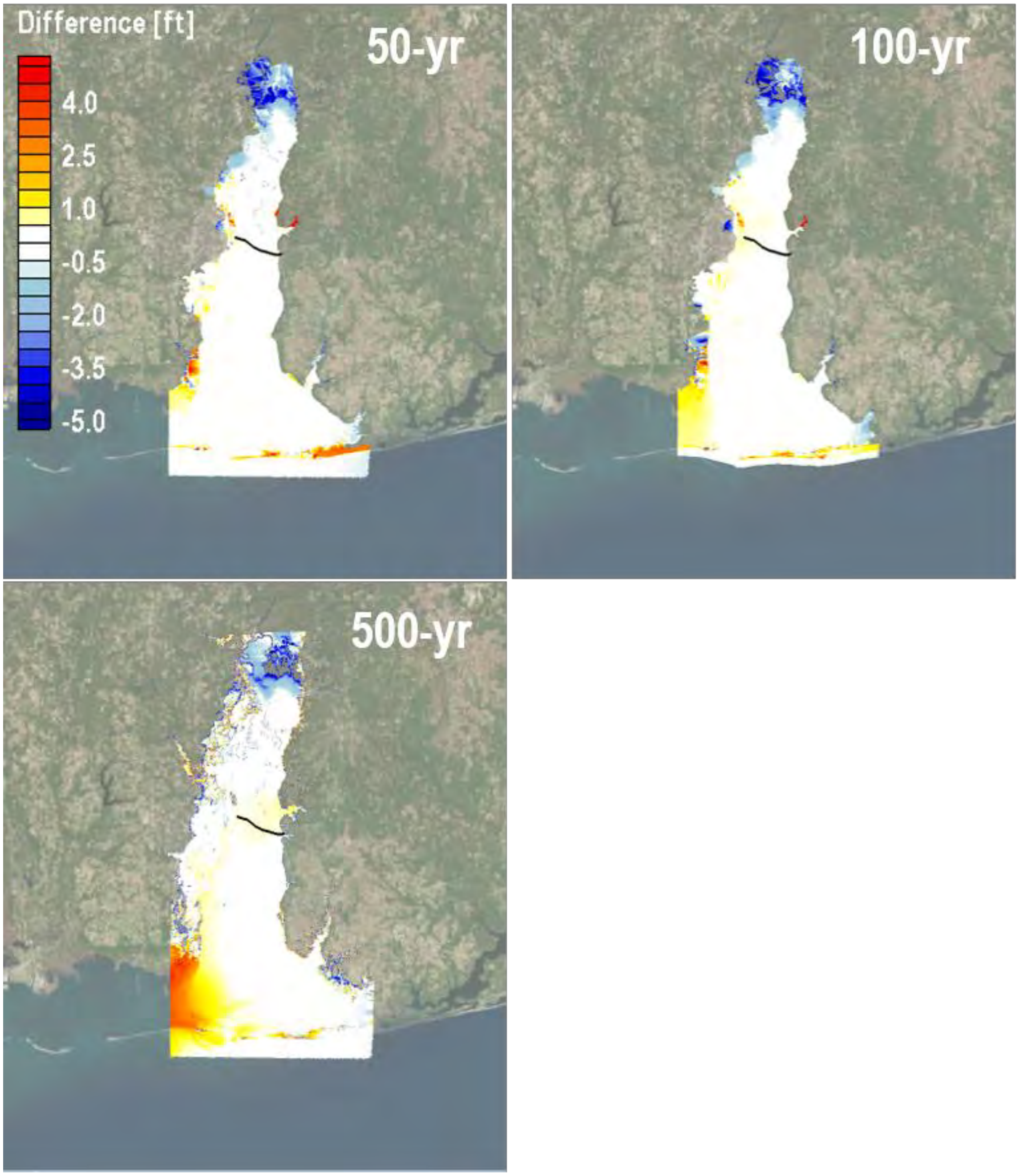

Figure 12. Difference of FEMA, 2013 Extremal WSE and MM Extremal WSE (ft) for the 50 (top-left), 100 (top-right), and 500 (bottom-left) year levels. Blue areas are where MM computes smaller WSE than FEMA, 2015 WSE and yellow to red areas are where MM computes larger WSE.

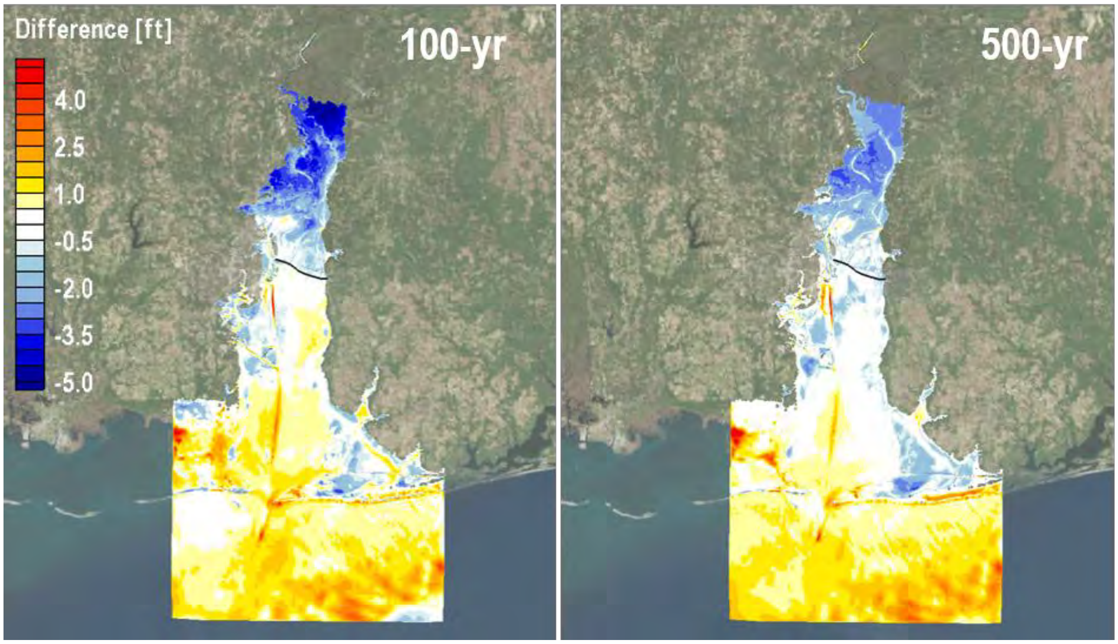

Figure 13. Difference of FEMA, 2013 Extremal Hs and MM Extremal Hs (ft) for the 100 (left) and 500 (right) year levels. Blue areas are where MM computes smaller Hs than FEMA and yellow to red areas are where MM computes larger Hs. Note that FEMA 50-yr results were not available.

Differences between the FEMA and MM extremal water surface elevations along the Reference Mobile Bay Bridge range from approximately 0.6 feet for the 50-yr condition to approximately 0.8 feet for the 500-yr condition. Table 6 shows the difference in extremal WSE at sensitivity testing extraction point 5 (see Figure 9 for location of the sensitivity testing extraction points).

Table 6: Comparison of FEMA and MM extremal WSE at sensitivity extraction point 5.

T_r [yrs]	FEMA [ft MSL]	MM [ft MSL]	Difference [ft] (MM-FEMA)
50	9.15	9.72	0.57
100	10.86	11.51	0.65
500	15.26	16.11	0.84

The extremal WSE's developed by MM are slightly higher than those developed by FEMA. There are a few potential explanations of the discrepancy between the two datasets. First, the MM model simulations were conducted using a coupled ADCIRC-SWAN model whereas the FEMA results used a loosely coupled ADCIRC-STWAVE model. This is expected to result in WSE differences due to the differences in the way that wave setup and radiation stresses are handled in the models. In addition, the MM model grid provides higher resolution than the FEMA grid. The resolution change can lead to both an increase and a decrease in WSE depending on the interaction of the hydraulics and bay bottom. In addition, the MM grid utilized new bathymetric survey data in the immediate vicinity of the bridge which will modify surge and wave results.

The differences between the FEMA and MM extremal significant wave heights were also examined along the Reference Mobile Bay Bridge alignment. Differences in significant wave height are varied across the bridge for both the 100 and 500-yr conditions. In general, most differences are approximately 0.2-0.5 feet, with some areas showing differences of up to 1.0

feet. Table 7 shows the difference in extremal significant wave height at sensitivity testing extraction point 5 (see Figure 9 for location of the sensitivity testing extraction points).

Table 7. Comparison of FEMA and MM extremal Hs at extraction point 5.

Tr [yrs]	FEMA [ft]	MM [ft]	Difference [ft] (MM-FEMA)
50	N/A	2.99	N/A
100	4.34	3.88	-0.46
500	6.67	6.15	-0.52

The extremal Hs statistics developed by MM are slightly lower than those developed by FEMA. These differences are attributed to those discussed above: the tight coupling of the ADCIRC and SWAN models, the increase in resolution of the mesh, and updated bathymetry.

6.2 Methodology

Recurrence interval analysis was used to calculate the met-ocean parameters. These parameters include water surface elevation, significant wave height, peak period, and velocity. During the Level I analysis the water surface elevation was determined by an analysis of historical data. The significant wave height and peak period were determined by modeling a single storm event with a static storm surge. The Level 3 analysis employed a more robust methodology, similar to the technique applied in (Sheppard, 2015). The Level 3 methodology was applied at 2,223 extraction points located at each pile along the Existing and Reference Bridge alignment. Note that if the proposed alignment changes, the same process can be conducted by interpolating the model output files to the new alignment. Provided in the Digital Appendix is the modeling output that would enable a user to modify the alignment and obtain reasonable variations in conditions. Since the wave forces depend on a combination of parameters (WSE, wave height, period, and velocity) two separate methods were employed to determine the extremal conditions: (1) The maximum WSE and associated wave height, period, and velocity, and (2) the maximum wave height and the associated WSE, period, and velocity. These two-separate methodologies were employed since the maximum wave height and WSE do not necessarily occur at the same time. The Level 3 methodology to determine the extremal met-ocean conditions consisted of the following steps:

1. **Method 1:** For each storm, extract the maximum water surface elevation at each extraction point from model simulation results. Then the associated significant wave height, velocity, and peak period were pulled from the model results. These parameters were extracted at the timestep where the maximum water surface elevation occurs. Repeat this process for all 80 synthetic storms in the MM reduced storm suite.
2. Use the SURGE_STAT program and methodology described in Section 4 to calculate the 50, 100, and 500-yr water surface elevations at each extraction point. See Section 6.2.1 for further discussion of this step.
3. Perform a linear regression between the maximum water surface elevation and the associated parameter (significant wave height, peak period or velocity). Perform this linear regression separately for each point, for each associated parameter. This linear regression is performed on the top values of a dataset to provide a conservative estimate of the associated parameters. The top values were selected by selecting a bin width and taking the peak value within each bin. Linear regression was then performed on these top values.
4. Use the linear regression results to predict the value of each associated parameter for a given return period. This prediction is performed for all return periods at all 2,223 points.

5. **Method 2:** Repeat this analysis, except in step 1, extract the maximum wave height instead of the maximum water surface elevation. Then pull the associated water surface elevation, velocity, and peak period at the timestep of the maximum wave height. Finally repeat steps 2-5 replacing the maximum water surface elevation with the maximum wave height.

Overall, the two statistical methods of analysis which served as input for wave forces go as follows:

- **Method 1 - Extremal Water Surface Elevations**: corresponds to the extremal water surface elevation and associated peak period, velocity, and significant wave height.
- **Method 2 - Extremal Wave Heights:** corresponds to the extremal significant wave height, and associated peak period, velocity, and water surface elevation.

6.2.1 Extremal Analysis

Extremal analysis was conducted to determine the extremal wave heights and water surface elevations at the project site. The numerical model results were processed using the SURGE_STAT program as described previously in Section 4. Figure 14 shows the 50,100, and 500-yr water surface elevations at the project site, while Figure 15 shows the significant wave heights for the same return periods.

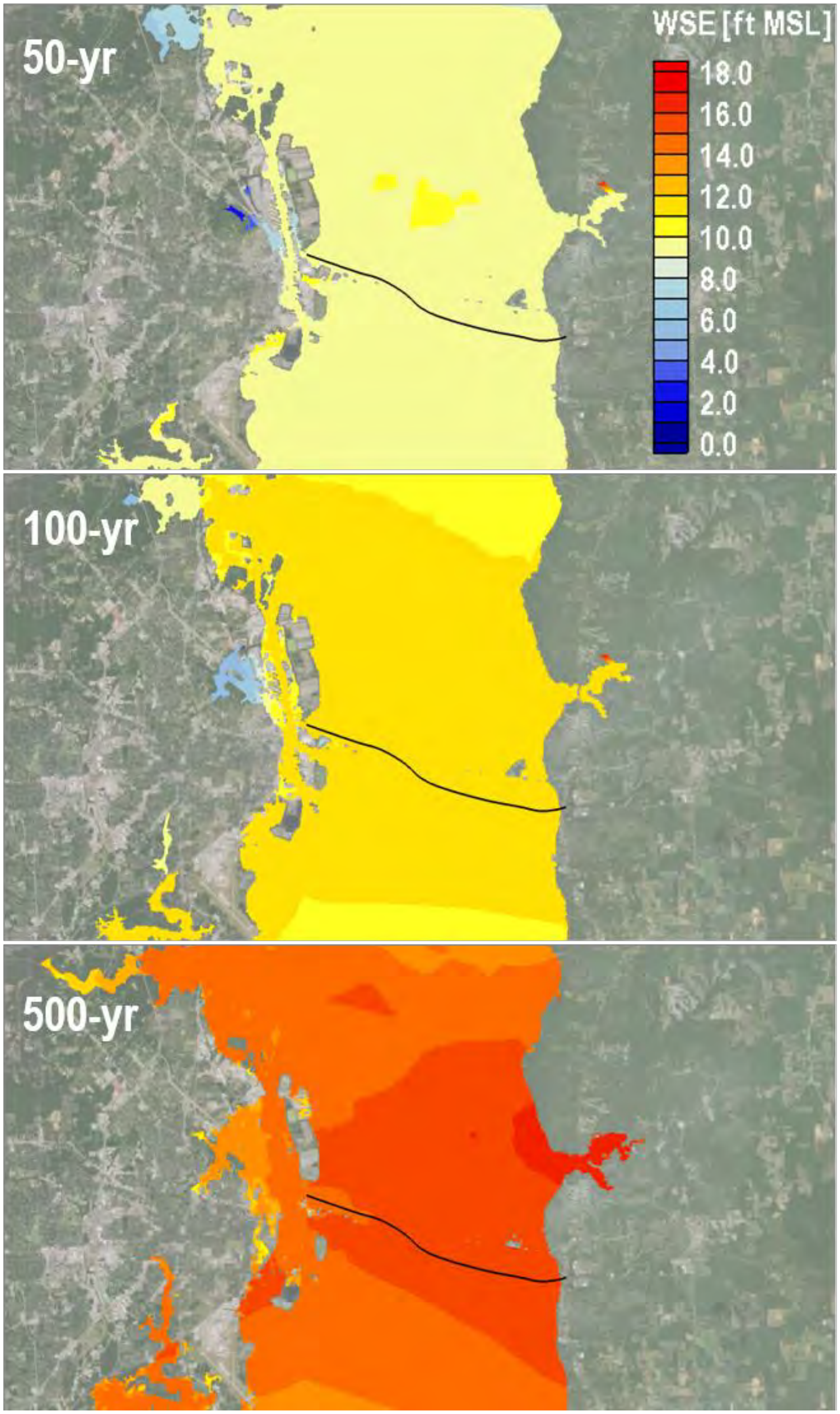

Figure 14. Extremal WSE calculated using MM storm suite for 2017 SLR. Reference MBB alignment designated by black line.

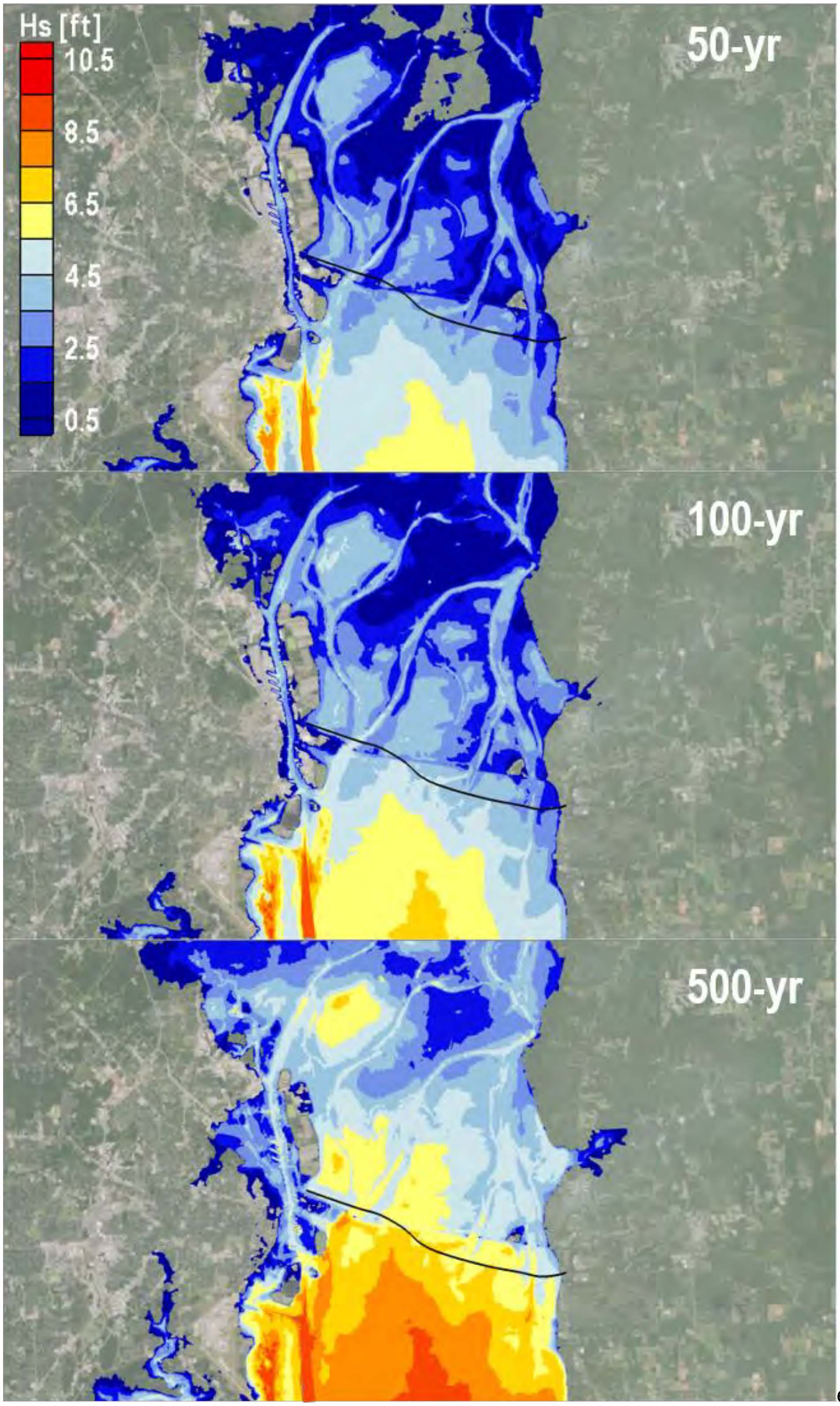

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Figure 15. Extremal Hs calculated using MM storm suite for 2017 SLR. Reference MBB alignment designated by black line.

6.2.2 Regression Analysis

As described in Section 6.2, two separate methods were employed to develop the met-ocean design conditions used in the wave force analysis. Method 1 extracts the maximum WSE at each extraction point, then finds the associated significant wave height, peak period, and velocity. This process is repeated for all storms. Then, the extremal WSE at all points is calculated using the SURGE_STAT program. Method 2 extracts the maximum significant wave height at each extraction point, then finds the associated water surface elevation, peak period, and velocity. This process is repeated for all storms. Then, the extremal significant wave height at all extraction points is calculated using the SURGE_STAT program.

The wave height, peak period, and velocity at the time of maximum water surface elevation are not independent values. Similarly, the WSE, peak period, and velocity at the time of maximum wave height are not independent values. These values are associated with the maximum parameters. Therefore, independent extremal analyses were not performed on the associated parameters. Instead, a linear regression analysis was conducted to determine the associated parameters for each extremal condition. The linear regression analysis was performed for Method 1 and Method 2 to calculate the associated parameters for the 50, 100, and 500-yr conditions. This analysis was performed for the 2017, 2067, and 2117 SLR conditions to produce a set of 18 scenarios for input into the wave forces analysis. All scenarios are summarized below in Table 8.

Table 8: Scenarios for wave forces

SLR Condition	Extremal Condition	Method
2017	50-yr	Method 1
2017	50-yr	Method 2
2017	100-yr	Method 1
2017	100-yr	Method 2
2017	500-yr	Method 1
2017	500-yr	Method 2
2067	50-yr	Method 1
2067	50-yr	Method 2
2067	100-yr	Method 1
2067	100-yr	Method 2
2067	500-yr	Method 1
2067	500-yr	Method 2
2117	50-yr	Method 1
2117	50-yr	Method 2
2117	100-yr	Method 1
2117	100-yr	Method 2
2117	500-yr	Method 1
2117	500-yr	Method 2

6.3 Nonlinear Wave Adjustment

Wave-induce forces on bridge elements require wave amplitude and crest elevation in addition to wave heights. Wave characteristics in shallow water (relative to their wave length) are not well represented by simple linear wave theory. Mobile Bay Bridge is considered to generally be in shallow water relative to the wave conditions and therefore, the waves at the project site are nonlinear. Nonlinear waves differ from linear waves because their profiles do not hold a sinusoidal shape as linear waves do. As seen in Figure 16, the crests of nonlinear waves are more narrowly peaked than those of linear waves, and the troughs of nonlinear waves are typically wider and shallower than those of linear waves (Varma, 2014).

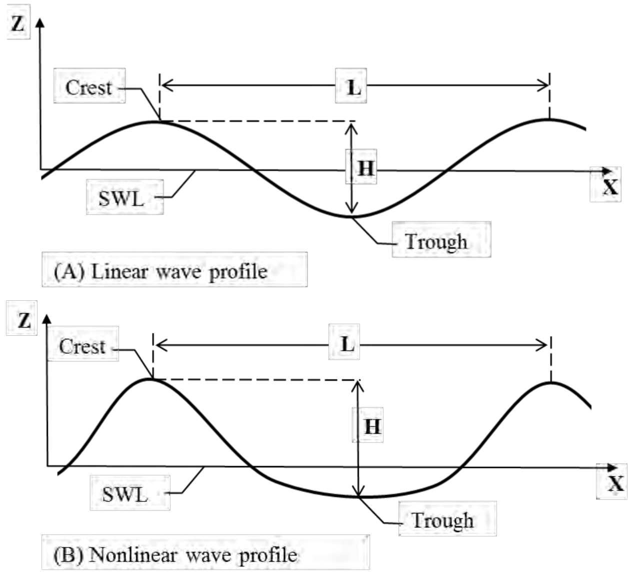

Figure 16. Linear (A) and nonlinear (B) wave profiles, where L is the wavelength and H is the wave height.

Therefore, to account for nonlinear wave characteristics in the force calculations, the maximum wave crest amplitude approximation used in this study was 0.70 of the maximum wave height based on recommendations from AASHTO (2008) and the Coastal Engineering Manual (2002).

7 Wave-induced Forces on Bridge Elements

The sensitivity of bridge decks to extreme events and climate change can be evaluated by estimating the effect of storm surge, wave heights, and sea level rise on the wave forces. Structural integrity of bridges exposed to wave-induced forces can be evaluated using available methods (e.g. HEC-25 Appendix E, A Method for Estimating Wave Forces on Bridge Decks or AASHTO 2008) and comparing such forces to existing structural bridge resistance (weight and connections). This section discusses the methods, environmental conditions, and wave force results for Mobile Bay Bridge Level 3 analysis.

7.1 Environmental Conditions

To investigate the vulnerability of the existing and reference bridges to potential effects of both sea level rise and storm surge, wave forces were calculated using the results from Section 6 for scenarios that combined water levels of different SLR conditions with surge and wave heights over a range of return periods. Nine environmental conditions were used to calculate wave forces, including super-structure (deck) and sub-structure (piles) forces, on the existing and the reference bridge (see Section 2.4):

- 0-yr SLR (2017) + 50-yr storm
- 0-yr SLR (2017) + 100-yr storm
- 0-yr SLR (2017) + 500-yr storm
- 50-yr SLR (2067) + 50-yr storm
- 50-yr SLR (2067) + 100-yr storm
- 50-yr SLR (2067) + 500-yr storm
- 100-yr SLR (2117) + 50-yr storm
- 100-yr SLR (2117) + 100-yr storm
- 100-yr SLR (2117) + 500-yr storm

The forces were computed following the results from the two Methods described in Section 6.2.1: (1) Extremal Water Surface Elevations and (2) Extremal Wave Heights. The deck and piles forces were calculated based on the largest wave height in the spectrum (H_{max}) that could impact the structure at each bent, which was evaluated by taking the minimum between the breaking wave and the maximum wave.

Based on AASHTO (2008), extreme analysis of the hindcast storms needs to be performed to obtain the desired design water levels and wave conditions. Knowing the design water levels, wave conditions, and structure parameters, wave forces can be computed on the bridge span. For a more detailed and accurate analysis, Mott MacDonald calculated wave forces using Methods 1 and 2 from Section 6.2.1. Once the piles and deck forces were calculated for Method 1 (WSE), and Method 2 (Hs), the maximum force between Methods 1 and 2 results was found to be the force at the given bent. The forces reported in this document correspond to the maximum force between the two methods.

7.2 Method of Force Calculations

7.2.1 Forces on Superstructure (deck)

The hydrostatic and hydrodynamic forces on the bridge elements due to storm surge and non-linear waves were calculated using the scenarios mentioned in Section 7.1 and the method described in the AASHTO guide specifications (AASHTO, 2008). The hydrostatic and hydrodynamic forces on the superstructure (bridge deck) were calculated for Design Case I and Design Case II as illustrated in Figure 17. While the AASHTO guide specifications (AASHTO, 2008) include Design Case III corresponding to overhang design forces, this Level 3 analysis only covers Design Case I and Design Case II.

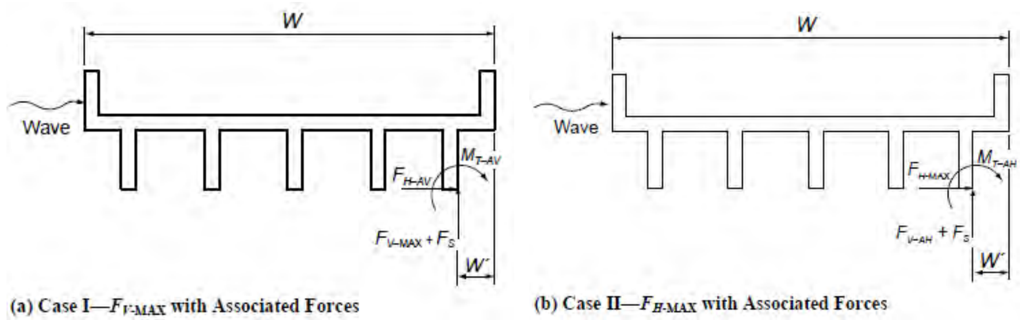

Figure 17. Location of forces and moments for each design case (AASHTO, 2008).

For each scenario, the Design Case I and Design Case II bridge forces were calculated using the environmental conditions listed on Section 7.1. For the Reference Bridge, all the elevations were provided at the trailing edge of the given bridge span because the trailing edge is the side of the bridge that is the most exposed to wave action.

Design Case I – Vertical Forces

The following forces are associated with Design Case I:

- Maximum Quasi-Static Vertical Force, $F_{V\text{-}MAX}$
- Associated Horizontal Quasi-Static Wave Force, $F_{H\text{-}AV}$
- Associated Moment about the Trailing Edge due to Quasi-Static and Slamming Forces, $M_{T\text{-}AV}$
- Associated Vertical Slamming Force, F_S

Design Case I is used to evaluate the vertical resistance to keep the superstructure (deck) from separating from the substructure (piles) (AASHTO, 2008). The vertical forces were then identified where the maximum of $F_{V\text{-}MAX} + F_S$ was found. Therefore, the Design Case I results presented in this report are the $F_{V\text{-}MAX}$, $F_{H\text{-}AV}$, $M_{T\text{-}AV}$, and F_S forces associated with the maximum $F_{V\text{-}MAX} + F_S$ is found as prescribed on Figure 12, at each bridge bent.

Design Case II – Horizontal Forces

The following forces are associated with Design Case II:

- Maximum Horizontal Wave Force, $F_{H\text{-}MAX}$
- Associated Quasi-Static Vertical Force, $F_{V\text{-}AH}$
- Associated Moment About the Trailing Edge, $M_{T\text{-}AH}$
- Associated Vertical Slamming Force, F_S

Design Case II is used to evaluate the horizontal resistance of piers and horizontal restraints (AASHTO, 2008).

7.2.2 Forces on Substructure (piles)

For the substructure (or piles), the Morison equation as defined in AASHTO guide specifications (AASHTO, 2008) was used to evaluate the hydrodynamic force, F_{Pile}, on the exposed piles and the moment, M_{Pile}, at the base of the pile. Similar to the superstructure forces, pile forces were calculated for each environmental condition listed on Section 7.1.

The Morison equation calls for a drag coefficient, Cd, and an inertia coefficient, Cm, which were determined to be Cd = 0.75 and Cm = 1.8 based on recommendations in the Coastal Engineering Manual (U.S. Army Corps of Engineers, 2002). Sample calculations for the pile forces are provided in Appendix E.3. It should be noted that wind forces are not included in AASHTO (2008) and hence; they have not been included in this report. When the water elevation is near or at the bridge deck, the wind speeds will be reduced due to sheltering of the bridge from the wind by the waves and the fact that the wind has a large boundary layer at the rough water surface which reduces the wind speeds. If horizontal wave forces are near the limit state, or when waves are below the girder elevations, a more detailed investigation of winds should be conducted and consideration should be given to including wind forces in structural design. This analysis is out of scope of this report.

7.2.3 Structure Geometry Assumptions

To calculate wave-induced forces in accordance to AASHTO (2008), several assumptions were made for the proposed bridge geometry. These assumptions are as follows:

- Certain girder types included in the design of the reference bridge are not listed in AASHTO (2008). Table 6.1.2.2.3-1, which contains the coefficients for the quasi-static horizonal force calculations based on girder type. Therefore, the dimensions of the proposed bridge girder types that are not listed in Table 6.1.2.2.3-1 were compared to those of the girders that are listed in the table. The proposed bridge girder types were assumed to be equivalent to the most geometrically similar girder type provided in Table 6.1.2.2.3-1. Sensitivity testing was performed to determine if a difference in assumed girder type resulted in a significant difference in wave forces; the difference was found to be negligible. Table 9 provides the full list of girder types in the proposed bridge, and the girder types listed in Table 6.1.2.2.3-1 which were assumed to be equivalent based on similar dimensions.

Table 9. List of the proposed bridge girder types and the AASHTO (2008) Table 6.1.2.2.3-1 girder types assumed as equivalent.

Proposed Bridge Girder Type	Girder Type in AASHTO (2008) Table 6.1.2.2.3-1 Assumed as Equivalent
BT-54	AASHTO Type IV
BT-63	AASHTO Type VI
BT-72	FL Bulb T72
FIB-78	FL Bulb T78
AASHTO Type III	AASHTO Type III

Source: (AASHTO, 2008)

- Because AASHTO (2008) only lists 21-in voided slabs as the available slab type, all slabs in the proposed bridge were assumed to be 21-in voided slabs.

- AASHTO (2008) does not account for sloped bents. In the case of a sloped bent, such as ramp, the slope of the bent was not considered, and the bent was assumed to be flat by using the elevation of the proceeding pile.
- The elevation at the top of the pedestal, where the girder is supported, was assumed to be the elevation of the bottom of the girder.
- The elevation at the top of the pedestal, where the girder is supported, was assumed to be the elevation top of the pile.
- No independent/separate wave-induced forces were calculated on the girder pedestals.
- All piles for existing and reference bridges were assumed to be 54-in cylindrical piles.

7.3 Force Results

Deck and pile forces were calculated on the existing bridge and reference bridge, including 2 main spans and 14 ramps listed on Section 2.4.2, at 0 year (2017), 50 year (2067), and 100 year SLR, and for the 50-, 100-, and 500-yr return periods. This section focusses on the main span and ramp that are the most exposed to wave action, which are the refence East Bound bridge, and the Midbay B ramp, respectively. All other results are shown on Appendix D.

7.3.1 Forces on Main Span

The design condition for the East Bound were set as 100-yr SLR and 100-yr return period event. The surge and wave crest elevations shown on Figure 18 indicate the Reference East Bound deck is not affected by wave action since the highest crest elevation does not impact the bottom of the deck. The smallest freeboard between the top of the crest and the bottom of the deck was found to be 3.5 ft at PGL station 68+088. Thus, the Reference East Bound bridge could be design at a lower elevation. Wave crest of zero elevation are observed around station 95+000 (Spanish Fort) since the bridge is at higher elevation and it is not affected by surge or waves.

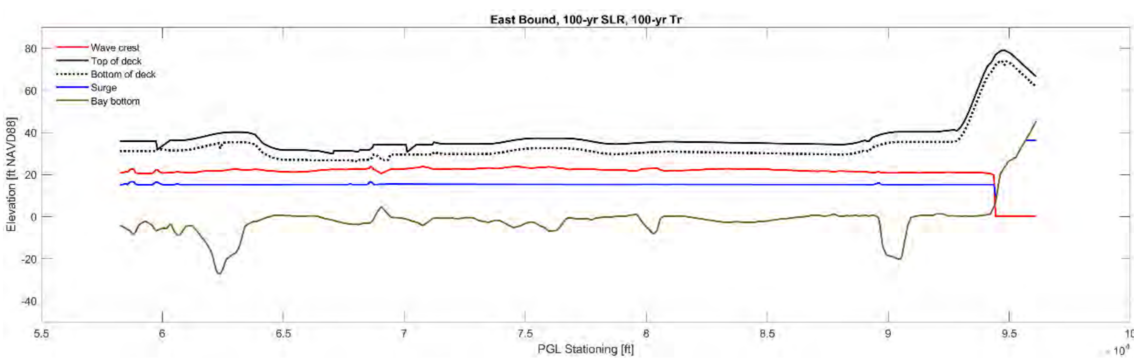

Figure 18. Elevations of the Reference East Bound Bridge top and bottom of deck, bay bottom, 100-yr surge level, and 100-yr wave crest elevation

Because the Reference East Bound deck is not affected by wave action under the design condition, the vertical and horizontal deck forces throughout the span equaled zero. Because the piles are exposed to wave action at all times as long as they are in the water, the piles will always experience wave-induced forces. The design case results are shown on Figure 19.

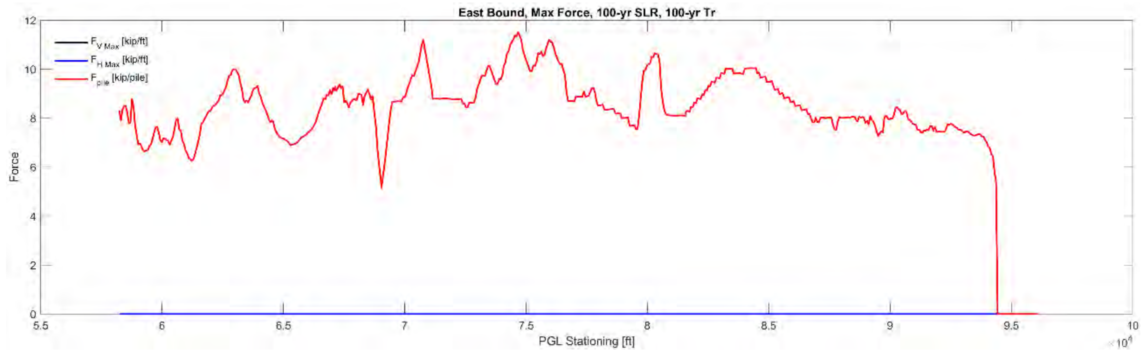

Figure 19. Maximum forces for the Reference East Bound Bridge for 100-yr SLR and 100-yr return period

For comparison purposes, the 100-yr SLR and 500-yr return period surge and wave crest elevation, which is the worst-case scenario evaluated in this Level 3 study, are shown on Figure 20. Under the 100-yr SLR and 500-yr event, some stations of the Refence East Bound deck are impacted by the wave crest, particularly between stations 650+00 and 700+00, which is a marsh area. Between stations 700+00 and 890+00 approximately, the bottom of the deck is barely impacted by the wave crest; meanwhile, at the beginning and end of the Reference East Bound, the bridge is not impacted.

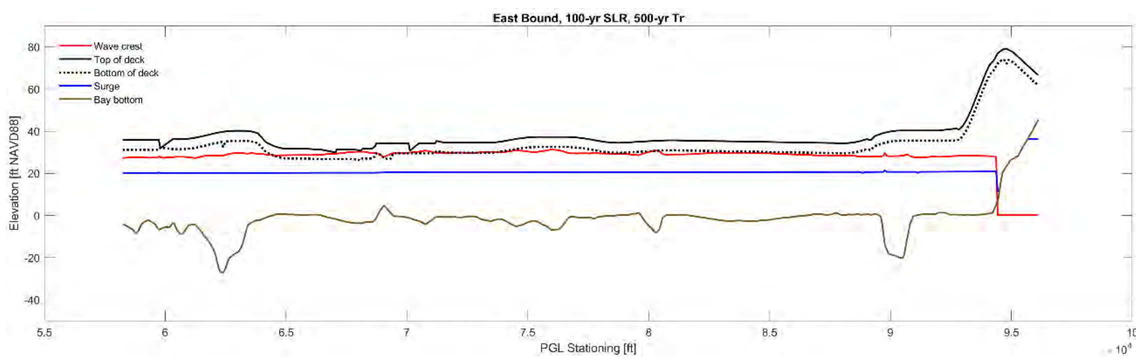

Figure 20. Elevations of the Reference East Bound Bridge top and bottom of deck, bay bottom, 500-yr surge level, and 500-yr wave crest elevation

Figure 21, Figure 22, and Figure 23 show the maximum vertical, horizontal and pile forces for the 100-yr SLR for all return periods (notice different scales on the forces axes). The figures incidate no wave-induced forces on the deck at any bent along the bridge for 50- and 100-yr return periods; as expected since the wave crest does impact the bridge under the 500-yr event, vertical and horizontal forces (of low magnitud compare to the pile forces) are observed between stations 650+00 and 700+00. The pile forces increase as the return period increases.

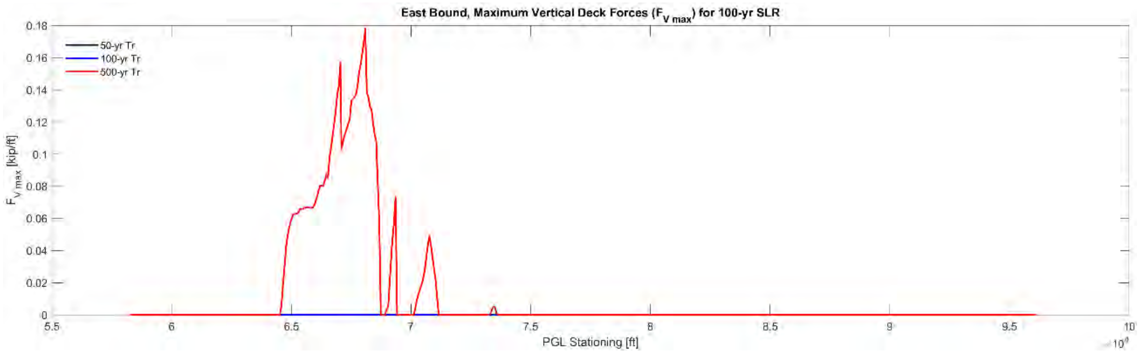

Figure 21. Maximum vertical deck forces $F_{V\text{-}Max}$ for Reference East Bound for 100-SLR for 50-, 100-, and 500-yr return period events

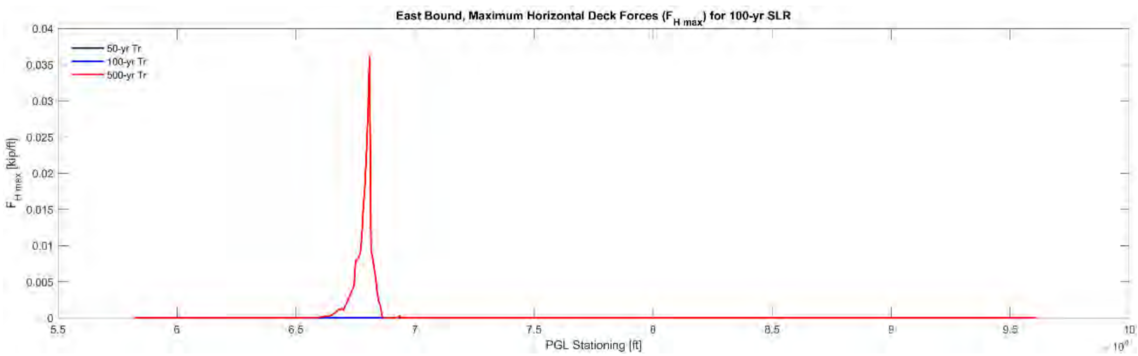

Figure 22. Maximum vertical deck forces $F_{H\text{-}Max}$ for Reference East Bound for 100-SLR for 50-, 100-, and 500-yr return period events

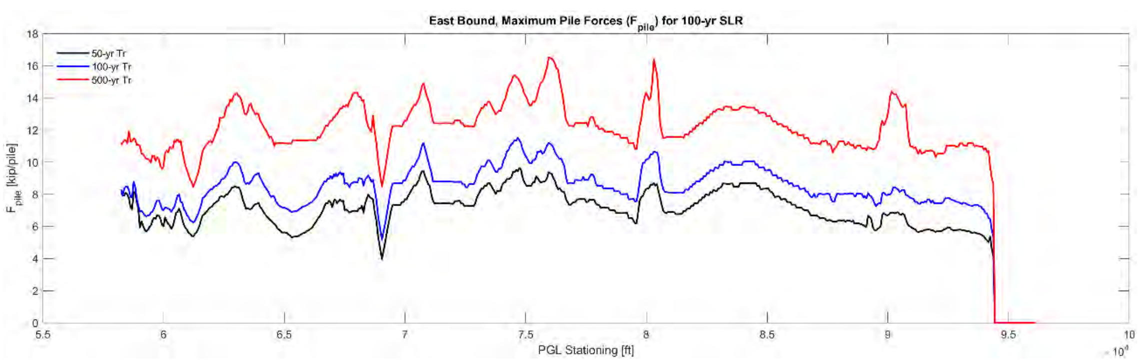

Figure 23. Maximum vertical deck forces F_{Pile} for Reference East Bound for 100-SLR for 50-, 100-, and 500-yr return period events

7.3.2 Forces on Ramps

The design condition for the Reference Midbay Ramp B were set as 100-yr SLR and 50-yr return period event. The 100-yr SLR and 50-yr event surge and wave crest elevation shown on Figure 24 indicate the ramp is partially submerged up to approximately station 691+00. The wave crest is impacting the deck up to approximately station 694+00. From station 694+00 the ramp is not affected by wave-induced forces since the wave crest does not impact the bottom of the deck under this design condition.

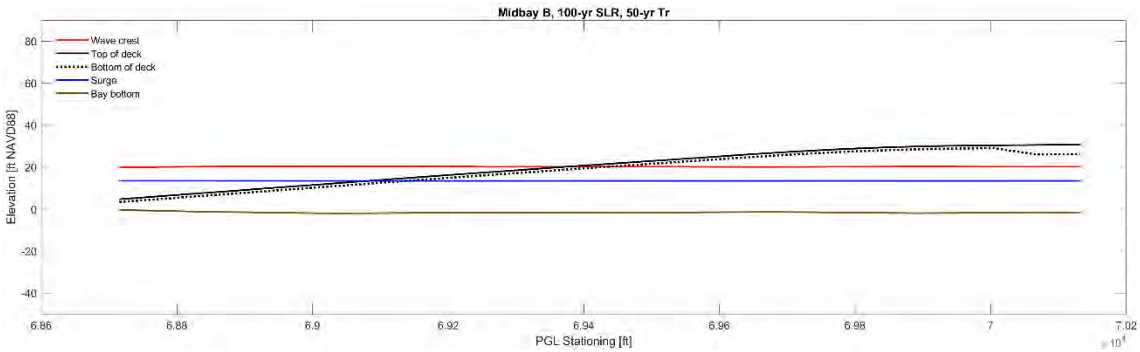

Figure 24. Elevations of the Reference Midbay Ramp B top and bottom of deck, bay bottom, 100-yr surge level, and 50-yr wave crest elevation

The wave force for Reference Midbay Ramp B for 100-yr SLR and 50-yr return period event are shown on Figure 25. While completing the analysis, two caviats were found in the ASSHTO (2008) method for calcuating forces on ramps:

1. AASHTO (2008) indicates using extreme surge level and wave heights as input to compute wave forces. However in the case of ramps, the maximum force may not occur at the time of maximum surge level and/or at the time of maximum wave height. As the storm approaches the project area, the surge increases, the ramps become submerge, and the wave forces on the ramp vary as the surge and wave height rise. Therefore, Mott MacDonald recommends a time series analysis of wave forces on the ramps to accurately calculate the wave foreces at each bent.
2. Actual wave forces will tend to be near maximum withn the still water level is at the level of the deck, and reduce as the structure is submerged. However, the vertical force equation presented in AASHTO (2008) “does not result in a reduction of force when the bridge becomes submerged.” The experimental studies did show some decrease in force with submergence but the reduction was small and it was decided to ignore this reduction. Loads computed in this work follow the AASHTO methodolgy and therefore provide conservative results for loads on the ramps. It may be possible to compute more realistic loads on submerged sections through a time series analysis of wave forces on the ramps using a 3D computational tool to accurately calculate the representative wave foreces.

Given the two caviats described above, the wave-induced deck forces on the ramps where the crest affects the deck should be taken as the maximum force found any where on the ramp.

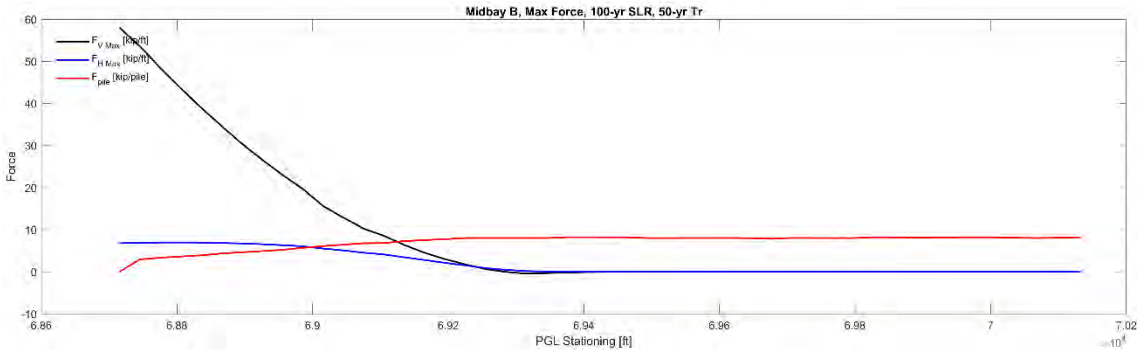

Figure 25. Maximum forces for the Reference East Bound Bridge for 100-yr SLR and 50-yr return period

8 Level 1 and Level 3 Analyses Comparison

In the Level 1 analysis, the environmental conditions, primarily wind and storm surge elevation, were based on existing data. Wave heights were computed by modeling a single, simple hurricane wind field across Mobile Bay that is elevated to a static surge elevation throughout the entire Mobile Bay and Gulf. The surge level was developed based on historical high-water marks fit to an extreme value distribution. Level 1 results are considered an initial estimate and a conservative scenario where only one storm was examined, and the interaction of waves and the dynamic surge associated with hurricanes was not evaluated. The surge elevation was based on a limited historical record not dynamically linked with the waves. In Level 1 the surge was static at a constant, high elevation across the bay and the waves are propagated to the site on that elevated water level for a single storm. The Level 1 method removes the dynamic coupling of wind, surge, and waves as well as ignores the possible variations in storms.

Wave response to hurricanes is a complex process that is affected by the dynamics of the storm including surge, storm track, circulation currents, and wave generation and transformation processes on that dynamic field. The Level 3 assessment included such processes by modeling the coupled wind-surge-wave processes to produce the best-possible prediction of surge and waves at the site. Level 3 analysis involved the modeling of a set of 80 storms using the dynamically coupled wind-surge-wave model. At every bridge bent, the surge and wave height results from each storm are fit to a probability distribution that to develop the surge and wave height as a function of return period.

Overall, Level 3 assessment used the best methods to simulate the physics accurately in a probabilistic framework; whereas, Level 1 used simplifying assumptions leading to a conservative result. With the surge and wave height results from Level 3 analysis, the height of the Reference bridge can and should be optimized. For the bridge main span, the project design was set as the 100-yr SLR and the 100-yr return period event (see Section 1.4); the results comparing the Level 1 and Level 3 results on the Reference East Bound bridge are shown on Figure 26.

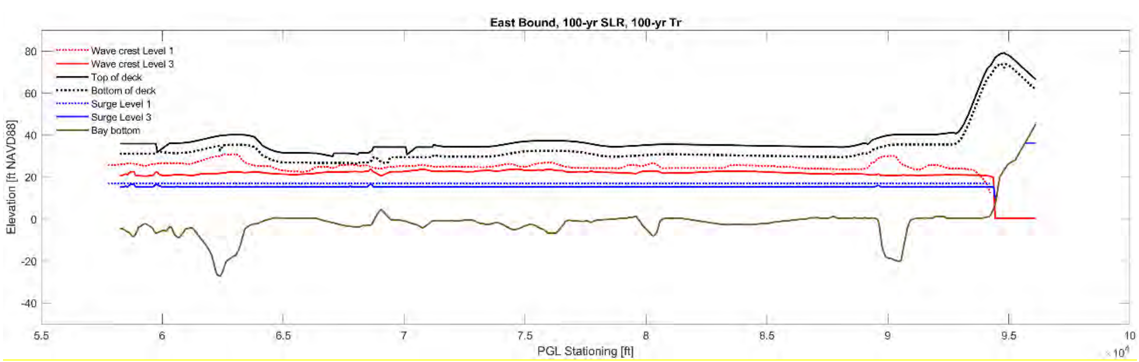

Figure 26. Level 1 versus Level 3 surge and wave crests elevation comparison for Reference East Bound Bridge

In general, for the project design criteria, Level 3 analysis results show lower water surface and wave crest elevations when compared to the Level 1 analysis results. In some areas the different between Level 1 and Level 3 crest elevation is as high as 9 ft and 8 ft such as, around station 900+00 and 630+00, respectively. Such areas correspond to the highest wave heights observed at the deeper channels. Level 3 surge elevations also showed lower values when compared to the Level 1 results, with Level 3 being 1.25 ft lower than Level 1 fairly uniformly along the bridge span.

Overall, Level 3 analysis wave crest and water surface elevations were lower than Level 1 results. In addition, Level 3 analysis results are considered more accurate and more robust. Hence, it is recommended to consider Level 3 results on the design of the I-10 Mobile River Bridge and Bayway Project.

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APPENDIX H

Bridge Stormwater
Technical Memorandum

Bridge Stormwater Runoff Treatment

Technical Memorandum

I-10 Mobile River Bridge and Bayway

Mobile and Baldwin Counties, Alabama

Federal-Aid Project DPI-0030(005)

MAY 2017

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Alabama Department of Transportation (ALDOT) Environmental Stewardship Commitments

ALDOT has taken a proactive approach to managing stormwater runoff and pollution over recent years with the implementation of several of the approaches mentioned in the subsequent sections of this document. After reviewing the results of the NCHRP Report 778 summarized in this report and evaluating past practices that have been successful on ALDOT projects in Mobile and Baldwin Counties, ALDOT has selected the following Environmental Stewardship Commitments and mitigation measures for stormwater impacts for this project:

<u>Sweeping on Bayway Bridges</u>
The practice of vacuum sweeping the Bayway bridges to remove particulates that have accumulated on the shoulders of the bridges is a Best Management Practice (BMP) that ALDOT has implemented. This is currently being performed on a monthly basis as part of a regularly scheduled maintenance activity and will continue to be performed on a monthly basis.

<u>Utilizing OGFC pavements</u>
Another BMP that ALDOT has incorporated into portions of the roadway network is the use of open grade friction course (OGFC) pavements on approximately 156 roadway miles within the Southwest Region. ALDOT will utilize OGFC pavements on the I-10 roadway segments on the proposed project, excluding bridges and tunnels.

<u>Vegetated Filter Strips</u>
Vegetated filter strips have been researched for their effectiveness on removing pollutants from stormwater runoff. For the proposed project, the use of vegetated filter strips on the shoulders and slopes will be evaluated and utilized where practicable. Additionally, ALDOT will evaluate future projects in the Southwest Region for the use of vegetated filter strips and incorporate them where practicable as an offsite mitigation measure.

<u>Environmental Stewardship Projects</u>
ALDOT participated in the Joe’s Branch stream restoration project in the vicinity of the western terminus of this project. Joe’s Branch is a 303(d) listed stream that is crossed by this project. ALDOT was a participant in this first-of-its-kind project in Alabama to remediate the effects of erosion and sedimentation and to improve water quality in Joe’s Branch and D’Olive Bay. ALDOT’s participation included providing technical assistance in developing and selecting a progressive solution, partnering with local and state organizations to secure a grant to fund the project, and matching grant funding to implement the restoration project. The Joe’s Branch Step Pool Storm Conveyance system won an International Green Apple Award for Environmental Best Practice in 2012. ALDOT will continue to partner with local organizations on environmental stewardship projects in a similar manner to help improve water quality in ALDOT’s Southwest Region.

<u>Spill Containment</u>
The Contractor will be required to prepare a Spill Response Plan that identifies specific measures for mobilizing resources to contain spills that could occur on the main span of the Mobile River Bridge, Bayway bridges, and other portions of the project. The plan will be reviewed and updated by the Contractor at least annually to incorporate advances in technological developments related to spill containment measures, as appropriate.

1.0 Introduction

The Draft Environmental Impact Statement (DEIS) for the I-10 Mobile River Bridge and Bayway Widening project was signed by the Federal Highway Administration (FHWA) on July 22, 2014. It was presented to the public and was circulated to State and Federal resource agencies and others. Comments on the DEIS were requested and many of the recipients provided comments.

Part of the process of advancing the DEIS to a Final Environmental Impact Statement (FEIS) includes responding to substantive comments on the DEIS. Both the U.S. Environmental Protection Agency (EPA) and Mobile Baykeeper provided comments regarding bridge stormwater runoff and treatment for the project that require a response. These responses will be provided in a Supplemental Draft Environmental Impact Statement (SDEIS).

The intents of this memorandum are to present ALDOT decision-makers with information based on published, peer-reviewed scientific research regarding bridge stormwater runoff and treatment, to present a range of treatment and BMPs for ALDOT's consideration, and to obtain feedback from ALDOT on the BMPs they will commit to implementing to address the concerns regarding environmental impairment associated with bridge runoff for the Mobile River Bridge and I-10 Bayway across Mobile Bay.

2.0 Background

As mentioned in the previous section, comments were received from the Mobile Baykeeper and the EPA that will be addressed in the SDEIS. These comments include:

> *We recommend in depth study of potential stormwater and spill runoff impacts from the Bridge and Bayway to Mobile Bay and Mobile River to be included in project development as well as in the Final Environmental Impact Statement. Management of stormwater runoff on roadways and bridges is of great importance to Mobile Baykeeper. – Mobile Baykeeper*

> *The proposed project will create 105 acres of impervious surfaces, with 95% of the constructed area over water and wetlands. We categorically disagree with the statement, on page 99 of the DEIS, that this constructed impervious surface will not create additional runoff. Additionally, the statements on page 99 of the DEIS, that "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" are overly optimistic, at the very least. Though the bridge and Bayway widening as proposed is intended to cause an end to traffic delays on I-10, the fact remains that contaminants, such as dirt, dust, rubber, antifreeze, engine oil, and litter, from vehicles and roadway construction are generated and washed from all roadways. Additionally, there is the matter of projected increased numbers of vehicles on the roadway which will mean a greater number of potential sources of pollution crossing Mobile River and Mobile Bay. – Mobile Baykeeper*

> *Pollution prevention structures as well as pollution collection and management systems should be evaluated as integral parts of the development of this project. – Mobile Baykeeper*

> *We recommend incorporation of stormwater runoff capture and containment methods into Bridge design, construction, and operation to reduce runoff pollution to Mobile River and Mobile Bay. We support significant study and implementation of stormwater capture and runoff*

containment methods in transportation project design, construction practices, and the final build. – Mobile Baykeeper

As noted on page 98 of the DEIS, the project area contains three water bodies, Mobile River, Joes Branch and D'Olive Creek, that are listed as impaired on the Alabama Department of Environmental Management's 2012 303(d) list. The updated ADEM 2014 303(d) list still contains these waterways. Mobile River has been found to be polluted with metals (specifically mercury from atmospheric deposition), and a pollutant limit (TMDL) determination is due to be completed in 2020. Joes Branch has pollution impacts from siltation due to land development and is scheduled to have a TMDL established in 2018. D'Olive Creek is significantly impacted from siltation from development with a TMDL date of 2018. Two of the three of these waterways' impairments are due to runoff and stormwater pollution. In order to not exacerbate the pollution issues in these waterways, runoff capture and containment from the Mobile River Bridge and Bayway should be an integral part of project evaluation and final construction. – Mobile Baykeeper

Runoff containment infrastructure could also aid in management of major spills from entering the Mobile River and Mobile Bay. – Mobile Baykeeper

Based on a review of the project impacts, EPA provided detailed comments regarding air quality, cultural resource, water resources, noise and community impacts. The selection of B' relative to the other proposed build alternatives assessed in the DEIS minimizes impacts to communities, cultural resources and the environment. Nevertheless, we recommend that the FEIS describe efforts to further avoid, minimize, mitigate and/or clarify noise, water resource, and cultural resources impacts described in the detailed comments. EPA rates this DEIS as EC-2 i.e., EPA has "Environmental Concerns" and "Additional Information" is requested. EPA's rating system can be found online at: http://www.epa.gov/oecaerth/nepa/comments/ratings.html . – EPA

Appropriate best management practices should be implemented and described in the FEIS to ensure that impacts to sensitive aquatic resources or species are minimized and/or appropriately mitigated. EPA should be consulted, when appropriate. – EPA

In section 4.12, Water Quality and Biological Resources, the DEIS indicates that lower congestion rates and reduced low-speed and idled traffic are likely to result in decreased leaks of oil and combustion-related pollutants because inefficient combustion at low speeds would be reduced. However, the DEIS should also consider that a widened Bayway is also likely to result in an increased volume of traffic, increasing the number of emission sources contributing to emission-related products in runoff to Mobile Bay and River. – EPA

The DEIS indicates that construction would occur across impaired waterbodies, the Mobile River, Mobile to Spanish River, Joe's Branch from it[s] source to D' Olive Creek, and D'Olive Creek from its source to D'Olive Bay. Joe's Branch and D'Olive Creek are both listed for siltation. Section 4.17, Construction Impacts, states that, "Best Management Practices will be utilized to control sedimentation and stormwater runoff during construction." EPA requests that additional information be provided for review in the Final EIS. – EPA

Responses to these comments are included in Appendix P of the Supplemental DEIS.

3.0 Water Quality Setting and Section 303(d) Status

Portions of the following water bodies are located in the study area: Mobile River, Mobile Bay, Pinto Pass, Polecat Bay, Chacaloochee Bay and the Tensaw, Apalachee, and Blakeley Rivers. The Wallace Tunnels and the Bayway currently cross all of the aforementioned water bodies, except Pinto Pass. The new crossing of the Mobile River with the Alternative B' alignment will be accomplished by spanning the river with a high level bridge that will tie down to the Bayway east of the river. The Bayway will be replaced with new bridges above the 100-year flood elevation. The existing I-10 Bayway Bridge is approximately 7.5 miles long with twin structures (564 spans on the eastbound structure and 563 spans on the westbound structure). Both bridges vary in width at ramp locations; however, the typical deck width is 42'. The height of the top of deck above mean sea level (MSL) is a maximum of 32' for those spans over the Tensaw River, with the vast majority of the spans at a constant 21' above MSL. Typical spans are 65' long simple-span prestressed AASHTO girders, supported on bent caps with two or three precast concrete cylinder piles. Longer spans (continuous steel plate girders) exist at the Mid-Bay interchange.

Section 303(d) of the Clean Water Act 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 303(d) list, the state is required to establish a total maximum daily load (TMDL) for the pollutant or pollutants of concern at a level necessary to implement the applicable water quality standards. The Mobile River Bridge project crosses one water body (Joe's Branch) and is near another (D'Olive Creek) that is listed on the Final 2016 Alabama 303(d) list of impaired water bodies. The impaired portions of these water bodies are Joe's Branch from its source to D'Olive Creek; and D'Olive Creek from its source to D'Olive Bay. Joe's Branch and D'Olive Creek, located in Baldwin County, are both listed for siltation (habitat alteration) due to land development. Both of these streams are classified for fish and wildlife utilization. The TMDLs for these water bodies have not yet been developed.

The DEIS lists the Mobile River as an impaired water body due to mercury from atmospheric deposition, but the Final 2016 Alabama 303(d) list does not include the stretch of the Mobile River that will be crossed by this project. This information will be updated in the SDEIS.

4.0 NCHRP Stormwater Research

NCHRP Report 778 – Bridge Stormwater Runoff Analysis and Treatment Options (NCHRP 778) is heavily cited and referenced in this report. The following sections provide the information establishing the independence of the researchers and offers information about why the research was undertaken.

a. **National Cooperative Highway Research Program (NCHRP) Background**
   The NCHRP was established in 1962 to promote research on serious problems related to highways as a result of the accelerating growth of the highway transportation system. The highway administrators of the American Association of State Highway and Transportation Officials (AASHTO) recognized the need to study common problems through a coordinated program of cooperative research employing modern scientific techniques. The NCHRP receives the full support and cooperation of the FHWA. It is also supported on a continuing basis by funds from participating member states of the Association.

   The NCHRP research program is administered through the Transportation Research Board (TRB), a division of the National Research Council (NRC). The TRB is jointly administered by the National Academy of Sciences, the National Academy of Engineering, and the National Academy of Medicine. The NRC administration of the NCHRP is an insurance of objectivity. The NRC maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

b. NCHRP Report 778 – Bridge Stormwater Runoff Analysis and Treatment Options

NCHRP 778 of NCHRP Project 25-42 has been reviewed and is incorporated by reference to this report. It is a comprehensive report and guide that results from NCHRP Project 25-42 for managing bridge runoff to protect environmental quality and meet regulatory requirements. NCHRP 778 addresses "such critical issues as characterization of bridge runoff and its effects on quality of receiving waters; current and emerging runoff management strategies that may be beneficial and cost-effective for application to bridges; criteria for identifying appropriate runoff management strategies for particular bridges; how bridge owners may establish appropriate levels of effort to address bridge runoff issues at a particular location; and how bridge owners may identify BMPs for bridge runoff and select or develop BMPs for a particular location."

Studies have been conducted regarding the design, operation, construction and effectiveness of best management practices (BMPs) for the control of highway runoff water quality, but few have investigated BMPs specifically for bridge deck runoff. While pollutant loads from highways are similar to those from bridge decks, highway pollutant loads can be more easily treated or sequestered, whereas loads from bridge decks are transported directly to receiving waters via dry deposition or stormwater runoff. Studies reviewed on the impact of bridge deck runoff on receiving waters found little evidence of either water quality or ecosystem degradation, leaving open the question of what stormwater controls, if any, are appropriate for the practitioner to apply for new and reconstruction bridge projects in the event that stormwater mitigation must be included.

NCHRP 778 was developed to provide the practitioner with a stepwise approach to select the best combination of source control and operational and treatment control BMPs for a bridge crossing a perennial, intermittent or ephemeral stream, river, lake or estuary, for virtually any span length. Runoff from a bridge deck may contribute to receiving water quality impairment in areas where the pollutants in the receiving water are elevated due to urbanization or a non-point source. Solutions to managing this contribution to pollution have a range of costs. The practitioner must be the steward of public funding and the environment, balancing the objectives of each to ensure sustainability.

5.0 Maximum Extent Practicable (MEP)

The term Maximum Extent Practicable (MEP) is necessary to understand. The definition of MEP is embodied as the basic performance standard in state and federal regulations, including the Federal Endangered Species Act and Sections 402 and 404 of the Federal Clean Water Act. The MEP standard does not necessarily involve the same criteria in each application, and it is intended to address projects or actions on an individual basis considering each of their specific circumstances and purpose. The MEP standard for treatment of runoff from bridge decks is necessarily different from treating a standard highway section on land. This is because the cost of conveying bridge deck runoff to be treated at the abutment area is relatively high when compared to a standard non-bridged highway section at-grade; right-of-way at the abutment may be limited, and the benefit of the BMP may be substantially less.

The MEP standard must be considered when weighing the costs of treating bridge deck runoff and its effectiveness compared to providing more beneficial treatments elsewhere in the drainage basin for much less cost and potentially providing more safety to the road user.

6.0 Evaluation of Receiving Waters Impacts

Section 2.3 of NCHRP 778 summarizes the published information on bridge runoff quality and its impacts on receiving waters. This is important for DOTs to discern whether contamination of water bodies from roads and bridges is significant, and if so, what mitigation is appropriate. The following paragraphs provide excerpts and information from Section 2.3 of NCHRP 778 about some of the published studies on bridge runoff and its effects on the environment.

Several studies have been conducted to evaluate whether bridge deck and roadway runoff quality were significantly different. The most comprehensive study to date was conducted by URS Corp. for the North Carolina Department of Transportation (NCDOT). The URS study (2010) found “no compelling evidence that bridge deck runoff in North Carolina is higher in pollutants typically associated with stormwater runoff as compared to runoff from other roadways.”

A study funded by the Texas Department of Transportation (TxDOT), Malina, et al. (2005) also showed bridge deck runoff is not statistically different from highway runoff. Malina, et al. concluded highway runoff data could be used as a conservative approximation of bridge deck runoff quality. Malina, et al. also found that loading of all measured water quality constituents was minimal, with “no substantial adverse impact to the receiving streams . . . observed or indicated by bridge deck runoff from the three monitored sites.” Loadings from upstream sources were several orders of magnitude greater compared to the loading from the bridge deck.

As Nwaneshiudu (2004) and others have pointed out, “Most of the pollution found in highway runoff is both directly and indirectly contributed by vehicles. The constituents that contribute the majority of the pollution, such as metals, chemical oxygen demand, oil and grease, are generally deposited on the highways.” Consequently, roadway runoff water quality data should be used as an approximation for the pollutant profile of bridge deck runoff (Dupuis et al., 2002).

As part of the NCHRP project, the National Stormwater Quality Database (NSQD, version 1.1) and the FHWA database were analyzed to determine typical constituent concentrations in highway runoff. The results of this analysis are presented in Table 2-1 with the column titled “All Data” showing the median for all available data regardless of traffic volume. It is clear from looking at the data that the concentrations of pollutants

Table 2-1. Median concentrations of typical highway runoff constituents.

Constituent	Annual Average Daily Traffic				
	0 – 25K	25K – 50K	50K – 100K	100K +	All Data
TSS (mg/L)	43	56	94	108	79
NO_2+NO_3 (mg/L)	0.385	0.61	0.62	0.805	0.64
NO_3 (mg/L)	0.2	0.83	0.6	1.1	0.6
TN (mg/L)	1.44	4.69	2.57	2.725	2.64
TKN (mg/L)	0.84	1.794	1.7	2.1	1.6
DP (mg/L)	0.072	0.105	0.0745	0.17	0.09
TP (mg/L)	0.12	0.16	0.2	0.237	0.2
T Cu (µg/L)	9.3	20	32	50	24
T Pb (µg/L)	6.6	12.7	74	46	32
T Zn (µg/L)	60	93	180	270	130
Fecal Coliform (#/100 ml)	5000	NA	4150	1700	50
E. Coli (#/100 ml)	NA	NA	NA	NA	1900

associated with vehicles, such as TSS, total copper, and total zinc, are correlated with Annual Average Daily Traffic (AADT).

NCHRP Report 474 reviewed scientific and technical literature addressing bridge deck runoff and highway runoff performed by FHWA, USGS, state DOTs, and universities, focusing on the identification and quantification of pollutants in bridge deck runoff and how to identify the impacts of bridge deck runoff pollutants to receiving waters using a weight-of-evidence approach. Although undiluted highway runoff can exceed federal and state ambient water quality criteria, this alone does not automatically result in negative effects to receiving waters. Dupuis, et al. found no clear link between bridge deck runoff and biological impairment in the receiving water, but noted that salt from deicing could be a concern.

Bartelt-Hunt, et al. (2012) investigated the impacts of bridge runoff and receiving water quality at four bridges in Nebraska for Nebraska Department of Roads (NDOR). The objectives of this research were to evaluate the quality of bridge deck runoff; to determine the effects of bridge deck runoff on surface water bodies in Nebraska by evaluating water and sediment chemistry; and to evaluate the effects of bridge deck runoff on aquatic life. Statistical analysis of in-stream samples upstream and downstream of bridges showed that bridges did not impact the quality of the receiving water body. Sediment sampling did not show an increase in streambed sediment concentrations from downstream to upstream. Two runoff events were also used in a 48-hour 5 dilution series toxicity test with fathead minnows, and no negative effects were found. These results show that there were no observable effects of bridges on water quality and aquatic life.

7.0 Receiving Water Studies

In the meta-analysis of existing studies, Dupuis et al. showed that while several studies had shown direct drainage to some types of receiving waters (e.g., small lakes) could cause localized increases in certain pollutant concentrations, most studies did not consider whether such increases adversely affected the biota or other receiving water uses. The only comprehensive study of bridge runoff at that time, FHWA's I-94/Lower Nemahbin Lake site, found that although direct scupper drainage increased metals concentrations in near scupper surficial sediments, biosurveys and in situ bioassays found no significant adverse effects on aquatic biota near the scuppers. FHWA concluded that for lower traffic volume bridges at least, runoff had a negligible impact on receiving waters (Dupuis, et al. 1985a).

In the study for NCDOT, URS Corp. (2010) found no statistically significant differences in sediment pollutant concentrations upstream and downstream of the bridge, for either bridges that do not directly discharge to receiving water or direct discharge bridges. Overall, the URS analysis of streambed sediment did not indicate any impacts of bridge deck runoff on sediment quality. Ecoregional differences were observed for some analytes, but these differences appeared to be associated with naturally occurring conditions or upstream anthropogenic influences. Furthermore, where sediment quality benchmarks were exceeded, except for lead and mercury, the exceedances were found to be independent of the discharge drainage design from the bridge (i.e., direct versus indirect) and also were found to occur either upstream of the bridge deck, or at similar levels upstream and downstream, indicating sources other than bridge deck runoff.

8.0 State of the Practice for Bridge Stormwater Management

It is helpful to review the current practices utilized by DOTs to establish what is considered the current standard of care and to also determine what is considered practicable by other DOTs.

Standard practices utilized to convey bridge deck runoff into receiving waters include:

- Discharging runoff through multiple open scuppers directly into the receiving water.
- Discharging runoff through piping down from the bridge deck along or through the columns or piers directly into the receiving water without treatment.
- Conveying the stormwater runoff over the surface of the bridge to one or both abutments for discharge or treatment by a BMP.
- Detaining and treating the stormwater under the bridge deck where overbank areas are available.
- Conveying the stormwater runoff via piping or open gutters to one or both abutments for BMP treatment or discharge.

Conveying bridge deck runoff on long bridges (over 400') is not usually considered practicable. Bridge deck conveyance systems, when utilized, are generally an expensive practice. There are also technical design issues that increase design, construction and O&M costs for the bridge (several of which would pertain to the Mobile River Bridge main span and Bayway bridges). These include:

- Longitudinal slope on bridges can be very low, requiring increased pipe size or increased deck area in the shoulder to convey runoff;
- Deck drain and pipe systems are prone to clogging and/or freezing due to relatively small conveyance areas;
- Pipe joints must have sufficient flexibility to move consistently with the allowable expansion of the bridge joint;
- Pipe systems may not be compatible with the aesthetics of the bridge;
- The additional weight of the pipe system may require a larger bridge cross section;
- Deck drain or scupper maintenance is hazardous and may interrupt traffic flow due to limited shoulder area to work; and
- Pipe materials can corrode and leak.

In a follow up survey of 9 DOTs to *NCHRP Report 474, Volume 2*, the general preference by DOTs is not to install bridge deck treatment and conveyance systems due to their high capital and operation and maintenance cost compared to the apparent limited benefit.

Most DOTs surveyed discharge deck runoff through scuppers (horizontal openings in the railing wall) to the receiving waters. Alternatives are used to the approach when the bridge crosses sensitive receiving waters, and the environmental document or resource agency permit requires some form of deck runoff treatment.

FDOT uses a simple four-step progressive process for evaluation of options:

- Drain on the deck shoulder to a storm drain system at the abutment.
- Direct discharge to receiving water.
- Compensatory treatment at an offsite location.
- Closed conduit collection system.

States emphasized that design approaches were developed on a site-by-site basis because of requirements in the environmental documentation process, and what was considered MEP treatment for the site. In one case, the Maryland State Highway Administration (MDSHA) raised the lip height of scuppers to avoid direct discharge of the first flush. MDSHA also generally treats an equal amount of impervious highway surface at an offsite location in lieu of treating deck runoff if a bridge crosses environmentally sensitive waters.

Getting deck runoff to a treatment site can be a significant technical problem. Force mains or pumping off of bridges was not considered MEP or sustainable solutions.

9.0 Source Control Practices (BMPs) to Consider for All Bridges

Source control approaches were all cited by DOTs as options to improve deck runoff water quality. These practices include: street sweeping, catch basin and scupper cleaning, deck drain cleaning, de-icing controls or changes to de-icing methods, snow management, traffic management, and management of maintenance activities.

Street sweeping is one of the most common source control approaches in MS4s, and some states are considering applying this measure to bridges. The benefits are difficult to discern in outfall water quality. The direct benefit to stormwater quality or effect on receiving waters of this sediment removal has not been conclusively defined. NCDOT (2010) states,

> *Additional investigation is needed to establish the effectiveness of bridge sweeping as a BMP (BMP for stormwater) and to provide potential improvements to existing sweeping practices to benefit stormwater quality…*
>
> *. . . (however), because of the potential to remove sediment, bridge sweeping should continue to be considered as a potential water quality treatment BMP for bridge decks. Other DOTs are reviewing bridge sweeping as a viable alternative for stormwater treatment of deck runoff, particularly when other methods of treatment are not feasible or are cost-prohibitive. In addition, potential improvements to existing sweeping practices should be considered, including equipment upgrades and training for sweeper speed and maintenance. Additional study is recommended to further evaluate sweeping as a BMP and to shape sweeping practices (including frequency, type of equipment, and disposal practices) to maximize the benefit for stormwater quality (NCDOT and URS 2010).*

High efficiency catch basin cleaning is being considered along with high efficiency sweeping in some states.

Porous Friction Course (PFC) and/or open graded friction course (OGFC) pavement has been identified as a BMP. TxDOT and NCDOT have invested in research on the water quality benefits of PFC and/or OGFC pavement. Data from North Carolina indicated that the water quality benefits last as long as the structural life of the pavement, even though no maintenance was performed. NCDOT confirmed that as long as the road has speeds over 45 mph, pavement maintenance for PFC could be avoided without a loss of permeability in the overlay. NCDOT has a current PFC research project underway. Washington State Department of Transportation (WSDOT) indicated they would consider OGFC as a wearing course, but OGFC "gets damaged with studded tires." Massachusetts Department of Transportation (MassDOT) indicated they are pursuing BMP credit for the considerable quantity of OGFC the state is using.

Bio-sorption activated media are being explored by Florida researchers for filtration in deck drains. This technology is already in use, in greater quantities, in roadside BMPs.

10.0 Vegetated Filter Strips

An ALDOT research grant project through the University of South Alabama and performed by Kevin D. White, Ph.D., P.E. and Cecil Bernhard, titled "Vegetated Filter Strip Performance Evaluation for Cost-Effective Runoff Treatment in Alabama" evaluated the use of vegetated filter strips as a post construction BMP. The project concluded that the use of these strips contributes to improved water quality by the reduction of non-point source pollution from a variety of sources, including highways.

This project was performed under ALDOT Research Project 930-811R. The final report is dated June 2014.

Four in-ground samplers were placed at each sampled highway location: edge of pavement (0m), 2m, 4m, and 6m downslope from the edged of pavement, within the vegetated filter strip. After sampler installation, 17 rain events were sampled in the 18-month period from January 2013 to May 2014. The most effective removal of constituents was observed at a distance of both 4 and 6 meters down the vegetative filter strip from the edge of pavement.

11.0 Offsite Mitigation

Offsite mitigation is the preferred BMP in most cases for the following reasons:

- The cost and technical feasibility of retrofitting existing or constructing treatment controls for planned bridges;
- The fact that a significant portion of the contribution of pollutants from bridges to receiving waters actually occurs during dry weather through re-suspension and may not be contained by on-bridge BMPs;
- The lack of available space at the bridge abutment areas to construct treatment facilities; and
- The difficulty of providing routine maintenance for facilities installed on or near the bridge structure.

The site for mitigation could include the treatment of runoff from an adjacent terrestrial section of highway or at another site preferably within the same drainage basin or watershed.

Offsite mitigation has the following benefits:

- It should result in higher pollutant load reduction as compared to treatment of the bridge deck runoff;
- It should be more economical; and
- It is safer when considering the maintenance activities for both the workers and for the road user.

Consequently, if treatment BMPs are required for bridge deck runoff, NCHRP 778 recommends constructing the treatment device on a comparable section of untreated highway as the most effective and economical option.

Selection of offsite mitigation options can be complicated by a number of factors. It is important to prioritize the potential offsite opportunities to reduce the project cost and speed project delivery.

The following ranking of offsite mitigation options is suggested:

1. Untreated runoff from DOT facilities in the watershed that discharge to the same receiving water.
2. Small highly impervious catchments within the watershed of concern outside of the highway system.
3. Larger watersheds with less impervious cover outside the highway system within the same watershed.
4. DOT facilities outside the watershed.

More detailed discussion of these options is included in Section 5.3.5 of NCHRP 778.

12.0 Spill Controls

Section 5.4.1 of NCHRP 778 discusses Bridge Spill Frequency and states *"The U.S.DOT database (U.S.DOT 2013) on hazardous material incidents was analyzed for the period 2003–2012 to determine the frequency of spills associated with discharge to waterways…*

For the purposes of the bridge spill frequency evaluation, only in-transit incidents resulting in spillage were evaluated. Thus, of the total reports of incidents resulting in spillage, there were 23,095 (17%) designated as "in transit." Of these in-transit spill incidents, there were only 329 reports of spills with discharges to storm drains or waterways (less than one/year/state). Only nine spills were identified as being associated with a bridge located over a waterway. Consequently, these events are extremely rare (less than 0.01% of all reported spills for the analyzed period of record)."

The types of impacts that may result from spills would be dependent upon the type of material spilled, amount of material released, and location of the spill. Historical evidence has shown that probability of spilling a hazardous chemical over a sensitive receiving water is remote and is best handled by first-responders to contain the pollution.

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APPENDIX I

USFWS Consultation

U.S. Department of Transportation
Federal Highway Administration

Alabama Division

9500 Wynlakes Place
Montgomery, AL 36117
334-274-6350
334-274-6352
Alabama.FHWA@dot.gov

May 4, 2017

In Reply Refer To:
HDA-AL

Mr. William J. Pearson
Field Supervisor
US Fish and Wildlife Service
P. O. Drawer
Daphne, Alabama 36526

RE: Formal Consultation Request (2007-F-0377)
Section 7 of the Endangered Species Act (ESA)
Project DPI-0030(005), Mobile & Baldwin Counties
I-10 Mobile River Bridge & Bayway Widening

Dear Mr. Pearson:

We respectfully request to re-initiate formal consultation with your office for the above referenced project in accordance with Section 7 of the Endangered Species Act. Per your October 23, 2014 letter (enclosed), we are providing your office with an updated biological assessment for the West Indian manatee (enclosed).

We greatly appreciate your efforts in this matter. If additional information is needed, please contact Ms. Lynne A. Urquhart at (334) 274-6371 or lynne.urquhart@dot.gov.

Sincerely,

Mark D. Bartlett

Mark D. Bartlett, P. E.
Division Administrator

By email

Enclosures (2)

cc: Mr. Tony Shaddix, ALDOT ETS (electronic w/enclosures)
Mr. Bruce Porter, US Fish and Wildlife Service (electronic w/enclosures)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

IN REPLY REFER TO
2007-F-0377

OCT 2 3 2014

Mr. Mark D. Bartlett
Administrator
Federal Highway Administration, Alabama Division
9500 Wynlakes Place
Montgomery, AL 36117

Dear Mr. Bartlett:

This letter acknowledges the U.S. Fish and Wildlife Service's (Service) October 3, 2014, receipt of your letter dated September 15, 2014, requesting re-initiation of formal section 7 consultation under the Endangered Species Act (ESA). The consultation concerns the possible effects of the Alabama Department of Transportation's proposed Interstate 10 Mobile River Bridge and BayWay Widening in Mobile and Baldwin counties, Alabama (Project No. DPI-0030(005)), on the West Indian manatee (*Trichechus manatus*).

The Service has not received all of the information necessary to re- initiate formal consultation on the proposed Interstate 10 Mobile River and BayWay widening as outlined in the regulations governing interagency consultations (50 CFR 5402.14). To complete the initiation package, please provide us with an updated biological assessment that addresses impacts to the West Indian manatee. The formal consultation process for the project will not begin until we receive all necessary information, or a statement explaining why that information cannot be made available. We will notify you when we receive this additional information; our notification letter will also outline the dates within which formal consultation should be complete and the biological opinion delivered on the proposed action.

Our records indicate that the West Indian manatee (*Trichechus manatus*) occurs in Mobile Bay and its tributaries and may occur adjacent to the project area. The current biological assessment for the project does not assess potential impacts to this species. We recommend that an updated habitat analysis be conducted for the manatee, if needed, in all areas of Mobile Bay that could be affected by the bridge replacement project. Subsequently, a biological assessment should be prepared for the manatee to analyze the likely effects of the action on the species and its habitat. Upon receipt and review of the recommended biological assessment, we will provide a final section 7 review of your project concerning the manatee.

PHONE: 251-441-5181 FAX: 251-441-6222

If you have any questions or concerns about this consultation or the consultation process in general, please contact Mr. Bruce Porter at (251) 441-5864. Please refer to the reference number located at the top of this letter in future phone calls or written correspondence.

Sincerely,

Dan Everson
Deputy Field Supervisor
Alabama Ecological Services Field Office

cc: Mr. William F. Adams, ALDOT, 1409 Coliseum Blvd, Montgomery, AL 36110
Ms. Lynn Heisler, Federal Highway Administration, 9500 Wynlakes Place, Montgomery, AL 36117

ALABAMA DEPARTMENT OF TRANSPORTATION

1409 Coliseum Boulevard, Montgomery, Alabama 36110
P. O. Box 303050, Montgomery, Alabama 36130-3050

Kay Ivey
Governor

April 27, 2017

John R. Cooper
Transportation Director

Mr. Mark Bartlett
Division Administrator
Federal Highway Administration
9500 Wynlakes Place
Montgomery, AL 36117

RE: I-10 Mobile River Bridge and Bayway Widening
Mobile and Baldwin Counties

Dear Mr. Bartlett:

ALDOT respectfully requests that FHWA initiate formal consultation with the U.S. Fish and Wildlife Service in Daphne for the referenced project. Please see the attached Manatee Biological Assessment.

APR 27 '17 AM12:12

Your assistance in these matters is appreciated. If you have any questions or need additional information, please contact Tony Shaddix, TEL 334-242-6145.

Sincerely,

Steven E. Walker, P.E.
State Design Engineer

By: ______________________
Natasha Clay
State Environmental Administrator
Environmental Technical Section

ts

Attachment

cc: file 2

Manatee Biological Assessment

Alabama Department of Transportation
I-10 Mobile River Bridge and Bayway Widening
Mobile and Baldwin Counties, Alabama
Federal-aid Project DPI-0030(005)

04 April 2017

Prepared for:
Alabama Department of Transportation
c/o Thompson Engineering
2970 Cottage Hill Road
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Prepared by:
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&
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Background

***Manatee life history and ecology*—**The West Indian manatee (*Trichechus manatus*), recognized as subspecies Florida manatee (*T. manatus latirostris*), occupies coastal waters of the southeastern United States. While the species largely occurs within peninsular Florida, regular seasonal migrations are documented along the northcentral Gulf of Mexico and the central Atlantic coasts, with sightings in these areas increasing in recent years (Fertl et al. 2005, Pabody et al. 2009, Cummings et al. 2014, Hieb et al. in press). Recent abundance data estimate the U.S. manatee population at ~6,000 individuals (Martin et al. 2015, FWC 2016), with the total number of animals seasonally migrating out of Florida as yet undefined. Year-round distribution is limited by sensitivity to cold water temperatures, and manatees become vulnerable to potentially fatal cold-stress in waters below ~20°C (68°F; Irvine 1983, Worthy et al. 2000). During cold periods, manatees aggregate at warm-water refugia, including natural springs and man-made effluent sites (e.g. power plant outfalls; Laist et al. 2005, 2013).

Outside of warm-water aggregation sites, manatees are mostly solitary animals, with the only known long-term social bonds occurring between mothers and calves during the first 1-2 years of life (Hartman 1979, Rathbun et al. 1995, Reid et al. 1995). Temporary social units may form between young males and as mating herds, which consist of a focal female and numerous pursuant males (Hartman 1979, Rathbun et al. 1995). Breeding and calving occur year-round, but peak during spring months when manatees leave warm-water refuge sites (Rathbun et al. 1995). Female manatees typically give birth to one calf in 2-5 year intervals following a 13 month gestation period; twin births are rare (Rathbun et al. 1995). Adult manatees grow to 4 m (13 ft) long and weigh upwards of 1,500 kg (3,000 lbs; Ripple 1999), with most healthy adult manatees in the wild weighing 1,200 – 1,600 lbs.

Manatees are generalist foragers, eating a variety of freshwater, brackish, and marine vegetation and including emergent and detrital forms (Hartman 1979; Zoodsma 1991; Reep & Bonde 2006). Manatees are primarily herbivorous, and adult manatees can consume ~7% (50 kg or 110 lbs) of their body weight in aquatic vegetation daily (Etheridge et al. 1985). Manatees also require regular access to freshwater from rivers, springs, or anthropogenic sources, but are not restricted to freshwater environments and regularly occur in brackish and marine waters (Ortiz 1998, Fertl et al. 2005). As a result, manatees in the U.S. most often reside in shallow bay and river systems or nearshore grass flats (Hartman 1979).

The expected natural life-span for manatees is ~60 years (Marmontel 1995); however, manatees face numerous natural and anthropogenic threats that shorten this lifespan in the wild. Their nearshore habitat use puts manatees in close proximity to human activities, and along with slow-movement (typically 4-5 mph), makes manatees highly susceptible to boat collisions. Vessel strikes have been the leading human-related cause of death for manatees in the U.S. during the past four decades (Ackerman et al. 1995, FWC 2016). Other human-related causes of manatee death include ingestion of fishing gear or debris, entanglement in nets or monofilament lines, and entrapment in flood gates or canal locks (Ackerman et al. 1995, FWC 2016). Natural threats include cold-stress and exposure to harmful algal blooms (e.g. red tide), which produce toxins affecting the central nervous system (Ackerman et al. 1995, FWC 2016). Manatees are federally protected under the Endangered Species Act of 1973 (ESA; 16 U.S.C. § 1531 et seq.), the Marine Mammal Protection Act of 1972 (amended 1994), the Florida Manatee Sanctuary Act of 1978, and the Florida Manatee Recovery Plan (2001) under guidance of the US Fish & Wildlife Service.

Manatee habitat use in Alabama waters—Sightings of West Indian manatees in habitat of the northcentral Gulf of Mexico have increased in recent years, with manatees now recognized as regular seasonal visitors to these waters (Pabody et al. 2009, Aven et al. 2016, Hieb et al. in press). The earliest live manatee sightings in Alabama were documented in the mid-1980s, and the earliest carcass was recorded in 1912 in Mobile Bay (Fertl et al. 2005, Pabody et al. 2009, Hieb et al. in press). Manatees have been sighted year-round in Alabama, but occur in the greatest numbers from mid-May through mid-November when water temperatures are above the threshold to induce potentially fatal cold-stress (Pabody et al. 2009, Hieb et al. in press).

Manatees throughout Alabama coastal waters, but are most often observed in rivers and subembayment type habitats of Mobile Bay and the Mobile-Tensaw Delta (Pabody et al. 2009, Hieb et al. in press). These habitats supply freshwater and food resources, including abundant submerged aquatic vegetation favored by manatees who forage locally, such as *Ceratophyllum demersum* (coontail), *Myrophyllum spicatum* (milfoil), *Vallisneria* sp. (tape grass), and *Najas guadalupensis* (Southern naiad) (Vittor et al. 2016, authors' pers. obs.). In addition to providing necessary natural resources, habitats in Alabama also support important life history events. Observations of large groups exhibiting mating behavior as well as recovery of a still-born calf in Alabama in 2013 provide evidence of breeding and calving in local waters (Carmichael 2016). Sightings of nearly 100 mother calf pairs since the mid-1990s indicate calf-rearing also occurs in the region.

Cold-stress is the major known cause of death for manatees in Alabama waters, but boat strikes are an increasing concern. Fourteen manatee mortalities have been historically documented in Alabama since 1912, with about half due to cold-stress. The first manatee mortality due to a boat strike was documented in Mobile Bay during 2015. Manatees in Alabama waters are known to use shipping channels and fairways as travel corridors and to spend time adjacent to these areas of higher boat activity (Aven et al. 2015, authors' unpublished data). Other causes of death for manatees in Alabama waters have been natural (harmful algal bloom, perinatal) or unknown.

Currently manatees are listed as endangered by the state of Alabama (Alabama Nongame Wildlife Green Books, Vol. 1-4. University of Alabama Press.) and considered by the Alabama Natural Heritage Program to be a priority species (SI; Critically imperiled in Alabama because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from Alabama) and given a priority of P1 (as identified in the State Wildlife Action Plan and its list of Species of Greatest Conservation Concern).

Manatee sightings in the proposed construction area

Methods—Manatee sighting data were compiled by the Dauphin Island Sea Lab's Manatee Sighting Network (DISL/MSN) from all available sighting reports recorded within Alabama state waters as described by Pabody et al. (2009), Carmichael (2016), and Hieb et al. (in press). For the purposes of this report, sighting data were cropped to include only live manatee sightings within the construction footprint and immediate surrounding areas in northern Mobile Bay and the Mobile-Tensaw Delta.

Historical live manatee sighting data covering the years from 1993 to 2006 were compiled from Fertl et al. (2005), U.S. Fish and Wildlife Service records, public archives (e.g. newspaper articles), and as verifiable historical sightings newly reported to DISL/MSN. Recent data (2007-

2016) were compiled from DISL/MSN records to include opportunistic, publicly reported sightings and sightings produced through research efforts (e.g. aerial or boat surveys, satellite telemetry/tracking). When manatee sightings were publicly reported, sighting locations (GPS coordinates) were, in some cases, estimated based on detailed site descriptions provided by the manatee observer. All sightings were quality checked, including by plotting and comparing sighting locations, to eliminate duplicate reports and correct reporting errors.

Tagged manatee locations were obtained as described in Aven et al. (2016) using satellite telemetry equipment consisting of a floating tag programmed to fix and store GPS coordinates every 30 minutes (manufactured by Telonics Inc., Mesa, Arizona, USA). A total of eight manatees were equipped with satellite tags during three tagging events in Sep 2009, Aug 2010, and Aug 2012. Tracking durations for tagged manatees ranged from 35-553 days (2009-2015; Aven et al. 2016). GPS locations were downloaded from tags after detachment from animals. Tagged manatee locations spanned central Florida to Louisiana, but data were cropped for this report to include only the construction footprint.

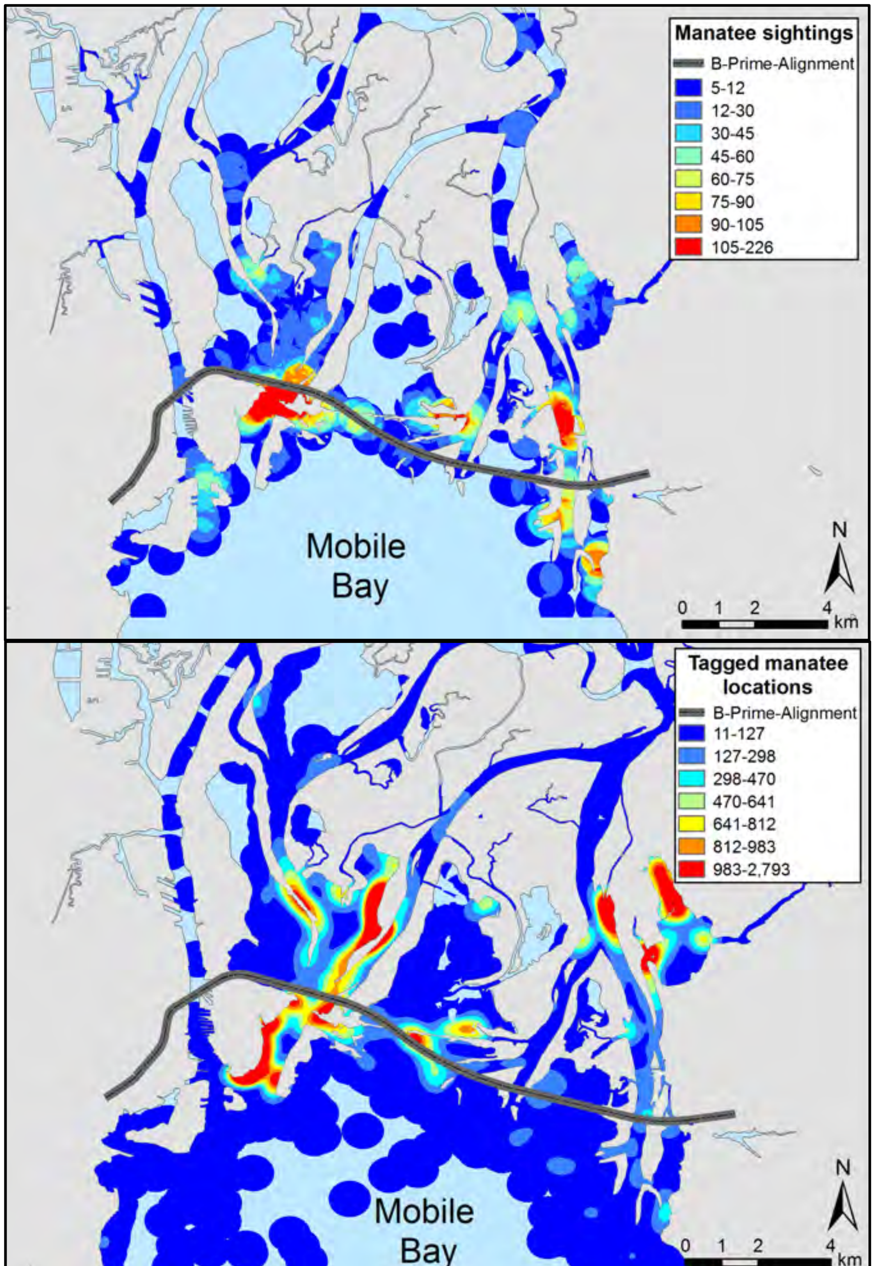

Figure 1. Index of manatee occurrence in northern Mobile Bay, AL. The density of manatee sightings during the past 24 years (top) and tagged manatee occurrences (GPS detections) during the past 7 years (bottom) in northern Mobile Bay, AL, depicted as the range of observations expected per km^2.

Sighting and tag data can be biased if interpreted as individual points, implying under use of areas where people may not be present to see animals or overuse in areas where they are more readily detectable (either by sighting or GPS). Hence, we opted to present data as integrated color maps depicting a relative index of expected manatee density based on document sightings and tag detections (Fig. 1).

The density of manatee sightings and GPS detections were analyzed and displayed in ArcGIS 10.2, using point and kernel density analyses, respectively. Point analyses calculate the density of point features (in this case sightings) around each output raster cell (unit area); the number of points that fell within the cell was totaled and divided by the area of the cell (1 point is weighted the same throughout the cell). It is important to note that a single sighting may represent 1 – 17 animals and some sightings may report the same animal (duplicate reporting). Kernel density analysis used to display tag data is similar to point analyses, but the effect of a point reduces further from the point. Kernel density analysis was applied to tag data because each animal can be detected many times within a single cell if the animal remains in an area for longer than 30 min, resulting in tens or hundreds of data points in a single area within days. These analysis allow smoothing the point data to indicate areas of relatively higher and lower use, reflecting the relative likelihood of finding a manatee in a given location without the visual bias of point data alone.

Manatee sighting data also were displayed as point data by season for all years combined to demonstrate the influence of seasonality on manatee locations that reflect habitat use patterns.

Results—Manatee sighting and tag data show consistent, broad use of habitat within the proposed construction area and surrounding waters (Fig. 1), including "hotspots" of manatee occurrence (shown in warmer colors). Locations of highest occurrence based on sighting reports include the confluence of Mobile Bay and the Spanish and Tensaw Rivers, Sardine Pass, southern portions of the Blakeley River, and D'Olive Bay (Fig. 1). Tagged manatee data corroborate the sighting data and show similar patterns of occurrence with additional hotspots identified in Delvan Bay, Chacaloochee Bay, Bay Minette, and Bay

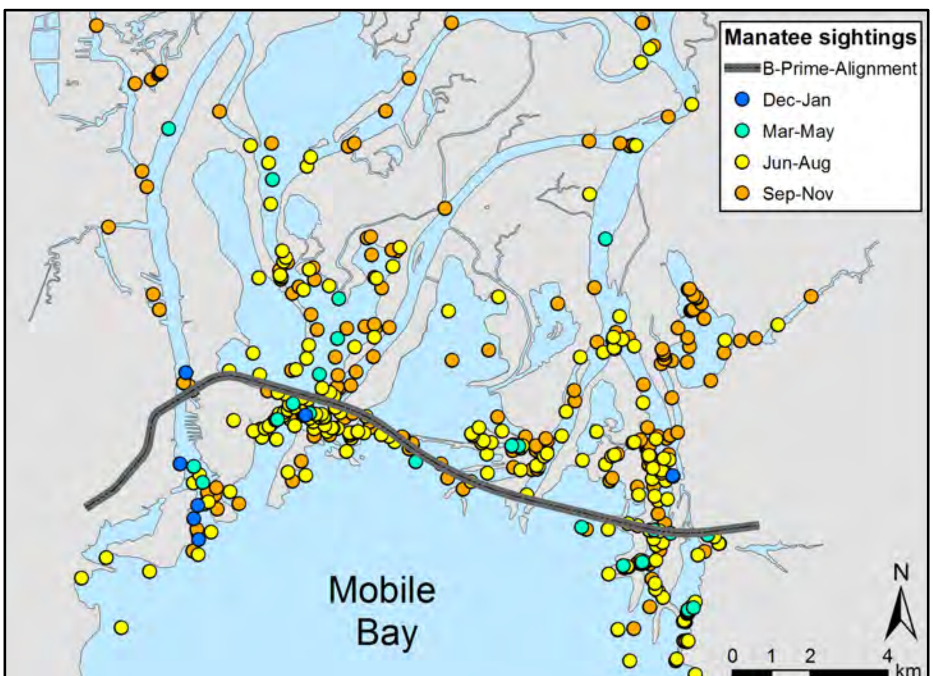

Figure 2. Manatee sighting locations separated by monthly period for all years (1993-2016) combined.

Minette Basin. Areas in light blue between darker colored cells do not indicate no manatees, but are areas where sightings or detections were below the minimum number scaled in each figure. It is important to consider that manatees must travel through areas where they may not be seen or otherwise detected to reach adjacent cells where they are detected.

Manatee sighting data show year-round use of habitat within the study area (Fig. 2), with greatest use during Jun-Nov. This finding is consistent with known patterns of manatee occurrence throughout Alabama waters (Pabody et al. 2009, Hieb et al. in press) due to seasonal temperature variation that typically has made Alabama waters too cold for year-round residency by manatees.

Implications for the proposed construction project

Construction and development projects falling under the general description of in-water work present numerous direct and indirect potential impacts to manatees and their habitat, depending on the type and location of proposed work (FWC 2017b). Potential threats include activities that may directly injure or kill manatees, activities that may negatively impact manatee behavior or access to resources, and activities that may alter resources and/or habitat for future manatee use.

General considerations**—**Common recommendations to reduce negative impacts of in-water construction on manatees include informing all personnel associated with the project of potential manatee occurrence within the construction area and their responsibility to monitor all project activities for the presence of manatees (USFWS 2003, FWC 2011). Personnel should be educated on the general appearance of manatees in the water and how to detect them (USFWS 2003), particularly under conditions of poor visibility typical to Alabama waters and due to turbidity or other obstructions associated with in-water work. In addition to construction personnel, experienced marine mammal observers are often recommended to be dedicated to the project and advise personnel to cease operations if a manatee is observed (FWC 2017a). If a manatee is seen within 100 yards of active construction, dredging, or vessel movement, precautions should be taken to ensure the animal's safety (USFWS 2003, FWC 2011), which may include immediate shutdown of operations and ceasing to use potentially harmful equipment until the manatee has voluntarily departed the area. Animals should be allowed to use the area and depart on their own without any efforts to discourage their use, corral or herd them away. Activities should not result in harassment (commonly defined as any activity that changes the natural behavior of an animal) under 2008-MR-4 Rule 220-3-.33 (USFWS 2003, FWC 2011). A best approach to avoid interactions with manatees is to conduct work during periods of lower manatee occurrence in the area (i.e.; Dec-May, with lowest numbers Dec-Feb; Fig. 2). All personnel also should be informed of the protected status of manatees under the Endangered Species Act, the Marine Mammal Protection Act, and the State of Alabama. Any manatee sighting, collision, injury, or death during project-related activities should be reported immediately to US Fish & Wildlife Service and the appropriate responding agency. For the State of Alabama, this agency is the Dauphin Island Sea Lab's Manatee Sighting Network (1-866-493-5803) or the Alabama Marine Mammal Stranding Network (1-877-WHALE-HELP). The state reporting agencies will alert the US Fish & Wildlife Service if they have not been previously notified.

Specific activities of concern

Boat/barge activity (impact risk)—Increased boating and barge activity associated with construction increases the risk of watercraft-related manatee injuries or mortalities. Collisions with watercraft account for the largest percentage of human-related manatee deaths recorded during the last four decades in Florida waters and have recently become a concern in the northern Gulf of Mexico (Ackerman et al. 1995, FWC 2016, Heib et al. in press). Deaths may be attributed to massive trauma from propeller wounds or internal injury, resulting in acute, immediate death or producing chronic injuries eventually causing mortality (Lightsey et al. 2006). Collisions also may cause unconsciousness resulting in subsequent drowning (Kadel et al. 1988). Increased boating density combined with increased manatee occurrence in the study area in recent years can be predictably linked to higher probability of manatee-boat collisions (Bauduin et al. 2012). Recommendations previously used to reduce manatee-boat collisions related to in-water construction activities include operation of all construction-associated vessels at no wake/idle speeds while in shallow waters (<4 ft clearance from the draft of the vessel to the bottom) and use of deep water routes whenever possible (USFWS 2003, FWC 2011). Placement of signage aboard all construction-associated vessels (clearly visible to the vessel operator) and in the construction area posting vessel operation requirements has also been recommended in association with previous projects (USFWS 2003, FWC 2011). We additionally recommend posting the contact numbers for the state responding authorities (DISL's Manatee Sighting Network and the Alabama Marine Mammal Stranding Network) for quick reference.

Entrapment and crushing associated with barges, movement of any large vessels, or placement of structures should also be considered as a direct risk for manatee injury and mortality in the construction area. Large vessels moored to each other or to vertical structures (e.g.; bulkheads, pilings) could cause immediate death by crushing animals who become coincidentally trapped between mooring vessels and structures (FWC 2017b). Deaths resulting from crushing by barges or structures such as flood-control gates and navigation-canal locks have been previously documented in Florida waters (Odell & Reynolds 1979, FDNR 1989, Ackerman et al. 1995, Calleson & Frohlich 2007). Use of fenders or buoys that provide a standoff distance ≥ 4ft at maximum compression are recommended to avoid crushing manatees between vessels or structures (FDNR 1989, FWC 2017b).

Siltation barriers & construction debris (entanglement, obstruction risk)—Overall, it is important to note that any type of human debris introduced to waterways may cause injury or death of manatees by ingestion or entanglement (Beck & Barros 1991, Adimey et al. 2014, FWC 2016). We recommend a plan to ensure appropriate disposal of all construction debris and ensure lost debris is appropriately retrieved, including siltation barriers.

Use of siltation barriers associated with construction activities introduces the risk of entanglement for manatees in the project area. Manatees rely heavily on tactile sensitivity to recognize objects in their environment (*i.e.*; perceiving objects by actively touching with flippers or using sensory hairs on the snout). Hence, manatees are particularly susceptible to entanglement in lines, nets, or other obstacles (Kikuchi et al. 2011, Adimey et al. 2014). To avoid potentially fatal entanglements, it is recommended that siltation barriers be made of material less likely to entangle manatees, be adequately secured, and regularly monitored for possible entanglements (USFWS 2003, FWC 2011). Fisheries bycatch data suggest that manatees are most likely to become entangled in gillnet type structures consisting of vertical sheets of netting (1-10 m in depth), with mesh sizes ranging from 2-30 cm in diameter (Moore et al. 2010). Similar 2 in x 2 in mesh-fencing, proposed as an exclusionary barrier for endangered turtle and sturgeon species, may also introduce an entanglement risk for manatees. Alternatively, plastic netting with mesh size ≤ 1 in has been safely used with manatees during exclusionary experiments (Hauxwell et al. 2004a,b, Kikuchi et al. 2011). This information is based on the best publicly available data at the time of this report and should provide specifications to select a most suitable barrier to minimize risk of manatee entanglement.

Siltation barriers and other construction materials also have potential to negatively impact manatees by blocking entry to and exit from important areas of habitat use (USFWS 2003). Manatee sighting and tag data have established the construction footprint as a regularly used manatee travel corridor (Fig. 1). The area also supports at least seasonally abundant beds of submerged aquatic vegetation (particularly in shallow areas just north and south of the existing causeway and Bayway) that are regularly used as foraging areas for manatees (authors' pers. obs. during tagged manatee focal observations). Manatees also are known to regularly move from locations in the southern part of the Mobile Tensaw Delta to areas adjacent to the Battleship Park and into nearby Dog River, a tributary of Mobile Bay, multiple times during a season, indicating that movement under the existing Bayway is a common occurrence and part of manatees regular seasonal movement patterns (Aven et al. 2015, Aven et al. 2016). Therefore, it is recommended that any potential barriers be placed to allow safe passage of manatees to and from necessary habitat resources on either side of the causeway/ Bayway (USFWS 2003).

<u>Bottom disturbance (impact, habitat risk)</u>—Dredging is a major construction-related bottom-disturbance that may directly impact manatees, and increased presence of manatees has been associated with in-water construction activity such as dredging (Provancha & Provancha 1989, Adimey et al. 2014). It is our understanding that dredging is not currently among the proposed construction activities. If dredging is included in the project in the future, the potential for direct effects on manatees should be assessed. The increased turbidity, noise, and resuspension of pollutants associated with dredging, however, may also arise from other in-water construction activities. For this reason, we provide the following paragraphs to describe considerations associated with potential indirect impacts to manatees from bottom disturbance.

In-water construction activities that result in bottom disturbance may indirectly impact manatees by increasing noise, turbidity, and levels of toxins and pollutants in the water column (Todd et al. 2015). Manatees are known to avoid areas with increased noise or change foraging behavior in response to noise variation (Miksis-Olds et al. 20007, Miksis-Olds & Wagner 2010, Tellechea et al. 2013). Other marine mammal species including bottlenose dolphins and bowhead whales have been observed avoiding construction when bottom disturbance is associated with increased noise levels (Richardson et al. 1990, Pirotta et al. 2013). Of concern, animals may be more likely to remain in proximity to construction activity and temporarily tolerate disturbance if the activity is in a prime foraging location (Todd et al. 2015). Manatees in particular are known to be attracted to novel activities or objects in their environment, and increased manatee presence has been previously documented in areas with high bottom disturbance (Provancha & Provancha 1989, Adimey et al. 2014). Because manatees naturally inhabit turbid environments and do not rely primarily on vision for foraging or social interactions, turbidity is less of a direct concern to manatees (Todd et al. 2015). Disturbance of sediments, however, can also release pollutants, including toxins that have accumulated in the sediment and change the chemical composition of the water column (Erftemaeijer & Lewis 2006, Todd et al. 2015), potentially affecting foraging manatees (Bonde et al. 2004). The major recommendation for reducing these potentially adverse effects of bottom disturbance on manatees is to avoid disturbance during times of peak manatee occurrence and key life history events (*e.g.*; mating, calving; Todd et al. 2015).

A final consideration of activities that may impair water quality is the indirect effect on manatees through reduced habitat quality and food resources. Disturbance of sediments may negatively impact submerged aquatic vegetation (SAV; Erftemaeijer & Lewis 2006), which is the primary food resource for manatees, through burial or decreased light availability due to turbidity (Erftemaeijer & Lewis 2006). Recovery of SAV post-disturbance can be prolonged or non-existent (Erftemaeijer & Lewis 2006), and this reduction in food resources can lead to nutritional stress and reduced reproduction in manatee populations reliant on these resources (Bonde et al. 2004). Lack of available food resources may also cause shifts in manatee distribution in and around affected areas (Bonde et al. 2004). Turbidity, light penetration, and suspended particulate load are common parameters recommended for monitoring during construction operations that involve bottom disturbance, and in-water activities are recommended to be stopped if background levels are substantially exceeded (Erftemaeijer & Lewis 2006).

<u>Other activities</u>—Other project-specific activities may have potentially negative direct or indirect effects on manatees, and all activities should be reviewed and included in assessments when a specific plan of work is known.

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

IN REPLY REFER TO:
2007-F-0377b

JUN 20 2017

RECEIVED
JUN 2017
Design Bureau
Environmental Section
ALDOT

Mr. Mark D. Bartlett, Division Administrator
U.S. Department of Transportation
Federal Highway Administration, Alabama Division
9500 Wynlakes Place
Montgomery, AL 36117

Dear Mr. Bartlett:

This letter acknowledges the U.S. Fish and Wildlife Service's receipt on June 1, 2017, of your May 4, 2017, letter requesting initiation of formal section 7 consultation under the Endangered Species Act. The consultation concerns possible effects of your proposed Interstate 10 Mobile River Bridge and BayWay Widening (Project DPI-0030(005)) in Mobile County, Alabama to the threatened West Indian manatee (*Trichechus manatus*).

All information required of you to initiate consultation was either included with your letter or is otherwise accessible for our consideration and reference. We have assigned log number 2007-F-0377b) to this consultation.

Section 7 allows the Service up to 90 calendar days to conclude formal consultation and an additional 45 calendar days to prepare our biological opinion (unless we mutually agree to an extension). Therefore, we expect to provide you with our biological opinion no later than October 14, 2017.

As a reminder, the Endangered Species Act requires that after initiation of formal consultation, the Federal action agency may not make any irreversible or irretrievable commitment of resources that limits future options. This practice insures agency actions do not preclude the formulation or implementation of reasonable and prudent alternatives that avoid jeopardizing the continued existence of endangered or threatened species or destroying or modifying their critical habitats.

If you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact me or Mr. Bruce Porter of my staff at (251)441-5864 or via email bruce_porter@fws.gov.

Sincerely,

William J. Pearson
Field Supervisor
Alabama Ecological Services Field Office

cc: ALDOT, Attn: Mr. Steve E. Walker, 1409 Coliseum Blvd, Montgomery, AL 36110

PHONE: 251-441-5181 FAX: 251-441-6222

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

TS

IN REPLY REFER TO:
2007-F-0377

OCT 25 2017

Mr. Mark Bartlett
Division Administrator
Federal Highway Administration
9500 Wynlakes Place
Montgomery, AL 36117

Dear Mr. Bartlett:

This letter is based on our review of the proposed Federal Highway Administration Project DPI-0030(005) located in Mobile and Baldwin Counties, Alabama over Mobile Bay, and its potential effects on the threatened West Indian manatee (*Trichechus manatus*) in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C. 1531 et seq.) and the Marine Mammal Protection Act (MMPA) of 1972 (amended 1994). Your May 4, 2017, request for re-initiation of formal consultation was received on June 1, 2017.

The U.S. Fish and Wildlife Service (Service) does not anticipate the proposed action will result in the incidental take of manatees provided conservations measures in Enclosure 1 are implemented. Furthermore, the Service is not including an incidental take authorization at this time because the incidental take of marine mammals is not expected to occur and has not been authorized under section 101(a)(5) of the MMPA and/or its 1994 Amendments. Following issuance of such regulations or authorizations, the Service may reinitiate consultation to include an incidental take statement for marine mammals, if necessary.

This letter fulfills the requirements of section 7 of the ESA regarding impacts to the West Indian manatee and no further action is required. If significant modifications to construction or removal activities are made to the current plans, if additional information involving potential effects to listed species becomes available, or if a new species is listed or new critical habitat is designated that may be affected by the project, then re-initiation of consultation may be necessary.

RECEIVED
OCT 2017
Design Bureau
Environmental Section
ALDOT

PHONE: 251-441-5181

FAX: 251-441-6222

We look forward to working with the Alabama Department of Transportation and your office throughout the project construction. If you have questions or comments, please contact Mr. Bruce Porter of my staff at (251)441-5864 or via email at bruce_porter@fws.gov.

Sincerely,

Jeffrey R. Powell
Deputy Field Supervisor
Alabama Ecological Services Field Office

Enclosure

cc: Alabama Department of Transportation, Attn: Mr. Steve E. Walker, P.E., 1409 Coliseum Blvd, Montgomery, Alabama 36110

ALABAMA
STANDARD MANATEE CONSTRUCTION CONDITIONS

a. The lead project proponent/contractor shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees. All construction personnel are responsible for observing water-related activities for the presence of manatees. The U.S. Fish and Wildlife Service would recommend hiring an individual familiar with this species to act as a spotter for manatees during in-water activities.

b. The lead project proponent/contractor shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973.

c. Siltation barriers shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to, or exit from, essential habitat.

d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

e. If manatees are seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure their protection. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. Operation of any equipment closer than 50 feet to a manatee shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) has departed the project area of its own volition.

f. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service in Daphne (251-441-5181).

g. Temporary signs concerning the manatees shall be posted prior to and during all construction/dredging activities. All signs are to be removed by the lead project proponent/contractor upon completion of the project. A sign measuring at least 3 ft. by 4 ft. which reads *Caution: Manatee Area* will be posted in a location prominently visible to water related construction crews. A second sign should be posted if vessels are associated with the construction, and should be placed visible to the vessel operator. The second sign should be at least 8½" by 11" which reads *Caution: Manatee Habitat. Idle speed is required if operating a vessel in the construction area. All equipment must be shutdown if a manatee comes within 50 feet of operation. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service in Daphne (251-441-5181).*

TEMPORARY MANATEE SIGNS

for standard manatee construction conditions

The *Caution: Manatee Area* signs are available through the companies listed below and may also be available from other local suppliers. Permit/lease holders, should contact sign companies directly to arrange for shipping and billing.

Cape Coral Signs & Designs Inc.

1311 Del Prado Boulevard
Cape Coral, Florida 33990
1-800-813-9992
FAX 813-772-9992

Municipal Supply and Sign Company
P.O. Box 17
Naples, Florida 33939-1765
1-800-329-5366
813-262-4639
FAX 813-262-4645

JADCO Signing Inc.

708 Commerce Way
P.O. Box 911
Jupiter, Florida 33458
1-800-432-3404
407-747-1065
FAX 407-744-2985

The second sign (example below) should be at least 8½ inches by 11 inches, and should read:

Caution: Manatee Habitat. Idle speed is required if operating a vessel in the construction area. All equipment must be shutdown if a manatee comes within 50 feet of operation. Any collision with and/or injury to a manatee shall be reported immediately to the U.S. Fish and Wildlife Service in Daphne (251-441-5181).

CAUTION

MANATEE HABITAT

IDLE SPEED IS REQUIRED IF OPERATING A VESSEL IN THE CONSTRUCTION AREA.

ALL EQUIPMENT MUST BE SHUTDOWN IF A MANATEE COMES WITHIN 50 FEET OF OPERATION.

ANY COLLISION WITH AND/OR INJURY TO A MANATEE SHALL BE REPORTED IMMEDIATELY TO THE U.S. FISH AND WILDLIFE SERVICE IN DAPHNE AT

251-441-5181

U.S. Department of Transportation
Federal Highway Administration

Alabama Division

9500 Wynlakes Place
Montgomery, AL 36117
334-274-6350
334-274-6352
Alabama.FHWA@dot.gov

February 14, 2019

In Reply Refer To:
HDA-AL

Mr. William J. Pearson
Transportation Liaison
U.S. Fish and Wildlife Service
1208-B Main Street
Daphne, Alabama 36526

RE: Formal Consultation Request (2007-F-0377)
Section 7 of the Endangered Species Act (ESA)
Project DPI-0030(005), Mobile & Baldwin Counties
I-10 Mobile River Bridge & Bayway Project

Dear Mr. Pearson:

As you are aware, we are evaluating the potential impacts associated with the above-referenced project. The Draft Environmental Impact Statement (DEIS) for the project was signed in July 2014. It called for the widening of the existing Bayway at the current elevation and within the existing gap between the bridges. The DEIS also identified segmented barges as the preferred construction methodology for the Bayway.

Since the signature of the DEIS in July 2014, ALDOT has conducted storm surge analyses and a bathymetric survey of the area along the Bayway. The results of these studies indicate that the existing I-10 Bayway bridges across Mobile Bay are vulnerable to impacts from storm surge, including sea level rise. Therefore, the Bayway will be replaced (rather than widened) at an elevation above the 100-year storm. The new bridge structures will remain within the footprint (outside edge to outside edge) of the existing Bayway, except at the interchange ramps. At the interchanges, new ramps may be constructed outside of the existing ramps but within ALDOT's right-of-way in order to maintain traffic during construction. The existing bridges will be used to maintain traffic on I-10 during construction and then demolished after construction of the new Bayway.

The preferred construction methodologies for the Bayway are barges and top-down construction. In order to better facilitate barge traffic while maintaining an active interstate corridor during construction, ALDOT has determined that dredging may be required in areas where water depths are less than six (6) feet. Dredging would:

- Allow barges to float rather than rest on the bay bottoms,
- Reduce construction time, and
- Result in substantial construction cost savings.

Dredging would occur within the previously disturbed construction channel that was used to build the existing Bayway. The dimensions of the original channel were around 125 feet wide and 8 feet deep. The proposed dredging would be approximately 125 feet wide and 6 feet deep. Dredging would occur in open water areas where wetlands are not present. It is estimated that approximately 300,000 cubic yards of material would be dredged.

The Draft Mitigation Plan prepared for the project involves the creation of a 43.5-acre marsh island site to account for the assumed loss of 100% of the submerged aquatic vegetation between the existing Bayway bridges and impacts to wetlands that are located between the existing Bayway bridges. It is anticipated that the dredged materials would be beneficially used to create the marsh island mitigation site. If the material is not deemed to be suitable for the mitigation site, it will be disposed of in a USACE-permitted disposal area with available capacity.

Attached is a presentation that was used during the February 14, 2019, interagency meeting to discuss the above-listed items.

We respectfully request that the USFWS evaluate whether the proposed changes in construction methodology would result in impacts to threatened and endangered species that have not been previously accounted for in the Incidental Take Permit and re-initiate formal consultation under Section 7 of the Endangered Species Act, if necessary.

We greatly appreciate your efforts in this matter. If additional information is needed, please contact Ms. Lynne Urquhart at (334) 274-6371 or lynne.urquhart@dot.gov.

Sincerely,

Mark D. Bartlett

Mark D. Bartlett, P.E.
Division Administrator

Enclosure (1)

cc: Mr. Tony Shaddix, ALDOT ETS (electronic w/enclosures)
Ms. Missy Shumer, Shumer Consulting (electronic w/enclosures)
Mr. Bruce Porter, US Fish and Wildlife Service (electronic w/enclosures)

MOBILE RIVER BRIDGE & BAYWAY

Interagency Coordination Meeting

February 14, 2019

MobileRiverBridge.com

1

Today's Agenda

- Welcome/Introductions
- Project Status/Update
- Construction Methodologies
- Draft Mitigation Plan
- Next Steps
- Closing

MOBILE RIVER BRIDGE & BAYWAY

2

Project Status/Update

MOBILE RIVER BRIDGE & BAYWAY

3

Proposed Alignment/Alternative B’

MOBILE RIVER BRIDGE & BAYWAY

4

Animation

5

Project Funding - Why use a P3

- Limited funding capacity on one of largest transportation projects in U.S.
- Leverages private sector expertise and range of financial resources
- Encouraged by U.S. DOT to promote creativity, efficiency, and capital to address complex transportation problems facing state and local governments
- Risk Transfer – market (tolling) revenues, construction costs, schedule, operations and maintenance costs, liability

6

Roles and Responsibilities in P3

- Concessionaire Responsibilities
  - Design, Build, Finance, Operate, and Maintain
  - 55-Year Term
  - Compliance with environmental commitments
  - Updated Wetland and SAV Surveys
  - Final Mitigation Plan
  - Permit Applications/Modifications
  - Mitigation Implementation and Monitoring
- ALDOT Role
  - NEPA Document Updates
  - Permitting Discussions
  - Construction Quality Control

MOBILE RIVER BRIDGE & BAYWAY

7

Status of NEPA Process

- Three rounds of review conducted by ALDOT/FHWA to date
- Anticipated milestones:
  - SDEIS signed: April 2019
  - Public Hearings: May 2019
  - Combined FEIS/ROD approved: August 2019
- Proposal Due Date: December 2019
- Selection of Team: March 2020
- Construction Begins: Spring/Summer 2020

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Construction Methodologies

MOBILE RIVER BRIDGE & BAYWAY

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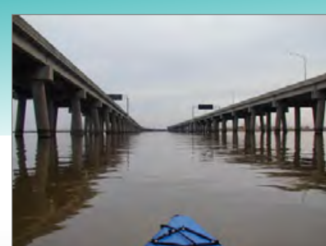
Bayway Construction

- DEIS Commitment
  - Segmented barges between existing Bayway bridges
  - Bayway would be widened to the inside
  - Remain within area between existing bridges



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Bayway Construction

- Supplemental DEIS
  - Bayway to be replaced at higher elevation due to AASHTO requirements for 100 year storm (up to 8 feet higher)
  - Remain within existing footprint (outside edge to outside edge) of existing bridges, except at ramps

MOBILE RIVER BRIDGE & BAYWAY

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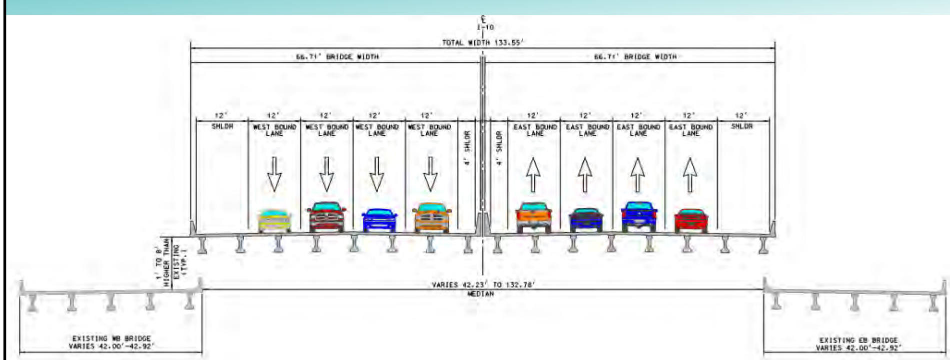
Bayway Proposed Typical Section



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Bayway Construction

- August 2018 meeting: Dredging, if implemented, would be part of Concessionaire's means and methods in permitting
- ALDOT is considering adding localized dredging to SDEIS

Reasons:
- Cost Savings
- Construction Time Savings
- Would allow barges to float and help with delivery of material

Limits:
- Within previously disturbed construction channel
- Only in areas where there is insufficient depth to float barges (<6 feet) between existing Bayway bridges
- No dredging in wetlands

MOBILE RIVER BRIDGE & BAYWAY

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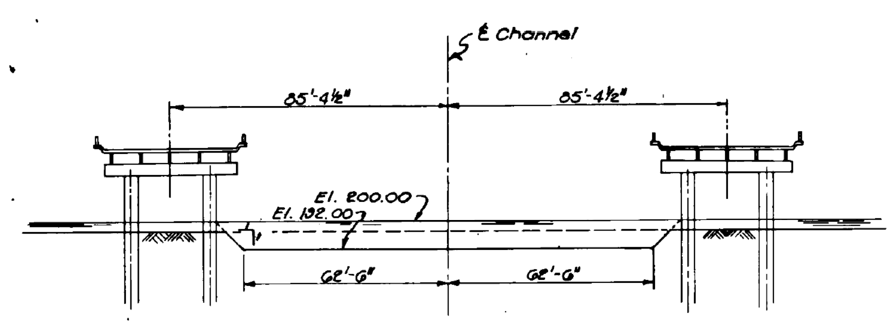
Original Dredged Channel



TYPICAL SECTION FOR CONSTRUCTION CHANNEL

MOBILE RIVER BRIDGE & BAYWAY

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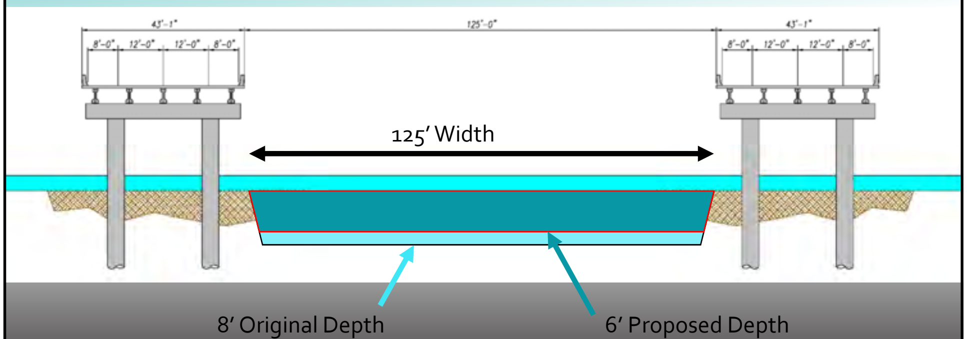
Localized Dredging



MOBILE RIVER BRIDGE & BAYWAY

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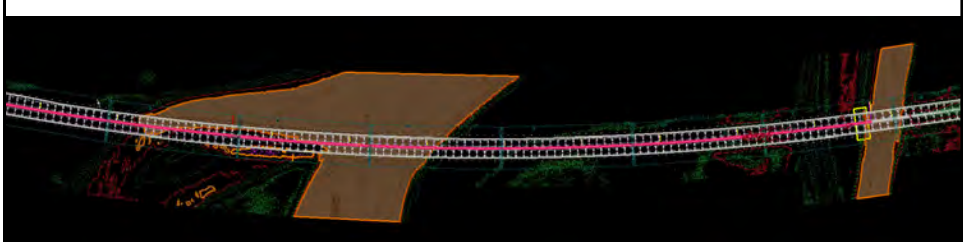
Localized Dredging

- Bathymetry shows areas with less than 6 feet of depth



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Localized Dredging

- Estimated Quantities

Distance (miles)	Width (feet)	Depth (feet)	Volume (cubic yards)
~3.5 – 4	125	6	~300,000

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Disposal

- Beneficial Use for marsh island creation at mitigation site
- USACE-permitted disposal site(s)

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Draft Mitigation Plan

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Draft Mitigation Plan

- Involves marsh island creation for SAV and wetland impacts (43.5 acres)
  - 2:1 SAV
  - 1.5:1 Wetlands
- Assumes all SAV between and under existing Bayway bridges would no longer exist (due to shading)

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Draft Mitigation Plan

- Changes required to add localized dredging
- Timeframe for agencies to review and comment

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Section 7 Consultation

- Updates to Incidental Take Permit
  - Alabama red-bellied turtle
  - Gulf sturgeon
- Manatee
  - Biological Assessment

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Next Steps

MOBILE RIVER BRIDGE & BAYWAY

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Anticipated Schedule

Milestone	Anticipated Date
Meetings with Shortlisted Teams / ATC Process	October 2018 – May 2019
Draft Mitigation Plan Updated (based on input from agencies)	March 2019
SDEIS Signature	April 2019
Combined FEIS/ROD Approval	August 2019
Receive Concessionaire Proposals	December 2019
Conditional Award	March 2020
Begin Permitting and Construction	Spring/Summer 2020

MOBILE RIVER BRIDGE & BAYWAY

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Closing

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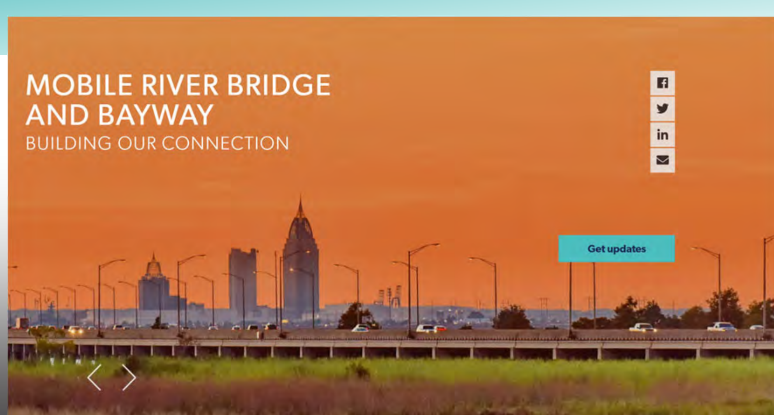
25

Follow our progress MobileRiverBridge.com



MOBILE RIVER BRIDGE & BAYWAY

26

Mobile River Bridge and Bayway Project
USFWS Telephone Memo

Date: November 1, 2018

Time: 1:10 p.m.

Missi Shumer contacted Bruce Porter, U.S. Fish & Wildlife Service (USFWS), to discuss a few items pertaining to the Mobile River Bridge and Bayway project. The purpose of this phone memo is to provide a summary of that discussion.

1) The USFWS issued a Biological Opinion and Incidental Take Permit for the Gulf sturgeon and Alabama red-bellied turtle for the project on May 14, 2003. The Biological Opinion and Incidental Take Permit refer to widening rather than replacing the Bayway. The USFWS indicated the change from widening to replacement does not change the potential impacts that would occur; therefore, the Biological Opinion and Incidental Take Permit are still valid and do not need to be re-visited unless there are changes in impacts.

2) Coordination with the USFWS over the course of the project has indicated that the USFWS would like to see the maximum duration of strobe (beacon) lighting be used on the tower of the new Mobile River Bridge in order to minimize migratory bird impacts. The USFWS acknowledges that the project must be designed to meet FAA regulations. ALDOT's commitment to request the maximum allowable duration of strobe (beacon) lighting on the bridge tower as part of the FAA permitting process satisfies USFWS's request. No further input or requirements from the USFWS is expected on this issue.

3) A comment regarding concern about the potential effects of pile driving activities (vibrations) on fish during construction was submitted on the Draft Environmental Impact Statement. USFWS stated that they had considered the potential impacts of pile driving operations on fish during construction. Fish are expected to leave the area while pile driving operations are underway, but these impacts are expected to be temporary in nature because the fish will return after construction is complete. Mitigation measures to avoid displacement of fish are not required; however, a ramp up procedure for pile driving activities in water is reasonable to the USFWS.

4) The USFWS asked about lighting on the bridges. While the lighting has not been finalized, there are requirements in the contract documents to provide lighting that minimizes light spill in the water to minimize disruption to aquatic species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

FEB 27 2019

IN REPLY REFER TO:
2007-F-0377

Mr. Mark D. Bartlett
Administrator
Federal Highway Administration, Alabama Division
9500 Wynlakes Place
Montgomery, AL 36117

Dear Mr. Bartlett:

This letter acknowledges the U.S. Fish and Wildlife Service's (Service) receipt of your letter, dated February 14, 2019, requesting re-initiation of formal section 7 consultation under the Endangered Species Act (ESA). The consultation concerns the possible effects of the Alabama Department of Transportation's proposed Interstate 10 Mobile River Bridge and BayWay Widening in Mobile and Baldwin counties, Alabama (Project No. DPI-0030(005)), on the Alabama redbelly turtle (*Pseudemys alabamensis*), Gulf sturgeon (*Acipenser oxyrinchus desoti*) and West Indian manatee (*Trichechus manatus*).

Your letter stated the project has changed from a widening of the BayWay to a replacement which entails raising the elevation to get the bridge out of the 100-year storm level. These two actions coupled with your acknowledgement of 100% loss of submerged aquatic vegetation (SAV) do not necessarily create the need for re-initiation of consultation.

However, the dredging of a channel 125 feet wide and 6 feet deep could present a danger to the listed species above in the project area. The key to avoiding impacts to these species is timing the dredge operation to occur from December to February when the sturgeon and manatee are typically not in the project area. The Alabama redbelly turtle remains covered under our initial formal consultation but also will not be as active during this dredge window, thereby minimizing its exposure. Timing of the dredge is essential for avoiding and minimizing impacts to these listed species. Moving the dredge spoil from the BayWay corridor to the mitigation site in Polecat Bay could be an additional impact to these species if the December to February window for dredging could not be maintained.

The Service would prefer the spoil be transported from the dredge site to the mitigation site by piping but we also realize that this method would not be the most practicable based on the distance between the two sites. The only other option available would be the use of a barge to transport the spoil to the mitigation site. Use of a barge (outside of the preferred window) would create a potential impact to the manatee from the barge prop. The area the barge would have to pass

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through, the confluence of Spanish and Tensaw Rivers, is an area where the manatees have been documented to congregate during their time in upper Mobile Bay.

The mitigation for the loss of SAV's will be a beneficial effect by creating a forage site for two of these species. The Alabama redbelly turtle is more of an edge species because of the vegetation that it feeds on and creation of SAV beds, marsh and an island only makes more edge/forage habitat available to this species. The manatee feeds on SAV but has rarely been observed or documented near the mitigation site in Polecat Bay. This could be due to the lack of existing forage sites in Polecat Bay for this species. The mitigation site selection can only further the range of these species in the Mobile Bay delta thereby contributing to the overall health and recovery.

Our response/recommendations are general in nature and we look forward to commenting on future plans for construction. If you have any questions or concerns about this consultation or the consultation process in general, please contact the Alabama Field Office at (251) 441-5181. Please refer to the reference number located at the top of this letter in future phone calls or written correspondence.

Sincerely,

William J. Pearson
Field Supervisor
Alabama Ecological Services Field Office

cc: Mr. Steven Walker, ALDOT, 1409 Coliseum Blvd, Montgomery, AL 36110
Ms. Missy Shumer, Shumer Consulting, 951 Government Street, Mobile, Al 36604

APPENDIX J

Addendum to Traffic Noise Analysis

An Addendum to

Noise Analysis Technical Report

For the
Interstate 10
Mobile River Bridge and Bayway Project

ALDOT Project No. DPI-0030(005)

Mobile and Baldwin Counties, Alabama

Prepared For:

ALABAMA DEPARTMENT OF TRANSPORTATION

March 18, 2019

Executive Summary

This report is an addendum to the ***Noise Analysis Technical Report For The Interstate 10 Mobile River Bridge and Bayway Widening Project*** presented in Appendix H of the signed DEIS, herein referred to as "the original report". This document is not intended to be a stand-alone noise report. To properly interpret the information in this addendum, the reader should have the original report available to understand the updates presented in this report.

The I-10 Mobile River Bridge and Bayway Project is a proposal to increase the capacity of I-10 by constructing a new six-lane bridge across the Mobile River and replacing the existing four-lane I-10 bridges over Mobile Bay with eight lanes at an elevation above the 100-year storm event.

Alternative B' was identified as the Preferred Alternative in the 2014 DEIS. Construction is expected to begin in the year 2020. Traffic volume predictions for this addendum were projected for the build year (2020) and a twenty-year future (2040) and adjusted for the consideration that the project may be partially funded by tolls. The analysis documented in this addendum is based on the design hour volumes from the I-10 Mobile River Bridge Interstate Modification Request (IMR) dated August 2018 with the improvements considered acceptable from an operational standpoint by FHWA in their letter to ALDOT dated October 3, 2018.

Per 23 CFR 772.11(a) and (b), this analysis will determine expected traffic noise impacts with primary consideration given to exterior areas where frequent human use occurs. Detailed modeling software (TNM2.5) is used to determine how many of these receptors are impacted. This software is also used to determine if any noise barrier can be deemed both feasible and reasonable according to the ALDOT Noise Policy.

23 CFR 772.13(c) requires that certain abatement measures be considered for reducing the traffic noise at impacted receptors. This includes the consideration of noise barriers. Several different noise barriers were previously found to be feasible per Section 8.1 of ALDOT's Noise Policy, however none of the feasible barriers satisfied the reasonableness criteria as outlined in Section 8.2 of the Noise Policy.

In this addendum two additional areas of study were analyzed for traffic noise which were found to have multiple receptors that were traffic noise impacted receptors. However, no new noise barriers were found to be feasible in these areas per Section 8.1 of the Noise Policy. All of the previously deemed feasible barriers remained feasible in the updated design and were reanalyzed for the reasonableness criteria per Section 8.2 of the Noise Policy. Of these barrier designs, the barrier segments along the west right-of-way of I-10 from Broad Street to Tennessee Street showed the greatest potential for meeting the reasonableness criteria. For this area, several designs were considered and evaluated using the current . None of the barrier designs analyzed satisfied the noise reduction design goals defined in the Noise Policy. (See Table 6-1)

Certain receptors predicted by the previous technical report to be impacted by traffic noise of the Preferred Alternative are no longer predicted impacts. This change is primarily the result of lower predicted traffic volumes on high speed routes from the updated tolling traffic study versus what was previously estimated for the non-tolled scenario. The noise impacts reduced from 276 to 170 for the I-10 corridor. Additionally, there are receptors that were not previously analyzed in the two new study areas that are predicted to be impacted by traffic noise. The newly modeled area along Bay Bridge Road indicates there will be 88 noise impacted receptors in the 2040 Build scenario. The newly modeled area near US 90 & US 98 near Daphne indicates there will be 18 noise impacted receptors in the 2040 Build scenario. There were 276 noise impacts for the Preferred Alternative in the original report and there are 276 noise impacts in the addendum. Another difference noted is that the original report analyzed 782 receptors for the Preferred Alternative while the addendum includes 1185 receptors (due to the expanded study areas).

It is noted that in the original report, there were 4 noise impacted receptors in the Church Street East Historic District. With the lower traffic volumes modeled in the addendum there is only 1 noise impacted receptor predicted in that historic district, a reduction of 75%. Similarly, in the Oakdale Historic District, it is noted that in the original report there were 161 noise impacted receptors. With the lower traffic volumes modeled in the addendum these have been reduced to 104, a reduction of approximately 35%.

1 Introduction

1.1 Corridor 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 highly-developed urban area of the City of Mobile on the western side, the crossing of the Mobile River, the maritime facilities along the east and west banks of the Mobile River, the upper portion of Mobile Bay along the I-10 Bayway, the Causeway, and the eastern terminus in the vicinity of the I-10/US 90/98 Interchange in Daphne. In this addendum, the setting also includes two new analysis areas. The first is the area along Bay Bridge Road beginning just west of I-165 and continuing to the Cochrane Bridge. This area is a mix of both commercial and residential land uses and is anticipated to receive traffic increases resulting from traffic pattern changes associated with the implementation of tolling. The second is the area approaching the eastern shore of Mobile Bay continuing to the US 98 and US 98 intersection near Spanish Fort and Daphne. The land uses in this area are primarily residential with some undeveloped lands which include Meaher State Park and the southern extent of the W.L. Holland Wildlife Management Area.

2 Data Input

2.1 Traffic Volumes

Traffic noise was previously studied for this project based on 2010 Existing and 2030 projected traffic volumes. Traffic changes are expected based on traffic modeling for tolling considerations as described in detail in the I-10 Mobile River Bridge and Bayway Draft Traffic and Revenue Study Report prepared for the project (CDM Smith, 2018) and the IMR. Table 2-1 displays the projected AADT for the No Build and Build scenarios for various design years and locations. The AADTs shown in Table 2-1 were calculated using AADTs supplied by ALDOT and applying growth rates from the CDM Smith Report.

Table 2-1: Existing and Projected AADT (No Build/Build)

Route	Demand (AADT)		
	2016 Existing	**2020 No Build / Build**	**2040 No Build / Build**
Cochrane-Africatown USA Bridge	16,650*	19,299** / 47,288	49,840 / 51,163
I10 Wallace Tunnel	70,200	82,255 / 25,475	95,042 / 34,288
Bankhead Tunnel	16,759	21,825 / 21,161	28,136 / 23,278
Mobile River Bridge***	N/A	-- / 24,494	-- / 45,733
Total	**103,609**	**123,379 / 123,418**	**173,018 / 154,462**

Although ADT values are useful in assessing the overall traffic demands on a segment of highway, traffic volume during a shorter interval of time will more appropriately represent the operating conditions used for noise modeling and analysis. The hourly period, which shows the maximum traffic volumes, is referred to as the peak hour traffic. The highways in the study corridor experience peak hour traffic during both A.M. and P.M. rush periods.

In this addendum, for the I-10 Existing Alignment, traffic noise was analyzed based on 2020 and 2040 projected traffic volumes. The volumes used are presented in Table 2-2 and Table 2-3.

For the new study area along Bay Bridge Road, the Level of Service (LOS) projections from the traffic studies indicate there will be congestion that prevents a free-flow of traffic at design speeds. In order to model the "worst hourly noise impact" an hourly traffic volume was assumed and modeled at the design speed. The Alabama Traffic Data website for Location ID 97_220 (on Bay Bridge Road) indicates a high percentage of trucks (19-25%). This influenced the percent truck assumption used in the model. In a congested condition, the traffic speeds would be too low to produce the worst hourly noise impact. The volumes selected are presented in Table 2-4.

For the new study area near the intersection of US 90 and US 98, the traffic segments and their associated traffic volumes as used in the model runs are presented in Table 2-5.

The traffic conditions representing the perceived "worst hourly noise impact" were used in the various model runs along with the corresponding posted or design speeds for trucks and automobiles along the various roadway segments. For some receptors this was AM traffic and for others it was PM traffic.

Table 2-2: 2020 and 2040 No-Build Peak Hour Traffic Volumes on I-10

I-10 EXISTING ALIGNMENT Roadway Location Description		2020 Pre-Build Peak Hour Traffic Data			2040 No-Build Peak Hour Traffic Data		
		Cars	Medium Trucks	Heavy Trucks	Cars	Medium Trucks	Heavy Trucks
I-10 from Duval Street to Broad Street	AM PM	6682 6934	269 279	729 757	8222 8528	331 344	898 931
I-10 from Broad Street to Virginia Street	AM PM	6994 7335	281 295	764 801	8604 9027	346 363	940 986
I-10 from Virginia Street to Texas Street	AM PM	6821 7441	275 299	744 813	8414 9186	338 370	919 1002
I-10 from Texas Street to Canal Street	AM PM	7196 7890	289 317	786 862	8815 9670	355 389	963 1056
I-10 from Canal Street to Water Street	AM PM	6607 7043	266 283	722 769	8154 8688	328 349	891 949
I-10 from Water Street EB Exit & WB On Ramps to Water Street EB On & WB Exit Ramps	AM PM	4691 5222	189 210	512 571	5940 6533	239 263	648 713
I-10 in Wallace Tunnels	AM PM	5313 5522	214 222	580 603	6599 6844	265 275	721 748
		Mobile River Channel – Wallace Tunnels					
I-10 from US 90/98 EB Exit/WB On Ramps to Mid-Bay U.90/98 EB Exit/WB On Ramps	AM PM	5795 6018	233 242	633 657	7300 7569	294 305	797 826
I-10 from Mid-Bay U.90/98 Ramps to US 98 EB Exit/WB On Ramps	PM	5879	218	820	7395	274	1031

Table 2-3: 2040 Build Peak Hour Traffic Volumes on I-10

I-10 ALIGNMENT Roadway Location Description		2040 Preferred Alternative Peak Hour Traffic Data		
		Cars	Medium Trucks	Heavy Trucks
I-10 from Duval Street to Broad Street	AM	6809	274	743
	PM	6032	243	659
I-10 from Broad Street to Virginia Street	AM	7410	298	809
	PM	6848	276	747
I-10 from Virginia Street to I-10 Business	AM	6598	265	721
	PM	6426	258	702
I-10 Business from Virginia Street to ramps	AM	3837	154	419
	PM	3880	156	423
I-10 New Mobile River Bridge	AM	2762	111	301
	PM	2546	103	278
I-10 Business from Ramps to Canal Street	AM	4050	163	442
	PM	4125	166	450
I-10 Business from Canal Street to Water Street	AM	892	36	98
	PM	1027	41	113
I-10 Business from Water Street into Wallace Tunnels	AM	2669	107	292
	PM	1027	135	367
	Mobile River Channel – Wallace Tunnels			
I-10 Business from US 90/98 EB Exit/WB On Ramps to Mid-Bay U.90/98 EB Exit/WB On Ramps	AM	5321	214	581
	PM	5400	217	590
I-10 from Mid-Bay U.90/98 Ramps to US 98 EB Exit/WB On Ramps	**PM**	**5066**	**188**	**706**

Table 2-4: Modeled Traffic Volumes for Bay Bridge Road

Model Segment for Bay Bridge Road	2016 Pre-Build			2040 No-Build			2040 Preferred Alternative		
	Peak Hour Traffic Data			Assumed Traffic Data			Assumed Traffic Data		
Segment Description	Cars	Medium Trucks	Heavy Trucks	Cars	Medium Trucks	Heavy Trucks	Cars	Medium Trucks	Heavy Trucks
I-165 NB	2068	66	66	4000	200	500	4000	200	500
I-165 SB	2068	66	66	4000	200	500	4000	200	500
East of I-165	710	63	63	3800	320	320	4000	400	400
West of I-165	2393	77	77	3800	320	320	4000	400	400

Table 2-5: Modeled Traffic Volumes for Area Near US 90 and US 98

Model Segment for Area Near US 90 and US 98		2016 Pre-Build			2040 No-Build			2040 Preferred Alternative		
		Peak Hour Traffic Data			Peak Hour Traffic Data			Peak Hour Traffic Data		
Roadway Link Description	**Peak hour**	Cars	Medium Trucks	Heavy Trucks	Cars	Medium Trucks	Heavy Trucks	Cars	Medium Trucks	Heavy Trucks
US98 From Battleship Parkway to Old Spanish Tr. / I-10 Ramps	AM	922	37	101	1390	56	152	2029	82	221
	PM	1147	46	126	1351	54	148	1814	73	197
SR16/SR42/US90 Old Spanish Tr. From US98 to Spanish Fort Blvd.	AM	938	38	102	1404	57	153	2334	94	254
	PM	1699	68	185	2225	89	243	3588	144	392
SR 42 Old Spanish Tr. South of I-10	AM	3260	131	356	4601	185	503	4367	176	476
	PM	4034	162	440	5361	215	586	5302	213	579
Battleship Parkway US90/US98/SR42 - Causeway	AM	2208	89	241	3445	139	376	4940	198	540
	PM	2507	101	274	3690	149	403	6012	241	657
US90 Spanish Fort Blvd From US98 to Spanish Main St.	AM	1286	52	140	2054	83	225	2911	117	318
	PM	1534	62	167	2339	94	256	4121	166	449
Spanish Fort Blvd From Spanish Main St. to Old Spanish Tr.	AM	1196	48	130	1951	78	213	3384	136	370
	PM	1853	75	202	3431	138	375	4489	181	490
US31/SR3 Spanish Fort Blvd East of Old Spanish Tr.	AM	1675	67	184	2761	111	301	2997	121	326
	PM	2883	116	315	4085	164	447	4693	189	512

2.2 Receptor Locations

All receptors near the Preferred Alternative reanalyzed in this report are at the same location described in the original report dated November 2013 and as shown in that report on Figures 1 through 10 in the original report. Any changes to the original report receptor noise impacts are presented in this report in the Table of Receptors (pages 25 through 102) which compares the **Existing I-10 Alignment From The Original Report** to the **2040 Preferred Alternative**. Some of the receptors presented in the original report are not included for comparison in this addendum. This includes the ones marked "Alternative C Only" on pages 23-34, 36, 37, and 65-76 of the original report.

The updated traffic study that includes tolling suggests that traffic patterns would be affected along the non-tolled route due to traffic diverting to avoid the toll. To assess the impacts due to changing traffic patterns resulting from tolling, two areas outside the study area of the original report were also analyzed in this report. These areas and the associated receptor locations are depicted in Figures 2-1 through 2-10 of this report. The results of the noise model runs for these areas are included in the Table of Receptors (pages 92 through 102). The formatting is different for the new receptors modeled because there were no previous analyses performed on these receptors for comparison in this addendum.

3 Methodology and Regulations

3.1 Methodology, Terminology, Modeling Software

The Methodology, Terminology, and Modeling Software (TNM2.5) for this supplement is unchanged from the time of the original report.

3.2 Regulations

Since the time of the original report, the *ALDOT Highway Traffic Noise Analysis and Abatement Policy and Guidance* of 2011 was updated and superseded by the *ALDOT Highway Traffic Noise Analysis and Abatement Policy and Guidance As per 23 CFR 772* on July 20, 2016. Changes to this Noise Policy were minor and did not cause any change to the preparation methods used in this addendum.

4 Model Validation Analysis

All modeling for the reanalysis of this project is modeled with the same software and input procedure used in the original report. It is appropriate to validate at least one set of models that are based on current conditions. A set of models was validated as part of the original report. Modeled values for existing conditions were found to be within 3 dBA of the measured values along the project roadways. In accordance with Section 3.0 of the ALDOT Noise Policy, based on the topographic features of the areas and since there are no unusual conditions in the additional areas being modeled, it was the noise analyst's discretion and determination that the number and locations for which the existing noise measurements were taken was sufficient for validating the model.

5 Noise Analysis Results

The following table shows the number of receptors that are shown to be impacted by traffic noise in this project area according to the Noise Abatement Criteria (NAC) defined by ALDOT Noise Policy.

Table 5-1: Receptors on the Preferred Alternative

	Original Report (2030) Design Year	Supplemental Report (2040) Design Year
Total Analyzed on Preferred	**782**	**1185**
Impacted in a No-Build condition	**262**	**299**
Impacted in a Build condition	**276**	**276**

The detailed supporting tables of receptors are included at the end of this report (pages 25 through 102). The receptors potentially impacted by traffic noise from project roadways are listed with their expected noise levels in 'A' weighted decibels (dBA) for several conditions. Pages 25 through 91 show the receptors that were part of the original report with comparative data from that report. Pages 92 through 102 show the receptors that were not part of the original report, but are included in this addendum to document the results of the analyses of the expanded study areas.

There were no substantial noise increases (> 15 dBA) when considering the 2040 Build noise levels compared to the existing noise levels.

6 Noise Mitigation Analysis

6.1 Introduction

Noise abatement measures were evaluated at locations where impacts were predicted to occur under the 2040 Preferred Alternative scenario. The abatement measures were evaluated using FHWA's guidelines as promulgated by 23 CFR Part 772. The abatement measures evaluated included traffic management measures, the alteration of horizontal and vertical alignments, the acquisition of property rights or interests therein, the construction of noise barriers, and noise insulation.

6.2 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 remain inconsistent with the purpose of this project. Therefore, the implementation of the traffic management measures for the sole purpose of noise abatement remains not reasonable or likely for this project.

6.3 Alteration of Horizontal and Vertical Alignments

Multiple Build Alternatives with different horizontal and vertical profiles were previously considered. Noise sensitive sites are in areas where dense residential, commercial, and industrial uses exist along both sides of existing I-10. Any horizontal and/or vertical shifts of the alignments which are feasible within the engineering design constraints of the project would not reduce the noise levels at sensitive receptors along I-10. Therefore, alteration of horizontal and vertical alignments for the sole purpose of noise abatement along the I-10 corridor remains not feasible or reasonable for this project. Alteration of horizontal and vertical alignments along the non-tolled route are also not reasonable or feasible because they would result in the acquisition of properties that are not currently being acquired, resulting in greater environmental impacts.

6.4 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 corridor and non-tolled routes. The purchase of properties to serve as a buffer zone remains not reasonable as a mitigation measure for the project.

6.5 Construction of Noise Barriers (including landscaping for aesthetic purposes) Whether Within or Outside the Right-of-Way

ALDOT's Highway Traffic Noise Analysis and Abatement Policy and Guidance regarding construction of noise barriers remains unchanged since the noise analysis from the DEIS.

6.5.1 The Broad Street to Virginia Street Noise Barrier Analysis

The reevaluation of the feasibility and reasonableness of two noise barriers considered to be feasible but not reasonable in the original report and, by the same merit, are still considered to be feasible.

Between the Broad Street Interchange and the Virginia Street Interchange it is feasible to construct noise barriers within the proposed right-of-way along the north side of I-10. The noise sensitive land use along this portion of the study corridor is comprised primarily of single family residential development.

Preferred Alternative *Reasonableness* Analysis: Broad Street to Virginia Street Noise Barrier

A noise barrier between Broad Street and Virginia Street for the Preferred Alternative along the north side of I-10 produces the greatest number of potentially benefited receptors. Multiple barrier scenarios were analyzed in this section.

All of the attempted barrier designs failed to meet the ALDOT reasonableness criteria of a 10 dBA reduction at 65 percent or more of the benefited receptors, therefore the barriers between Broad Street and Virginia Street for Preferred Alternative were considered not reasonable.

This area was found to have the greatest potential for a noise wall that would meet the criteria for both feasibility and reasonableness. Specifically, the section from Broad Street to just south of Tennessee Street was shown to benefit more than 30 impacted receptors while reaching the noise reduction design goal for more than 20 impacted receptors. Additional effort was given to determine if a design scenario could satisfy the feasibility and reasonableness criteria of the ALDOT Noise Policy. Table 6-1 shows several of the designs that were analyzed. None of the feasible designs met the reasonableness criteria, deeming them not reasonable.

Preferred Alternative *Reasonableness* Analysis: Broad Street to Tennessee Street Noise Barrier

None of the designs could be modified to meet both the feasibility criteria and the reasonableness criteria therefore no noise barrier wall was found to be reasonable for this area.

6.5.2 The Virginia Street to Texas Street Overpass Noise Barrier Analysis

Preferred Alternative *Feasibility* Analysis: Virginia Street to Texas Street Noise Barrier

A feasibility analysis was performed on a noise barrier from Virginia Street to Texas Street for the Preferred Alternative along the north side of I-10. The noise barrier had a total length of 5,592 feet and ranged in height from 17 to 20 feet with an average height of 19 feet. The noise barrier achieved an average reduction of 7.5 dBA and achieved a 5 dBA reduction at 93 percent of the impacted receptors. This meets to ALDOT criteria of a 5 dBA reduction at a minimum of 70 percent of impacted receptors, therefore the barrier was considered feasible.

Preferred Alternative *Reasonable* Analysis: Virginia Street to Texas Street Noise Barrier

A reasonableness analysis was performed on a noise barrier from Virginia Street to Texas Street for Preferred Alternative along the north side of I-10. The reasonableness analysis involved modifying the feasibility design in an effort to achieve a 10 dBA reduction at 65 percent or more of the benefitted receptors. The most reasonable noise barrier design was 5,592 feet long with a height of 12 feet. The most reasonable noise barrier achieved an average reduction of 6.6 dBA and a 10 dBA reduction at 11 percent of the benefitted receptors. The most reasonable design failed to meet the ALDOT reasonableness criteria of a 10 dBA reduction at 65 percent or more of the benefitted receptors, therefore the Virginia Street to Texas Street Noise Barrier for Preferred Alternative was considered not reasonable.

6.5.3 The Augusta Street to Canal Street Noise Barrier Analysis

Preferred Alternative *Feasibility* Analysis: Augusta Street to Canal Street Noise Barrier

A feasibility analysis was performed on a noise barrier from Augusta Street to Canal Street for Preferred Alternative along the north side of I-10. The noise barrier had a total length of 5,474 feet and a height ranging from 17 feet to 20 feet. The noise barrier achieved an average reduction of 2.3 dBA and achieved a 5 dBA reduction at zero percent of the impacted receptors. The feasibility analysis failed to meet the ALDOT criteria of a 5 dBA reduction at a minimum of 70 percent of impacted receptors, therefore the barrier was considered not feasible. Since the barrier failed the feasibility analysis, a reasonableness analysis was not performed.

6.5.4 Along Bay Bridge Road

Along the south side of Bay Bridge Road from I-165 to Telegraph Road, barriers were considered for feasibility. Noise barriers were not considered feasible based on things such as constructability, drainage conflicts, considerable changes in elevation from the roadway to the impacted receptors, maintaining access to properties and the local street network, and to some extent other surrounding noise sources. Since no barriers were considered to be feasible, a reasonableness analysis was not performed.

6.5.5 Along the sides of affected highways at the eastern end of the causeway.

Within this additional area of study there were 18 impacted receptors. The location of these impacted receptors are such that there are no feasible locations for a noise barrier. In making this feasibility determination, the examples in Section 8.1 of the Noise Policy regarding additional considerations in determining feasibility were referenced. These considerations include: drainage and/or utility conflicts and maintaining access to the property. An additional consideration included encroachments on 4(f) properties. Since no barriers were found to be feasible, a reasonableness analysis was not performed. However, experience leads to a conclusion that even if a barrier was considered feasible it would fail the cost reasonableness test due to the isolated nature of the impacted receptors and the length of wall that would be required to provide the necessary noise reduction.

7 Undeveloped Land Analysis

Figures 2-1 through 2-10 show an aerial view of the new analysis areas in this addendum. On these figures, where undeveloped lands are present (Figure 2-4, Figure 2-6 through Figure 2-10), noise contours were shown for the 66 dBA and 71 dBA noise levels, and described in Table 7-1. 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 an NAC criteria of 66 dBA, officials may choose to locate the development beyond the 66 dBA contour line. If a business is planned with an NAC criteria of 71 dBA, officials may choose to locate the development beyond the 71 dBA noise contour line. Newly developed lands and lands determined to be permitted for development are assigned to the appropriate Activity Category and analyzed in the same manner as developed lands in that Activity Category.

Table 7-1: Approximate Distances from Nearest Edge of Pavement to Depicted Traffic Noise Contours

Location	66 dBA	71 dBA
Figure 2-4 (North Side of Bay Bridge Road)	59 ft.	117 ft.
Figures 2-5, 2-6, & 2-7 (North and South sides of Battleship Pkwy.)	97 ft.	191 ft.
Figures 2-9 & 2-10 (along the West side of US 98)	46 ft.	89 ft.
Figures 2-8, 2-9, (along the East side of the US 98 ramp)	60 ft.	103 ft.

8 Cumulative Impacts

The potential for cumulative noise impacts was also considered in this Supplemental DEIS. The design year traffic projects used for the noise analysis show decreased traffic on the I-10 corridor even with the planned and programmed projects. As a result, the noise impacts described in this section are reduced and include predicted decreases in noise levels. However, the noise impacts still represent both direct and cumulative noise impacts along the corridor.

The tolling associated with the project is resulting in a redistribution of traffic leading to higher traffic volumes and indirect noise effects beyond the project limits. The traffic is being redistributed to the previously identified areas along Bay Bridge Road and the US-90/US-98 Causeway. As a result, the noise impacts include predicted growth and represent both indirect and cumulative noise impacts.

9 References

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Appendix H: Signed July 22, 2014.

Table 6-1: Barrier Design Scenarios														
Attributes of design Scenarios attempted for barrier walls between Broad St. and Tennessee St.				Feasibility				Cost Reasonableness			Design Goal Reasonableness		
					Impacts w Reduction >5dBA			Recipients w Reduction >5dBA			Recipients w Reduction >10dBA		
Length	Height	Area	Cost	Impacts	Count	% of TTL	Policy 8.1 MET?	Count	Allowable Costs	Policy 8.2.1 MET?	Count	% of Benefited Receptors	Policy 8.2.2 MET?
2113.56	14	29589.84	$ 739,746	73	51	69.9%	NO	N/A	N/A	N/A	N/A	N/A	N/A
2113.56	18	38044.08	$ 951,102	73	60	82.2%	YES	65	$ 1,625,000	YES	26	40%	NO
2113.56	20	42271.2	$ 1,056,780	73	62	84.9%	YES	69	$ 1,725,000	YES	30	43%	NO
2113.56	22	46498.32	$ 1,162,458	73	64	87.7%	YES	74	$ 1,850,000	YES	31	42%	NO
2113.56	30	63406.8	$ 1,585,170	73	66	90.4%	YES	89	$ 2,225,000	YES	42	47%	NO
2113.56	40	84542.4	$ 2,113,560	73	66	90.4%	YES	94	$ 2,350,000	YES	52	55%	NO
1200.19	28	33605.32	$ 840,133	47	34	72.3%	YES	36	$ 900,000	YES	16	44%	NO
1200.19	32	38406.08	$ 960,152	47	35	74.5%	YES	36	$ 900,000	NO	20	56%	NO

The first scenario in this table shows a design where a noise barrier nearly satisfies the feasible test. This design and any shorter wall heights would not meet ALDOT Noise Policy Section 8.1 and are not considered for reasonableness evaluation. The remaining scenarios presented in this table summarize a number of wall designs that indicate cost reasonableness and/or feasible build heights will be exceeded before the criteria in Policy Section 8.2.2 is met.

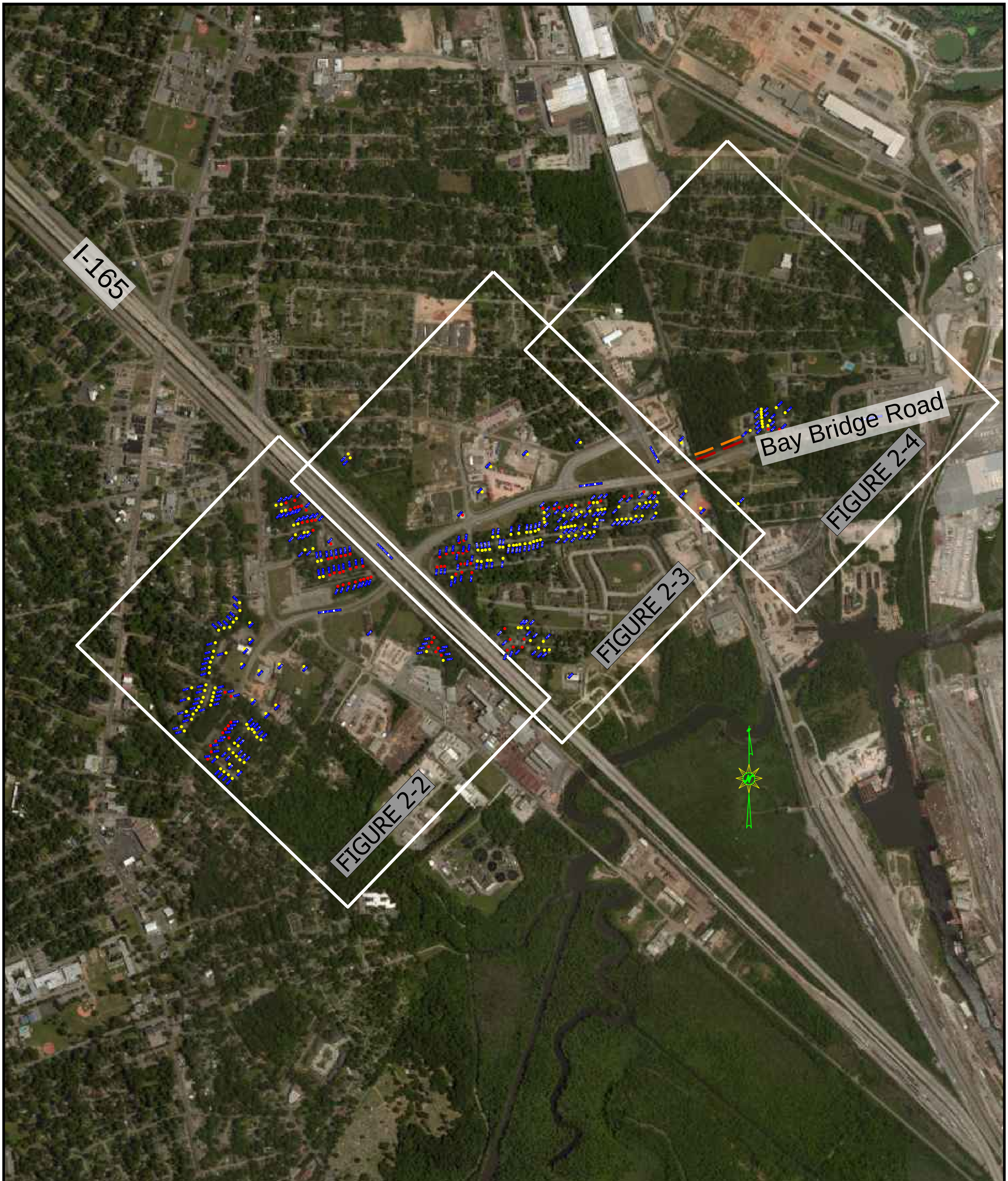

FIGURE 2-1

MAP OVERVIEW NOISE STUDY AREA
FOR FIGURES 2-2, 2-3 & 2-4
NEAR BAY BRIDGE RD & I-165

FIGURE 2-2

RECEPTOR LOCATIONS
NEAR BAY BRIDGE ROAD
AND I-165

FIGURE 2-3

RECEPTOR LOCATIONS
NEAR BAY BRIDGE ROAD
AND I-165

FIGURE 2-4

RECEPTOR LOCATIONS
NEAR BAY BRIDGE ROAD
AND I-165

FIGURE 2-5

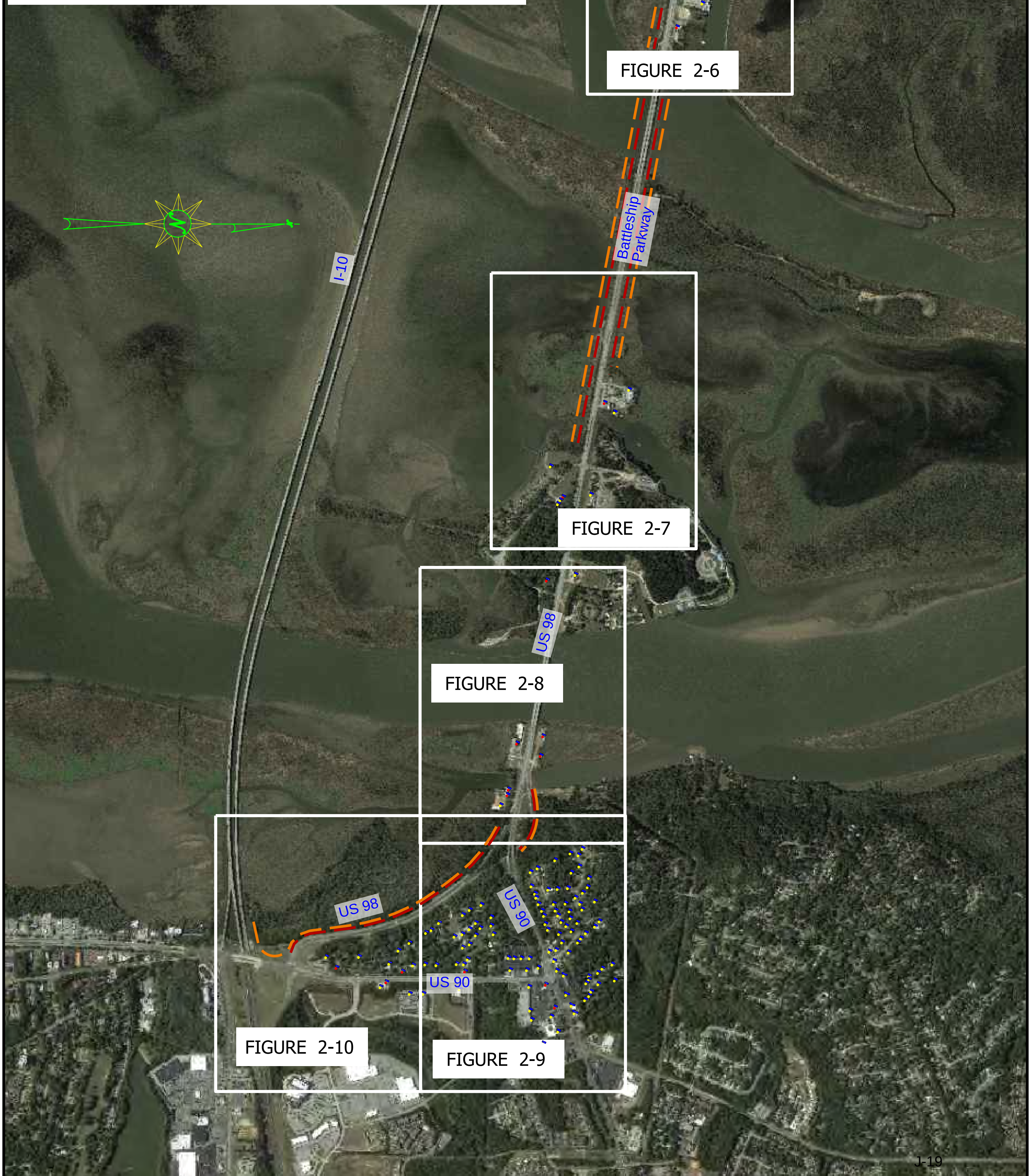

FIGURE 2-6
Battleship Parkway
I-10
FIGURE 2-7
US 98
FIGURE 2-8
US 98
US 90
US 90
FIGURE 2-10
FIGURE 2-9

FIGURE 2-6

RECEPTOR LOCATIONS
ALONG US 90 & US 98 NEAR DAPHNE

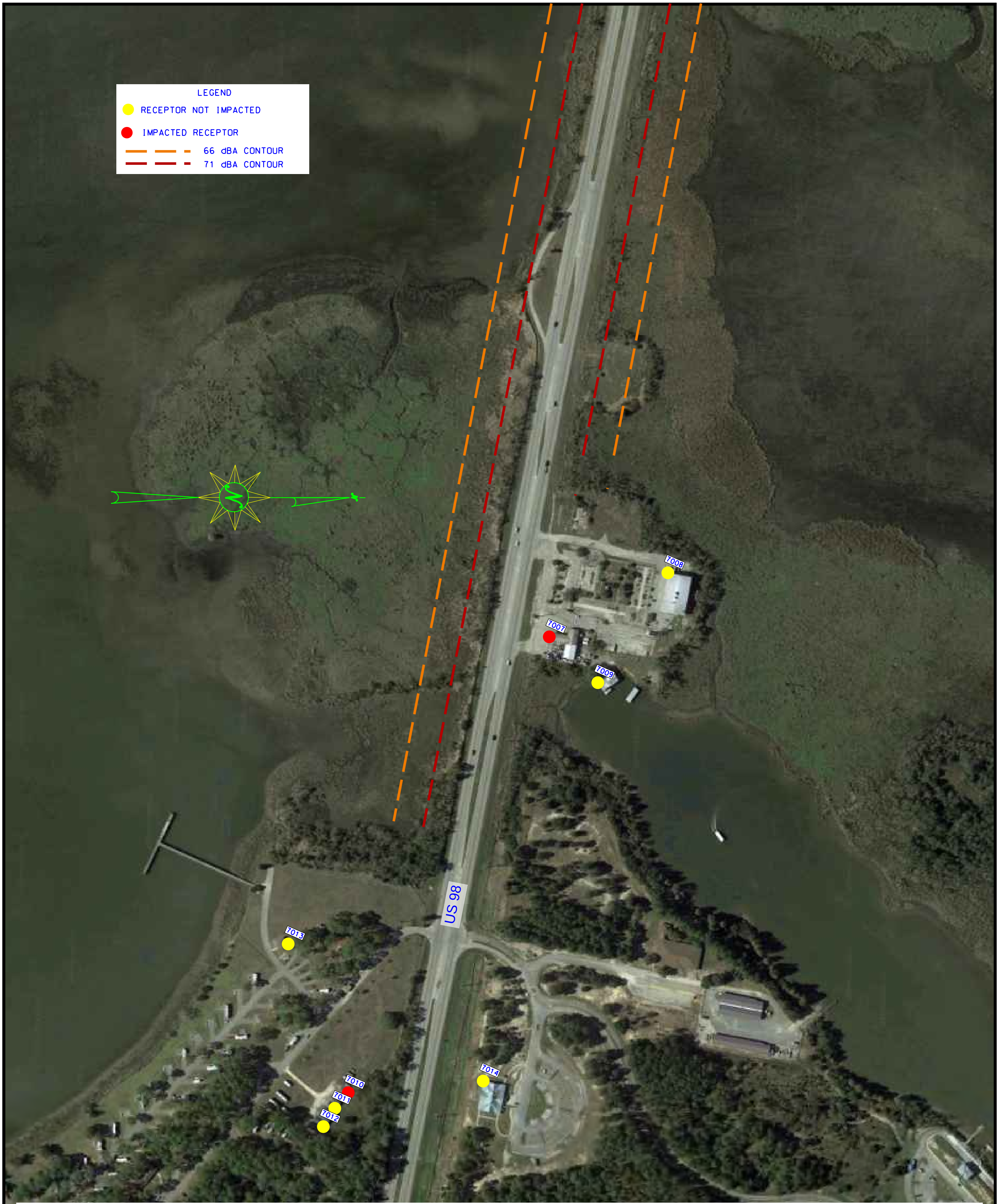

FIGURE 2-7

RECEPTOR LOCATIONS
ALONG US 90 & US 98 NEAR DAPHNE

FIGURE 2-8

RECEPTOR LOCATIONS
ALONG US 90 & US 98 NEAR DAPHNE

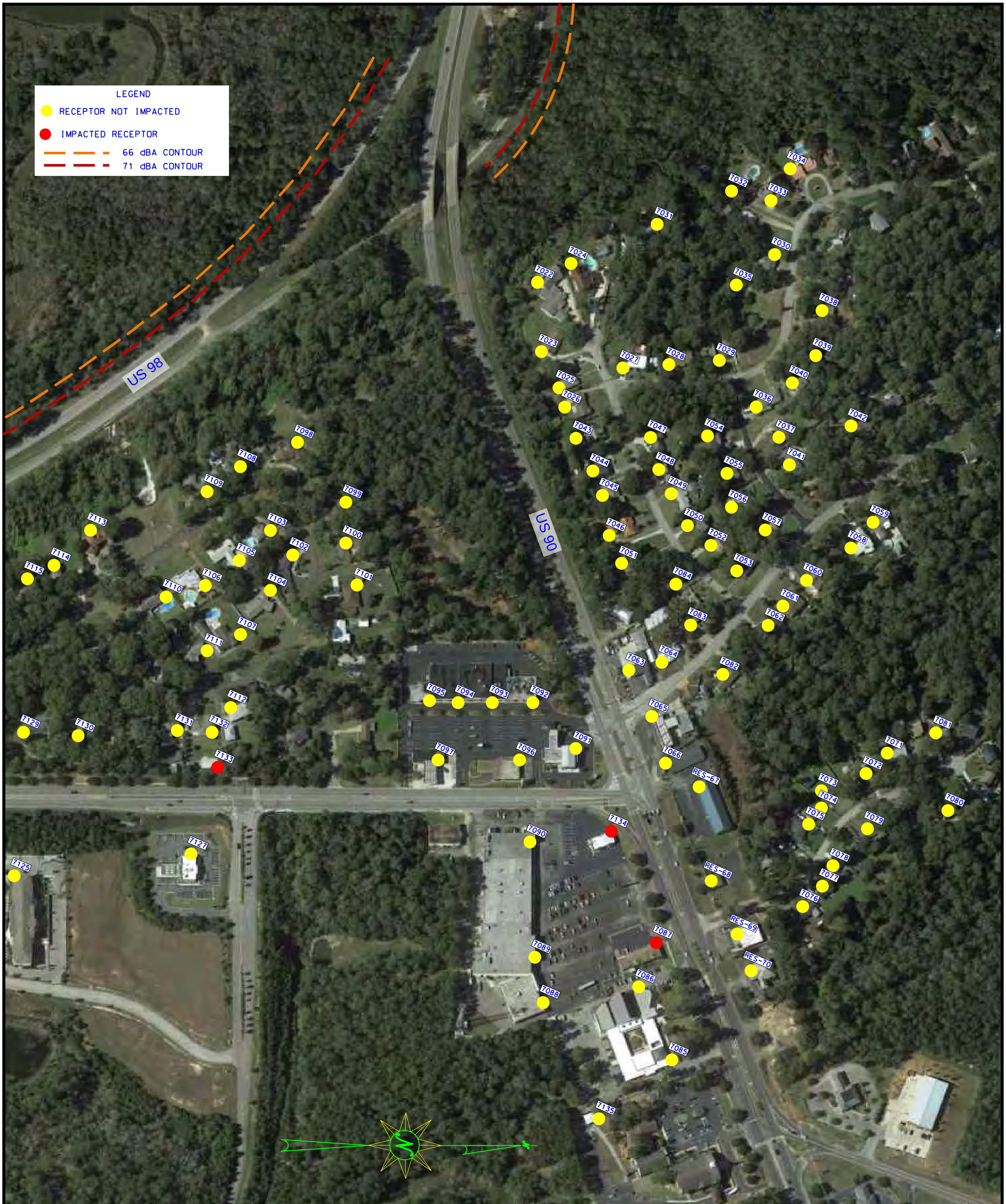

FIGURE 2-9

RECEPTOR LOCATIONS
ALONG US 90 & US 98 NEAR DAPHNE

FIGURE 2-10

RECEPTOR LOCATIONS
ALONG US 90 & US 98 NEAR DAPHNE

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 117 (Residential)	1	B	132	**72.5**	**74.7**	***Yes***	72.6	73.7	Yes	132	**74.4**	***Yes***	71.8	Yes
† Res 118 (Residential)	1	B	138	**72.4**	**74.6**	***Yes***	72.5	73.6	Yes	138	**74.3**	***Yes***	71.7	Yes
† Res 119 (Residential)	1	B	164	**71.6**	**73.7**	***Yes***	71.7	72.7	Yes	164	**73.6**	***Yes***	70.9	Yes
† Res 120 (Residential)	1	B	213	**69.5**	**71.7**	***Yes***	69.6	70.5	Yes	213	**72**	***Yes***	69.2	Yes
† Res 126 (Residential)	1	B	131	**72**	**74.2**	***Yes***	72.2	73.3	Yes	131	**73.8**	***Yes***	71.4	Yes
† Res 127 (Residential)	1	B	148	**71.9**	**74.1**	***Yes***	72.1	73.1	Yes	148	**73.6**	***Yes***	71.0	Yes
† Res 128 (Residential)	1	B	174	**71.3**	**73.4**	***Yes***	71.4	72.4	Yes	174	**73**	***Yes***	70.3	Yes
† Res 129 (Residential)	1	B	235	**69.5**	**71.7**	***Yes***	69.6	70.6	Yes	235	**71.4**	***Yes***	68.6	Yes
† Res 130 (Residential)	1	B	354	**66**	**68.1**	***Yes***	66.1	67.0	Yes	354	**68**	***Yes***	65.2	No
† Res 131 (Residential)	1	B	390	64.5	**66.6**	***Yes***	64.5	65.5	No	390	**66.5**	***Yes***	63.6	No
† Res 132 (Residential)	1	B	441	64	**66.2**	***Yes***	64.1	65.0	No	441	**66**	***Yes***	63.1	No
† Res 133 (Residential)	1	B	136	**72.5**	**74.7**	***Yes***	72.7	73.9	Yes	137	**74.6**	***Yes***	72.4	Yes

† Oakdale Hist. Dist.

¥ Church Street Hist. Dist.

Table of Receptors

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 134 (Residential)	1	B	215	**70.4**	**72.5**	***Yes***	70.5	71.5	Yes	215	**72.2**	***Yes***	69.5	Yes
† Res 135 (Residential)	1	B	257	**69.3**	**71.4**	***Yes***	69.3	70.3	Yes	256	**71.1**	***Yes***	68.4	Yes
† Res 136 (Residential)	1	B	283	**68.5**	**70.7**	***Yes***	68.6	69.6	Yes	283	**70.5**	***Yes***	67.7	Yes
† Res 137 (Residential)	1	B	314	**67.9**	**70.1**	***Yes***	68.0	69.0	Yes	314	**70**	***Yes***	67.2	Yes
† Res 138 (Residential)	1	B	366	**66.8**	**69**	***Yes***	66.9	67.8	Yes	367	**69**	***Yes***	66.1	Yes
† Res 139 (Residential)	1	B	394	**66.5**	**68.7**	***Yes***	66.6	67.5	Yes	395	**68.5**	***Yes***	65.7	No
† Res 140 (Residential)	1	B	439	65.7	**67.8**	***Yes***	65.7	66.6	Yes	439	**67.6**	***Yes***	64.7	No
† Res 141 (Residential)	1	B	466	65.1	**67.2**	***Yes***	65.1	66.0	Yes	466	**67**	***Yes***	64.1	No
Com 142 (Commercial)	1	F	201	72	74.2	No	72.1	73.3	No	201	74	No	71.8	No
† Res 143 (Residential)	1	B	297	**68.9**	**71**	***Yes***	68.9	69.9	Yes	297	**70.8**	***Yes***	68.1	Yes
† Res 144 (Residential)	1	B	343	**67.2**	**69.3**	***Yes***	67.2	68.2	Yes	343	**69.2**	***Yes***	66.4	Yes
† Res 145 (Residential)	1	B	405	65.2	**67.4**	***Yes***	65.3	66.3	Yes	406	**67.2**	***Yes***	64.4	No

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 146 (Residential)	1	B	488	63.7	65.8	No	63.8	64.7	No	487	65.7	No	62.9	No
† Church 147 (Church)	1	C	215	**70.8**	**73**	***Yes***	70.9	72.1	Yes	207	**72.6**	***Yes***	70.3	Yes
Res 148 (Residential)	1	B	413	63.7	65.9	No	63.8	64.8	No	414	65.4	No	62.7	No
Church 150 (Church)	1	C	446	64.4	**66.5**	***Yes***	64.4	65.5	No	439	**66.5**	***Yes***	63.8	No
Com 166 (Commercial)	1	F	41	77.4	79.5	No	77.5	78.5	No	33	79.4	No	76.6	No
Com 167 (Commercial)	1	F	156	73.9	76.1	No	74.1	75.1	No	147	76	No	73.2	No
† Res 168 (Residential)	1	B	57	**78.2**	**80.3**	***Yes***	78.2	79.8	Yes	52	**80.4**	***Yes***	77.5	Yes
† Res 169 (Residential)	1	B	125	**75**	**77.1**	***Yes***	75.0	76.4	Yes	117	**77.1**	***Yes***	74.2	Yes
† Res 170 (Residential)	1	B	171	**73.3**	**75.5**	***Yes***	73.4	74.7	Yes	161	**75.5**	***Yes***	72.6	Yes
† Res 171 (Residential)	1	B	207	**72**	**74.1**	***Yes***	72.1	73.3	Yes	197	**74.2**	***Yes***	71.3	Yes
† Church 172 (Church)	1	C	215	**71.8**	**74**	***Yes***	71.9	73.1	Yes	205	**73.9**	***Yes***	71.0	Yes
† Church 173 (Church)	1	C	266	65.9	**68**	***Yes***	65.9	67.4	Yes	257	**68.1**	***Yes***	65.6	No

† Oakdale Hist. Dist.

¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 174 (Commercial)	1	F	457	67.4	69.6	No	67.4	69.0	No	448	69.7	No	68.3	No
† Res 175 (Residential)	1	B	53	**78.6**	**80.8**	***Yes***	78.6	80.4	Yes	46	**80.8**	***Yes***	77.9	Yes
† Res 176 (Residential)	1	B	92	**76.9**	**79.1**	***Yes***	76.9	78.6	Yes	85	**79.1**	***Yes***	76.2	Yes
† Res 177 (Residential)	1	B	156	**73.1**	**75.2**	***Yes***	73.0	74.7	Yes	150	**75.2**	***Yes***	72.4	Yes
† Res 178 (Residential)	1	B	233	**68.9**	**71**	***Yes***	68.9	70.4	Yes	227	**71.3**	***Yes***	68.5	Yes
† Res 179 (Residential)	1	B	274	**67.4**	**69.5**	***Yes***	67.4	68.9	Yes	267	**69.8**	***Yes***	67.0	Yes
† Church 180 (Church)	1	C	381	65.6	**67.8**	***Yes***	65.6	67.1	Yes	373	**67.9**	***Yes***	65.7	No
† Res 181 (Residential)	1	B	411	**66.4**	**68.6**	***Yes***	66.5	68.0	Yes	400	**68.7**	***Yes***	66.9	Yes
† Res 182 (Residential)	1	B	108	**76.7**	**78.9**	***Yes***	76.8	78.1	Yes	97	**78.7**	***Yes***	75.9	Yes
† Res 183 (Residential)	1	B	131	**75.6**	**77.7**	***Yes***	75.6	77.0	Yes	120	**77.5**	***Yes***	74.7	Yes
† Res 184 (Residential)	1	B	171	**73.6**	**75.7**	***Yes***	73.6	75.1	Yes	161	**75.7**	***Yes***	72.9	Yes
† Res 185 (Residential)	1	B	195	**72.5**	**74.7**	***Yes***	72.6	74.1	Yes	186	**74.8**	***Yes***	72.0	Yes

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 186 (Residential)	1	B	249	**70.5**	**72.6**	***Yes***	70.5	72.1	Yes	241	**73**	***Yes***	70.1	Yes
† Res 187 (Residential)	1	B	282	**69.2**	**71.3**	***Yes***	69.2	70.8	Yes	275	**71.6**	***Yes***	68.7	Yes
† Res 188 (Residential)	1	B	306	**68.1**	**70.2**	***Yes***	68.1	69.6	Yes	300	**70.5**	***Yes***	67.7	Yes
† Res 189 (Residential)	1	B	373	**66.1**	**68.2**	***Yes***	66.1	67.6	Yes	367	**68.4**	***Yes***	65.8	No
† Res 190 (Residential)	1	B	468	65.4	**67.5**	***Yes***	65.3	66.9	Yes	463	**67.7**	***Yes***	65.6	No
† Res 191 (Residential)	1	B	42	**80**	**82.2**	***Yes***	80.2	81.1	Yes	30	**82.6**	***Yes***	79.8	Yes
† Res 192 (Residential)	1	B	72	**78.4**	**80.6**	***Yes***	78.5	79.5	Yes	60	**80.7**	***Yes***	77.9	Yes
† Res 193 (Residential)	1	B	199	**71.7**	**73.8**	***Yes***	71.8	72.7	Yes	187	**74.3**	***Yes***	71.6	Yes
† Res 194 (Residential)	1	B	244	**68.6**	**70.7**	***Yes***	68.7	69.7	Yes	232	**71.5**	***Yes***	68.8	Yes
† Res 195 (Residential)	1	B	266	**67.1**	**69.3**	***Yes***	67.2	68.3	Yes	254	**70**	***Yes***	67.3	Yes
† Res 196 (Residential)	1	B	305	65.5	**67.7**	***Yes***	65.6	66.8	Yes	294	**68.3**	***Yes***	65.6	No
† Res 197 (Residential)	1	B	374	63.6	65.7	No	63.6	64.9	No	365	**66.2**	***Yes***	63.6	No

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 198 (Residential)	1	B	412	63.6	65.8	No	63.6	64.9	No	403	**66.1**	***Yes***	63.7	No
† Res 199 (Residential)	1	B	448	64	**67.7**	***Yes***	64.0	65.3	No	440	**66.4**	***Yes***	64.0	No
† Res 200 (Residential)	1	B	37	**80.5**	**82.7**	***Yes***	80.6	81.5	Yes	25	**83.1**	***Yes***	80.4	Yes
† Res 201 (Residential)	1	B	98	**76.8**	**79**	***Yes***	77.0	77.9	Yes	86	**79.2**	***Yes***	76.5	Yes
† Res 202 (Residential)	1	B	107	**76.8**	**78.9**	***Yes***	76.9	77.8	Yes	95	**79.1**	***Yes***	76.4	Yes
† Res 203 (Residential)	1	B	149	**75**	**77.2**	***Yes***	75.2	76.1	Yes	137	**77.3**	***Yes***	74.6	Yes
† Res 204 (Residential)	1	B	152	**75.1**	**77.2**	***Yes***	75.2	76.2	Yes	140	**77.3**	***Yes***	74.6	Yes
† Res 205 (Residential)	1	B	300	**68.1**	**70.2**	***Yes***	68.1	69.1	Yes	288	**71.2**	***Yes***	68.5	Yes
† Res 206 (Residential)	1	B	377	64.8	**66.9**	***Yes***	64.8	65.8	No	365	**67.6**	***Yes***	65.0	No
† Res 207 (Residential)	1	B	425	63.7	65.8	No	63.7	64.7	No	413	**66.3**	***Yes***	63.8	No
Church 208 (Church)	1	C	471	63.1	65.3	No	63.2	64.3	No	459	65.7	No	63.2	No
† Res 209 (Residential)	1	B	76	**78.4**	**80.5**	***Yes***	78.5	79.4	Yes	64	**80.7**	***Yes***	78.1	Yes

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¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 210 (Residential)	1	B	112	**76.1**	**78.3**	***Yes***	76.3	77.1	Yes	100	**78.4**	***Yes***	75.7	Yes
† Res 211 (Residential)	1	B	152	**73.7**	**75.9**	***Yes***	73.9	74.8	Yes	140	**76**	***Yes***	73.4	Yes
† Res 212 (Residential)	1	B	186	**71.2**	**73.3**	***Yes***	71.3	72.2	Yes	174	**73.9**	***Yes***	71.3	Yes
† Res 213 (Residential)	1	B	315	**67.5**	**69.6**	***Yes***	67.5	68.6	Yes	303	**70.4**	***Yes***	67.7	Yes
† Res 214 (Residential)	1	B	375	**66.2**	**68.3**	***Yes***	66.2	67.3	Yes	363	**69**	***Yes***	66.4	Yes
† Res 215 (Residential)	1	B	416	65.2	**67.3**	***Yes***	65.2	66.2	Yes	404	**67.9**	***Yes***	65.4	No
† Res 216 (Residential)	1	B	449	64.4	**66.5**	***Yes***	64.4	65.4	No	437	**67.1**	***Yes***	64.6	No
† Res 217 (Residential)	1	B	72	**78.3**	**80.5**	***Yes***	78.5	79.4	Yes	60	**80.7**	***Yes***	78.0	Yes
† Res 218 (Residential)	1	B	134	**75.6**	**77.8**	***Yes***	75.7	76.6	Yes	122	**77.8**	***Yes***	75.1	Yes
† Res 219 (Residential)	1	B	162	**74.3**	**76.4**	***Yes***	74.4	75.3	Yes	150	**76.7**	***Yes***	74.1	Yes
† Res 220 (Residential)	1	B	238	**70.1**	**72.2**	***Yes***	70.1	71.0	Yes	226	**72.9**	***Yes***	70.3	Yes
† Res 221 (Residential)	1	B	271	**68.2**	**70.4**	***Yes***	68.3	69.2	Yes	259	**71**	***Yes***	68.4	Yes

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

Table of Receptors

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
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	782					262			213			276		170
† Res 222 (Residential)	1	B	309	**66.8**	**69**	***Yes***	66.9	67.8	Yes	297	**69.4**	***Yes***	66.8	Yes
† Res 223 (Residential)	1	B	450	64.2	**66.4**	***Yes***	64.2	65.3	No	438	**66.9**	***Yes***	64.4	No
† Res 224 (Residential)	1	B	480	63.5	65.6	No	63.5	64.5	No	468	**66**	***Yes***	63.5	No
† Res 225 (Residential)	1	B	84	**76.7**	**78.8**	***Yes***	76.8	77.7	Yes	72	**78.4**	***Yes***	75.8	Yes
† Res 226 (Residential)	1	B	123	**75.4**	**77.5**	***Yes***	75.5	76.4	Yes	111	**77.8**	***Yes***	75.2	Yes
† Res 227 (Residential)	1	B	179	**72.7**	**74.8**	***Yes***	72.8	73.7	Yes	167	**75.6**	***Yes***	73.0	Yes
† Res 228 (Residential)	1	B	227	**69.8**	**71.9**	***Yes***	69.8	70.7	Yes	215	**73.2**	***Yes***	70.6	Yes
† Res 229 (Residential)	1	B	264	**68.1**	**70.3**	***Yes***	68.2	69.1	Yes	252	**71.6**	***Yes***	69.1	Yes
† Res 230 (Residential)	1	B	308	**66.7**	**68.9**	***Yes***	66.7	67.6	Yes	296	**70.2**	***Yes***	67.7	Yes
† Res 231 (Residential)	1	B	342	65.7	**67.9**	***Yes***	65.8	66.7	Yes	330	**69.1**	***Yes***	66.6	Yes
† Res 232 (Residential)	1	B	376	64.3	**66.5**	***Yes***	64.4	65.3	No	364	**67.7**	***Yes***	65.3	No
† Res 233 (Residential)	1	B	408	63.5	65.7	No	63.5	64.5	No	396	**66.9**	***Yes***	64.4	No

† Oakdale Hist. Dist.

¥ Church Street Hist. Dist.

Table of Receptors

Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 234 (Residential)	1	B	476	63	65.1	No	62.9	64.0	No	464	65.9	No	63.4	No
† Res 235 (Residential)	1	B	109	**73.4**	**75.5**	***Yes***	73.5	74.3	Yes	94	**74.5**	***Yes***	71.9	Yes
† Res 236 (Residential)	1	B	177	**71.1**	**73.3**	***Yes***	71.2	72.1	Yes	163	**73.5**	***Yes***	71.0	Yes
† Res 237 (Residential)	1	B	210	**70.2**	**72.4**	***Yes***	70.3	71.2	Yes	197	**72.7**	***Yes***	70.1	Yes
† Res 238 (Residential)	1	B	253	**69**	**71.1**	***Yes***	69.0	69.9	Yes	241	**71.5**	***Yes***	69.0	Yes
† Res 239 (Residential)	1	B	294	**68**	**70.1**	***Yes***	68.0	68.9	Yes	281	**71.2**	***Yes***	68.7	Yes
† Res 240 (Residential)	1	B	330	**66.7**	**68.8**	***Yes***	66.7	67.6	Yes	318	**70.1**	***Yes***	67.5	Yes
† Res 241 (Residential)	1	B	397	64.4	**66.5**	***Yes***	64.4	65.3	No	385	**68.2**	***Yes***	65.7	No
† Res 242 (Residential)	1	B	420	63.7	65.8	No	63.7	64.6	No	408	**67.8**	***Yes***	65.3	No
† Res 243 (Residential)	1	B	442	62.8	64.9	No	62.8	63.7	No	430	**67.4**	***Yes***	64.9	No
† Res 244 (Residential)	1	B	98	**71.5**	**73.7**	***Yes***	71.7	72.5	Yes	75	**71.2**	***Yes***	68.5	Yes
† Res 245 (Residential)	1	B	182	**69.9**	**72**	***Yes***	70.0	70.8	Yes	162	**71.6**	***Yes***	69.0	Yes

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 246 (Residential)	1	B	230	**67.5**	**69.6**	***Yes***	67.5	68.4	Yes	210	**69.9**	***Yes***	67.4	Yes
† Res 247 (Residential)	1	B	273	**66.1**	**68.2**	***Yes***	66.1	67.0	Yes	255	**68.6**	***Yes***	66.1	Yes
† Res 248 (Residential)	1	B	322	64.9	**67.1**	***Yes***	65.0	65.9	No	304	**67.5**	***Yes***	65.1	No
† Res 249 (Residential)	1	B	369	63.6	65.7	No	63.6	64.5	No	353	**66.1**	***Yes***	63.7	No
Res 250 (Residential)	1	B	407	63	65.1	No	63.0	63.9	No	392	65.6	No	63.2	No
Res 251 (Residential)	1	B	445	62.3	64.5	No	62.3	63.2	No	430	64.9	No	62.5	No
Res 252 (Residential)	1	B	495	61.4	63.6	No	61.4	62.3	No	482	64.2	No	61.7	No
Com 253 (Commercial)	1	F	403	65.7	67.8	No	65.4	66.2	No	391	68.6	No	66.3	No
Com 254 (Commercial)	1	F	379	66	68.1	No	65.6	66.5	No	367	69.1	No	66.9	No
Com 255 (Commercial)	1	F	478	64.7	66.9	No	64.4	65.2	No	466	67.1	No	64.7	No
Com 256 (Commercial)	1	F	481	65.4	67.5	No	65.1	65.9	No	469	67.8	No	65.4	No
Com 257 (Commercial)	1	F	189	68.3	70.5	No	67.9	68.7	No	177	70	No	67.6	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 258 (Residential)	1	B	499	64.7	**66.9**	***Yes***	64.7	65.6	No	475	**67.1**	***Yes***	64.6	No
† Res 259 (Residential)	1	B	208	**68.3**	**70.5**	***Yes***	68.4	69.3	Yes	184	**69.3**	***Yes***	66.7	Yes
† Res 260 (Residential)	1	B	225	**68.1**	**70.3**	***Yes***	68.2	69.1	Yes	201	**69.1**	***Yes***	66.5	Yes
† Res 261 (Residential)	1	B	361	**66.7**	**68.9**	***Yes***	66.7	67.6	Yes	337	**68**	***Yes***	65.5	No
† Res 262 (Residential)	1	B	398	**66.2**	**68.4**	***Yes***	66.2	67.1	Yes	374	**67.6**	***Yes***	65.0	No
† Res 263 (Residential)	1	B	442	64.9	**67.1**	***Yes***	64.9	65.8	No	418	**66.4**	***Yes***	63.8	No
† Res 264 (Residential)	1	B	269	**67.8**	**70**	***Yes***	67.9	68.8	Yes	245	**68.6**	***Yes***	66.0	Yes
† Res 265 (Residential)	1	B	143	**69.6**	**71.8**	***Yes***	69.7	70.6	Yes	119	**69**	***Yes***	66.5	Yes
† Res 266 (Residential)	1	B	127	**69.8**	**72**	***Yes***	69.9	70.8	Yes	103	**69.3**	***Yes***	66.7	Yes
† Res 267 (Residential)	1	B	332	**67.3**	**69.6**	***Yes***	67.3	68.2	Yes	308	**68.2**	***Yes***	65.8	No
† Res 268 (Residential)	1	B	488	64.7	**67**	***Yes***	64.7	65.6	No	464	**66.7**	***Yes***	64.1	No
† Res 269 (Residential)	1	B	167	**69.3**	**71.5**	***Yes***	69.4	70.2	Yes	143	**69.6**	***Yes***	67.1	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 270 (Residential)	1	B	212	**68.7**	**70.9**	***Yes***	68.8	69.6	Yes	188	**69.4**	***Yes***	66.9	Yes
† Res 271 (Residential)	1	B	365	**67**	**69.2**	***Yes***	67.0	67.9	Yes	341	**68.2**	***Yes***	65.8	No
† Res 272 (Residential)	1	B	450	65.7	**68**	***Yes***	65.7	66.6	Yes	426	**67.8**	***Yes***	65.3	No
† Res 273 (Residential)	1	B	223	**69.1**	**71.3**	***Yes***	69.1	70.0	Yes	199	**70.2**	***Yes***	67.7	Yes
† Res 274 (Residential)	1	B	270	**68.4**	**70.7**	***Yes***	68.4	69.3	Yes	246	**69.8**	***Yes***	67.3	Yes
† Res 275 (Residential)	1	B	425	**66.2**	**68.5**	***Yes***	66.2	67.1	Yes	401	**68.4**	***Yes***	66.0	Yes
† Res 276 (Residential)	1	B	505	65.1	**67.4**	***Yes***	65.1	66.0	Yes	481	**67.3**	***Yes***	64.9	No
† Res 277 (Residential)	1	B	252	**68.7**	**71**	***Yes***	68.7	69.6	Yes	226	**70.1**	***Yes***	67.7	Yes
† Res 278 (Residential)	1	B	453	65.9	**68.2**	***Yes***	65.9	66.8	Yes	428	**68.1**	***Yes***	65.8	No
† Res 279 (Residential)	1	B	446	**66**	**68.4**	***Yes***	66.0	66.9	Yes	420	**68.2**	***Yes***	65.9	No
† Res 280 (Residential)	1	B	506	65.2	**67.6**	***Yes***	65.2	66.1	Yes	482	**67.5**	***Yes***	65.3	No
† Res 281 (Residential)	1	B	305	**67.7**	**70.1**	***Yes***	67.7	68.6	Yes	285	**69.8**	***Yes***	67.5	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 282 (Residential)	1	B	503	65	**67.4**	***Yes***	65.0	65.9	No	483	**67.4**	***Yes***	65.1	No
† Res 283 (Residential)	1	B	318	**67.6**	**69.9**	***Yes***	67.5	68.4	Yes	300	**69.6**	***Yes***	67.4	Yes
† Res 284 (Residential)	1	B	504	64.8	**67.2**	***Yes***	64.8	65.7	No	486	**67.1**	***Yes***	64.9	No
† Res 285 (Residential)	1	B	162	**69.8**	**72.1**	***Yes***	69.7	70.7	Yes	148	**71.9**	***Yes***	69.5	Yes
† Res 286 (Residential)	1	B	214	**68.9**	**71.3**	***Yes***	68.9	69.8	Yes	199	**70.9**	***Yes***	68.7	Yes
† Res 287 (Residential)	1	B	71	**71**	**73.4**	***Yes***	70.9	72.0	Yes	65	**73.3**	***Yes***	71.3	Yes
† Res 288 (Residential)	1	B	200	**69.2**	**71.6**	***Yes***	69.0	70.0	Yes	192	**71.3**	***Yes***	69.3	Yes
† Church 289 (Church)	1	C	369	**66.7**	**69.1**	***Yes***	66.6	67.5	Yes	358	**68.9**	***Yes***	66.9	Yes
† Res 290 (Residential)	1	B	92	**70.5**	**72.9**	***Yes***	70.4	71.5	Yes	90	**72.9**	***Yes***	71.1	Yes
† Res 291 (Residential)	1	B	251	**68.4**	**70.8**	***Yes***	68.3	69.3	Yes	246	**70.7**	***Yes***	68.9	Yes
† Res 292 (Residential)	1	B	169	**69.6**	**72**	***Yes***	69.5	70.6	Yes	168	**71.9**	***Yes***	70.3	Yes
Com 293 (Commercial)	1	F	224	68.6	71	No	68.5	69.7	No	218	71	No	69.6	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 294 (Commercial)	1	F	104	70	72.1	No	69.6	70.4	No	80	69.7	No	67.3	No
Com 295 (Restaurant)	1	E	245	68.9	**71.1**	***Yes***	68.8	69.2	No	203	69.2	No	66.7	No
Com 296 (Commercial)	1	F	595	64.5	66.6	No	64.3	64.9	No	560	66.2	No	63.8	No
Com 297 (Commercial)	1	F	329	68.1	70.2	No	67.9	68.4	No	278	68.9	No	66.3	No
Com 298 (Commercial)	1	F	806	61.6	63.7	No	61.4	62.0	No	793	63.6	No	61.0	No
Com 299 (Commercial)	1	F	249	68.6	70.8	No	68.5	68.8	No	200	70	No	67.4	No
Com 300 (Commercial)	1	F	341	66.1	68.3	No	66.0	66.4	No	363	67.9	No	65.2	No
Com 301 (Commercial)	1	F	539	63	65.1	No	62.8	63.3	No	621	65	No	62.4	No
Com 302 (Commercial)	1	F	841	60.2	62.4	No	60.1	60.6	No	913	62.2	No	59.6	No
Res 303 (Residential)	1	B	202	**67.6**	**69.7**	***Yes***	67.5	67.8	Yes	232	**69.3**	***Yes***	66.5	Yes
Res 304 (Residential)	1	B	182	**68**	**70.2**	***Yes***	68.0	68.3	Yes	198	**69.6**	***Yes***	66.9	Yes
Res 305 (Residential)	1	B	147	**67.7**	**69.9**	***Yes***	67.7	68.0	Yes	200	**69.4**	***Yes***	66.7	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 306 (Residential)	1	B	125	**67.7**	**69.8**	***Yes***	67.6	68.0	Yes	185	**69.5**	***Yes***	66.8	Yes
Com 307 (Commercial)	1	F	604	61.5	63.7	No	61.4	61.9	No	742	63.7	No	61.0	No
Com 308 (Commercial)	1	F	730	59.7	61.9	No	59.7	60.2	No	887	62	No	59.4	No
Com 309 (Commercial)	1	F	602	61	63.2	No	60.9	61.4	No	753	63.3	No	60.7	No
Com 310 (Commercial)	1	F	539	61.9	64	No	61.8	62.3	No	672	64.3	No	61.7	No
Com 311 (Commercial)	1	F	401	63.7	65.9	No	63.7	64.2	No	497	66.2	No	63.4	No
Com 312 (Commercial)	1	F	41	71.4	73.5	No	71.4	73.0	No	101	74	No	72.8	No
School 313 (School)	1	C	351	**69.7**	**71.9**	***Yes***	69.8	71.6	Yes	414	**72.6**	***Yes***	72.0	Yes
Res 314 (Residential)	1	B	53	**71.1**	**73.3**	***Yes***	71.1	72.5	Yes	61	**72.9**	***Yes***	70.8	Yes
Res 315 (Residential)	1	B	61	**70.3**	**72.4**	***Yes***	70.2	71.4	Yes	77	**72.6**	***Yes***	70.4	Yes
Res 316 (Residential)	1	B	130	**69.2**	**71.3**	***Yes***	69.1	70.2	Yes	147	**72**	***Yes***	69.4	Yes
Res 317 (Residential)	1	B	196	**67.4**	**69.5**	***Yes***	67.3	68.3	Yes	219	**69.8**	***Yes***	67.3	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 318 (Residential)	1	B	276	**66.8**	**68.9**	***Yes***	66.7	67.7	Yes	290	**69.1**	***Yes***	66.3	Yes
Res 319 (Residential)	1	B	284	65.6	**67.7**	***Yes***	65.5	66.5	Yes	316	**67.7**	***Yes***	65.1	No
Res 320 (Residential)	1	B	304	65.2	**67.4**	***Yes***	65.2	66.1	Yes	340	**67.4**	***Yes***	64.8	No
Res 321 (Residential)	1	B	339	64.7	**66.9**	***Yes***	64.7	65.6	No	379	**67**	***Yes***	64.4	No
Res 322 (Residential)	1	B	138	**69.7**	**71.8**	***Yes***	69.6	70.6	Yes	158	**72.3**	***Yes***	69.4	Yes
Res 323 (Residential)	1	B	270	**68**	**70.1**	***Yes***	67.9	68.8	Yes	286	**70.3**	***Yes***	67.4	Yes
Res 324 (Residential)	1	B	382	65.6	**67.7**	***Yes***	65.4	66.4	Yes	395	**67.7**	***Yes***	64.9	No
Res 325 (Residential)	1	B	429	62.9	65	No	62.8	63.7	No	457	65.3	No	62.4	No
Res 326 (Residential)	1	B	103	**71.3**	**73.4**	***Yes***	71.2	72.1	Yes	115	**73.9**	***Yes***	70.7	Yes
Res 327 (Residential)	1	B	206	**69.2**	**71.3**	***Yes***	69.1	70.0	Yes	227	**72.1**	***Yes***	69.1	Yes
Res 328 (Residential)	1	B	342	**67.2**	**69.3**	***Yes***	67.0	68.0	Yes	361	**69.6**	***Yes***	66.6	Yes
Res 329 (Residential)	1	B	282	**68.5**	**70.6**	***Yes***	68.4	69.3	Yes	294	**71.5**	***Yes***	68.4	Yes

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	782					262			213			276		170
Res 330 (Residential)	1	B	422	**66.3**	**68.4**	***Yes***	66.2	67.1	Yes	443	**68.9**	***Yes***	65.9	No
Res 331 (Residential)	1	B	170	**70.4**	**72.5**	***Yes***	70.3	71.3	Yes	147	**73.1**	***Yes***	69.8	Yes
Res 332 (Residential)	1	B	347	**67.7**	**69.7**	***Yes***	67.5	68.4	Yes	342	**70.9**	***Yes***	67.6	Yes
Res 333 (Residential)	1	B	440	65.2	**67.3**	***Yes***	65.1	66.0	Yes	449	**68.1**	***Yes***	65.0	No
Res 334 (Residential)	1	B	108	**71.6**	**73.7**	***Yes***	71.5	72.4	Yes	63	**74.3**	***Yes***	70.5	Yes
Res 335 (Residential)	1	B	397	**67.1**	**69.1**	***Yes***	66.9	67.9	Yes	374	**70.6**	***Yes***	67.3	Yes
Res 336 (Residential)	1	B	505	64.8	**66.9**	***Yes***	64.7	65.6	No	505	**67.8**	***Yes***	64.6	No
Res 337 (Residential)	1	B	153	**70.5**	**72.6**	***Yes***	70.5	71.4	Yes	101	**73.8**	***Yes***	70.2	Yes
Res 338 (Residential)	1	B	314	**68.4**	**70.4**	***Yes***	68.2	69.2	Yes	265	**72**	***Yes***	68.7	Yes
Res 339 (Residential)	1	B	446	**66.5**	**68.6**	***Yes***	66.4	67.3	Yes	401	**70.2**	***Yes***	66.9	Yes
Res 340 (Residential)	1	B	204	**69.7**	**71.7**	***Yes***	69.7	70.6	Yes	150	**73.2**	***Yes***	69.6	Yes
Res 341 (Residential)	1	B	342	**68**	**70**	***Yes***	67.9	68.8	Yes	288	**72**	***Yes***	68.7	Yes

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 342 (Residential)	1	B	482	65.8	**67.8**	***Yes***	65.7	66.6	Yes	430	**69.7**	***Yes***	66.4	Yes
Res 343 (Residential)	1	B	106	**71.3**	**73.4**	***Yes***	71.4	72.3	Yes	51	**75.3**	***Yes***	71.6	Yes
Res 344 (Residential)	1	B	533	64.4	**66.5**	***Yes***	64.3	65.3	No	478	**68.4**	***Yes***	65.1	No
Res 345 (Residential)	1	B	130	**70.7**	**72.8**	***Yes***	71.0	72.0	Yes	73	**74.7**	***Yes***	71.2	Yes
Res 346 (Residential)	1	B	230	**69.2**	**71.3**	***Yes***	69.4	70.4	Yes	174	**73.1**	***Yes***	69.6	Yes
Church 347 (Church)	1	C	316	**68**	**70**	***Yes***	68.1	69.0	Yes	260	**72.3**	***Yes***	68.9	Yes
Com 348 (Commercial)	1	F	354	69	71.2	No	68.6	70.2	No	83	72.6	No	71.0	No
Com 349 (Commercial)	1	F	307	67.9	70.2	No	67.3	68.6	No	109	72.1	No	69.7	No
Com 350 (Commercial)	1	F	232	68.3	70.6	No	67.6	68.7	No	50	73.4	No	70.9	No
Com 351 (Commercial)	1	F	462	65.8	68.1	No	65.2	66.4	No	281	69.8	No	66.9	No
Com 352 (Commercial)	1	F	468	65.5	67.7	No	64.8	66.0	No	294	69.6	No	66.5	No
Com 353 (Commercial)	1	F	219	68.3	70.5	No	67.6	68.6	No	54	70.9	No	68.4	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 354 (Commercial)	1	F	279	67.5	69.7	No	66.8	67.8	No	126	71	No	67.7	No
Com 355 (Commercial)	1	F	532	64.5	66.6	No	63.8	64.8	No	388	68.5	No	65.1	No
Com 356 (Commercial)	1	F	154	69.2	71.3	No	68.4	69.3	No	49	72.2	No	69.1	No
Com 357 (Commercial)	1	F	131	69.8	71.6	No	69.1	69.7	No	48	71.9	No	69.5	No
Com 358 (Commercial)	1	F	326	67.3	69	No	66.7	67.2	No	249	71.3	No	67.8	No
Res 359 (Residential)	1	B	117	**71.1**	**72**	***Yes***	70.5	70.3	Yes	43	**72.9**	***Yes***	70.7	Yes
Res 360 (Residential)	1	B	580	64.3	**66.2**	***Yes***	63.7	64.5	No	506	**68.2**	***Yes***	64.7	No
Res 361 (Residential)	4	B	557	65.5	**67.4**	***Yes***	64.9	65.9	No	484	**68.8**	***Yes***	65.8	No
Church 362 (Church)	1	C	94	**70.2**	**72.4**	***Yes***	70.2	72.0	Yes	147	**73.4**	***Yes***	68.4	Yes
Church 363 (Church)	1	C	166	**68.9**	**71**	***Yes***	68.8	70.6	Yes	229	**72**	***Yes***	67.4	Yes
Park 364 (Recreational)	1	C	316	**70.3**	**72.4**	***Yes***	70.3	71.9	Yes	257	**71.8**	***Yes***	67.1	Yes
Res 365 (Residential)	1	B	179	**72.5**	**74.6**	***Yes***	72.5	73.5	Yes	112	**72.7**	***Yes***	69.0	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 366 (Residential)	1	B	235	**70.5**	**72.7**	***Yes***	70.6	71.5	Yes	168	**71**	***Yes***	67.4	Yes
Res 367 (Residential)	1	B	322	**68.7**	**70.8**	***Yes***	68.7	69.7	Yes	255	**69.5**	***Yes***	65.9	No
Res 368 (Residential)	1	B	420	**67.9**	**70**	***Yes***	67.9	68.9	Yes	354	**69.8**	***Yes***	65.7	No
Res 369 (Residential)	1	B	523	64.9	**67**	***Yes***	64.9	66.0	Yes	456	**67.5**	***Yes***	63.7	No
Res 370 (Residential)	1	B	284	**70.2**	**72.3**	***Yes***	70.2	71.2	Yes	225	**70.7**	***Yes***	67.0	Yes
Res 371 (Residential)	1	B	443	**67.4**	**69.6**	***Yes***	67.5	68.5	Yes	382	**69.3**	***Yes***	65.1	No
Res 372 (Residential)	1	B	281	**70.6**	**72.8**	***Yes***	70.7	71.7	Yes	236	**70.9**	***Yes***	67.1	Yes
Res 373 (Residential)	1	B	430	**67.1**	**69.2**	***Yes***	67.2	68.2	Yes	381	**69**	***Yes***	64.7	No
Res 374 (Residential)	1	B	145	**73.2**	**75.3**	***Yes***	73.2	74.3	Yes	125	**73.1**	***Yes***	69.7	Yes
Res 375 (Residential)	1	B	226	**70.6**	**72.7**	***Yes***	70.6	71.7	Yes	203	**71**	***Yes***	67.3	Yes
Res 376 (Residential)	1	B	287	**69.4**	**71.5**	***Yes***	69.4	70.4	Yes	266	**69.7**	***Yes***	65.9	No
Res 377 (Residential)	1	B	425	**67.4**	**69.5**	***Yes***	67.4	68.4	Yes	390	**69.1**	***Yes***	64.6	No

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Table of Receptors

Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 378 (Residential)	1	B	462	61.9	64	No	62.0	63.0	No	434	64.5	No	59.9	No
Res 379 (Residential)	1	B	534	62	64.1	No	62.0	63.1	No	479	65.9	No	61.0	No
Res 380 (Residential)	1	B	120	**73**	**75.1**	***Yes***	73.1	74.2	Yes	142	**73.3**	***Yes***	70.2	Yes
Res 381 (Residential)	1	B	181	**71.1**	**73.2**	***Yes***	71.1	72.2	Yes	204	**71.5**	***Yes***	68.0	Yes
Res 382 (Residential)	1	B	236	**70.1**	**72.2**	***Yes***	70.2	71.2	Yes	252	**70.6**	***Yes***	66.8	Yes
Res 383 (Residential)	1	B	429	**66.7**	**68.8**	***Yes***	66.8	67.8	Yes	451	**68.5**	***Yes***	63.9	No
Church 384 (Church)	1	C	489	65.5	**67.6**	***Yes***	65.6	66.5	Yes	511	**67.3**	***Yes***	62.7	No
Res 385 (Residential)	1	B	211	**70.4**	**72.5**	***Yes***	70.5	71.5	Yes	275	**70.8**	***Yes***	67.2	Yes
Res 386 (Residential)	1	B	132	**71.9**	**74**	***Yes***	72.0	73.1	Yes	225	**72.3**	***Yes***	69.4	Yes
Res 387 (Residential)	1	B	227	**69.9**	**71.9**	***Yes***	69.9	70.9	Yes	319	**70.3**	***Yes***	66.4	Yes
Res 388 (Residential)	1	B	188	**69.3**	**71.3**	***Yes***	69.4	70.4	Yes	355	**70**	***Yes***	66.3	Yes
Church 389 (Church)	1	C	409	**66.1**	**68.1**	***Yes***	66.2	67.1	Yes	552	**67.7**	***Yes***	63.1	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 390 (Residential)	1	B	155	**69.7**	**71.6**	***Yes***	69.7	70.7	Yes	380	**70.2**	***Yes***	66.9	Yes
Res 391 (Residential)	1	B	327	**66.8**	**68.8**	***Yes***	66.9	67.8	Yes	539	**68**	***Yes***	63.6	No
Res 392 (Residential)	1	B	410	64.3	**66.4**	***Yes***	64.3	65.4	No	623	**66.2**	***Yes***	61.6	No
Res 393 (Residential)	1	B	35	**73**	**75.1**	***Yes***	73.1	74.5	Yes	313	**73.8**	***Yes***	72.4	Yes
Res 394 (Residential)	1	B	300	**67.1**	**69**	***Yes***	67.1	68.1	Yes	542	**68.1**	***Yes***	64.0	No
Res 395 (Residential)	1	B	163	65.4	**67.3**	***Yes***	65.5	66.5	Yes	446	**66.2**	***Yes***	63.2	No
Res 396 (Residential)	1	B	140	**69.7**	**71.6**	***Yes***	69.8	70.8	Yes	449	**70.4**	***Yes***	67.6	Yes
Res 397 (Residential)	1	B	357	**67**	**68.9**	***Yes***	67.0	68.2	Yes	648	**68.4**	***Yes***	65.8	No
Res 398 (Residential)	1	B	27	**70.1**	**72.2**	***Yes***	69.5	70.8	Yes	150	**71.5**	***Yes***	69.6	Yes
Res 399 (Residential)	1	B	30	**70.5**	**72.6**	***Yes***	69.9	71.2	Yes	134	**71.6**	***Yes***	69.8	Yes
Res 400 (Residential)	1	B	179	**67.2**	**69.3**	***Yes***	66.6	67.6	Yes	296	**70.3**	***Yes***	67.8	Yes
Res 401 (Residential)	1	B	38	**70.4**	**72.6**	***Yes***	69.9	71.1	Yes	131	**71.5**	***Yes***	69.7	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 402 (Residential)	1	B	47	**70.4**	**72.5**	***Yes***	69.8	71.0	Yes	127	**71.5**	***Yes***	69.7	Yes
Res 403 (Residential)	1	B	209	**67.1**	**69.3**	***Yes***	66.5	67.5	Yes	298	**70.2**	***Yes***	67.6	Yes
Com 404 (Commercial)	1	F	339	65.8	68	No	65.2	66.2	No	430	68.9	No	66.3	No
Com 405 (Commercial)	1	F	78	70.1	72.3	No	69.5	70.6	No	99	71.4	No	69.8	No
Com 406 (Commercial)	1	F	530	64.7	66.8	No	64.1	65.0	No	555	67.6	No	65.0	No
Com 407 (Bar/Restaurant)	1	E	87	70.4	**72.6**	***Yes***	69.8	70.9	No	88	**71.4**	***Yes***	70.0	No
Com 408 (Commercial)	1	F	185	69.4	71.5	No	68.8	69.7	No	164	70.3	No	68.5	No
Res 409 (Residential)	1	B	132	**70.9**	**73**	***Yes***	70.2	71.2	Yes	100	**71.4**	***Yes***	70.0	Yes
Com 410 (Commercial)	1	F	126	72	74.2	No	71.4	72.4	No	72	72.2	No	70.8	No
Com 411 (Commercial)	1	F	554	65.4	67.5	No	64.8	65.8	No	498	67.9	No	65.2	No
Com 412 (Commercial)	1	F	174	67.4	69.5	No	66.8	67.8	No	106	68.3	No	65.8	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 413 (Commercial)	1	F	443	66.7	68.8	No	66.1	67.1	No	373	68.9	No	66.0	No
Com 414 (Commercial)	1	F	452	66.4	68.5	No	65.9	66.8	No	376	68.1	No	65.3	No
Com 415 (Office)	1	E	154	**72.8**	**74.9**	***Yes***	72.3	73.2	Yes	75	**73.2**	***Yes***	70.5	No
Com 416 (Commercial)	1	F	454	66.2	68.3	No	65.7	66.6	No	376	68	No	65.0	No
Com 417 (Commercial)	1	F	469	65.6	67.8	No	65.2	66.1	No	389	67.7	No	64.6	No
Com 418 (Commercial)	1	F	615	63.7	65.8	No	63.2	64.2	No	534	66.9	No	63.5	No
Jail 419 (Jail)	1	C	523	62.5	64.6	No	62.2	63.2	No	440	**66.5**	***Yes***	62.7	No
Jail 420 (Jail)	1	C	265	64.1	**66.2**	***Yes***	63.8	64.9	No	209	**67.1**	***Yes***	63.6	No
Jail 421 (Jail)	1	C	110	**72**	**74.1**	***Yes***	71.7	72.9	Yes	48	**71.7**	***Yes***	70.3	Yes
Com 422 (Office)	1	E	407	61.8	63.9	No	61.6	62.6	No	353	66.5	No	62.6	No
Com 423 (Commercial)	1	F	791	59.8	61.9	No	59.6	60.8	No	697	65.2	No	61.1	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 424 (Commercial)	1	F	970	58.8	60.9	No	58.7	59.9	No	849	64.1	No	60.1	No
Com 425 (Commercial)	1	F	1,211	57.3	59.4	No	57.2	58.4	No	1,038	62.8	No	58.7	No
Com 426 (Commercial)	1	F	411	61.8	63.9	No	61.6	62.7	No	356	66.5	No	62.5	No
Com 427 (Office)	1	E	430	62.3	64.5	No	62.2	63.4	No	368	66.6	No	62.7	No
Com 428 (Commercial)	1	F	492	62.8	64.9	No	62.7	64.0	No	415	66.9	No	63.0	No
Com 429 (Commercial)	1	F	1,334	56.4	58.5	No	56.3	57.6	No	959	61.9	No	57.8	No
Com 430 (Office)	1	E	202	65.5	67.6	No	65.4	66.8	No	95	65.6	No	64.0	No
Com 431 (Office)	1	E	279	66.7	68.9	No	66.7	68.0	No	169	66.8	No	64.9	No
Com 432 (Commercial)	1	F	352	65.7	67.8	No	65.6	66.9	No	230	66.2	No	64.0	No
Com 433 (Commercial)	1	F	448	63.5	65.6	No	63.3	64.5	No	335	65.7	No	62.7	No
Com 434 (Office)	1	E	265	67.6	69.7	No	67.6	69.0	No	108	67.5	No	65.7	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 435 (Office)	1	E	218	68.7	70.8	No	68.8	70.2	No	ACQUIRED				
Com 436 (Office)	1	E	223	68.5	70.6	No	68.6	70.1	No	ACQUIRED				
Com 437 (Commercial)	1	F	319	66.6	68.7	No	66.7	68.1	No	82	66.7	No	64.9	No
Com 438 (Commercial)	1	F	19	74.3	76.4	No	74.4	76.1	No	ACQUIRED				
Com 439 (Office)	1	E	139	70.1	**72.2**	***Yes***	70.2	71.8	Yes	ACQUIRED				
Com 440 (Office)	1	E	180	68.9	**71**	***Yes***	69.1	70.6	No	ACQUIRED				
Com 441 (Office)	1	E	276	67	69.1	No	67.1	68.6	No	ACQUIRED				
Com 442 (Government)	1	C	330	**66.2**	**68.3**	***Yes***	66.3	67.8	Yes	34	**66.5**	***Yes***	64.6	No
Com 443 (Commercial)	1	F	654	62.1	64.2	No	62.2	63.7	No	239	64.3	No	61.3	No
Com 444 (Office)	1	E	748	61.7	63.9	No	61.8	63.2	No	355	64.7	No	61.3	No
Com 445 (Commercial)	1	F	1,105	58.2	60.4	No	58.3	59.6	No	671	64.4	No	60.1	No

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	782					262			213			276		170
Com 446 (Commercial)	1	F	860	60.9	62.9	No	60.1	61.8	No	305	63.4	No	61.5	No
Com 447 (Commercial)	1	F	300	66.4	68.4	No	65.5	67.2	No	ACQUIRED				
Com 448 (Commercial)	1	F	316	66.8	68.7	No	65.9	67.5	No	ACQUIRED				
Com 449 (Commercial)	1	F	243	68.3	70.3	No	67.7	69.6	No	ACQUIRED				
Com 450 (Commercial)	1	F	285	65.9	68	No	65.3	67.2	No	ACQUIRED				
Com 451 (Commercial)	1	F	345	63.9	66	No	63.5	65.5	No	ACQUIRED				
Com 452 (Commercial)	1	F	418	61.7	63.8	No	61.4	63.4	No	130	63.8	No	62.3	No
Com 453 (Commercial)	1	F	413	61.5	63.7	No	61.3	63.3	No	182	63.7	No	62.5	No
Museum 454 (Maritime	1	C	176	65.4	**67.5**	***Yes***	65.3	67.4	Yes	620	**68**	***Yes***	67.3	Yes
¥ Com 455 (Office)	1	E	67	68.8	**71**	***Yes***	68.8	70.9	No	723	**71.4**	***Yes***	69.9	No
Com 456 (Office)	1	E	100	68.1	70.2	No	68.0	70.1	No	764	70.7	No	69.5	No

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Table of Receptors

Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 457 (Office)	1	E	117	67.8	70	No	67.7	69.8	No	787	70.4	No	69.3	No
Com 458 (Office)	1	E	153	67.1	69.3	No	67.0	69.1	No	836	69.7	No	68.8	No
Com 459 (Restaurant)	1	E	240	66.2	68.3	No	65.9	67.9	No	988	68.4	No	67.7	No
Com 460 (Office)	1	E	247	67	69.1	No	66.3	68.0	No	897	68	No	66.2	No
Com 461 (Office)	1	E	330	66.7	68.8	No	65.9	67.5	No	978	67.4	No	65.8	No
Com 462 (Motel)	1	E	356	65.3	67.4	No	64.6	66.3	No	1,015	66.6	No	65.3	No
Com 463 (Office)	1	E	232	69	**71.2**	***Yes***	68.1	69.5	No	1,059	68.5	No	66.7	No
Com 464 (Office)	1	E	149	**72**	**74.2**	***Yes***	71.0	72.3	Yes	1,067	70.8	No	68.7	No
Com 468 (Commercial)	1	F	785	58.6	58.6	No	58.6	57.1	No	199	62.2	No	60.7	No
Com 469 (Commercial)	1	F	170	65.4	67.6	No	64.3	67.6	No	234	65.2	No	63.4	No
Com 470 (Commercial)	1	F	500	58.6	58.6	No	58.5	57.0	No	406	65.5	No	62.7	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 472 (Commercial)	1	C	434	**69.4**	**72.8**	***Yes***	68.7	72.8	Yes	317	**71.7**	***Yes***	70.3	Yes
Res 473 (Residential)	1	C	373	**71.2**	**73.3**	***Yes***	71.1	71.8	Yes	373	**73.6**	***Yes***	72.2	Yes
Res 474 (Residential)	2	C	407	**70.7**	**72.8**	***Yes***	70.6	71.4	Yes	407	**73.2**	***Yes***	71.7	Yes
Res 475 (Recreational)	1	C	484	**69.5**	**71.6**	***Yes***	69.5	70.1	Yes	484	**71.9**	***Yes***	70.4	Yes
Res 476 (Recreational)	1	C	109	**71.3**	**72.6**	***Yes***	71.3	71.2	Yes	109	**74.6**	***Yes***	73.1	Yes
Res 477 (Recreational)	1	C	236	**73.5**	**74.6**	***Yes***	73.4	73.2	Yes	236	**75.3**	***Yes***	73.8	Yes
Res 478 (Recreational)	1	C	99	**75.3**	**77.4**	***Yes***	75.3	75.9	Yes	88	**76.4**	***Yes***	75.0	Yes
Res 5134 (Residential)	1	B	501	63.4	65.5	No	63.4	64.4	No	501	65.4	No	62.5	No
Res 5135 (Residential)	1	B	539	62.5	64.7	No	62.4	63.5	No	539	64.6	No	61.7	No
Res 5136 (Residential)	1	B	551	62.2	64.3	No	62.1	63.2	No	551	64.2	No	61.3	No
Res 5137 (Residential)	1	B	579	61.6	63.7	No	61.5	62.6	No	579	63.7	No	60.8	No
Res 5138 (Residential)	1	B	619	60.9	63.1	No	60.8	61.9	No	619	63.1	No	60.2	No

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5139 (Residential)	1	B	677	59.9	62.1	No	60.0	60.9	No	677	62	No	59.1	No
Res 5140 (Residential)	1	B	762	58.5	60.6	No	58.6	59.5	No	762	60.6	No	57.7	No
Res 5141 (Residential)	1	B	800	57.5	59.6	No	57.8	58.4	No	800	59.5	No	56.7	No
Res 5142 (Residential)	1	B	914	56	58.1	No	56.3	56.9	No	914	58.1	No	55.3	No
Res 5143 (Residential)	1	B	949	55.5	57.7	No	55.9	56.5	No	949	57.6	No	54.7	No
Res 5144 (Residential)	1	B	1,021	55.2	57.4	No	55.3	56.2	No	1,021	57.3	No	54.5	No
Res 5145 (Residential)	1	B	579	61.4	63.6	No	61.5	62.4	No	579	63.3	No	60.5	No
Res 5146 (Residential)	1	B	603	60.6	62.8	No	60.7	61.6	No	603	62.7	No	59.8	No
Res 5147 (Residential)	1	B	636	60.1	62.2	No	60.1	61.1	No	636	62.2	No	59.3	No
Res 5148 (Residential)	1	B	697	60	62.1	No	60.0	61.0	No	697	61.9	No	59.0	No
Res 5149 (Residential)	1	B	722	59.6	61.8	No	59.7	60.6	No	722	61.5	No	58.7	No
Res 5150 (Residential)	1	B	745	59.2	61.3	No	59.3	60.2	No	745	61.1	No	58.2	No

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5151 (Residential)	1	B	790	58.6	60.7	No	58.6	59.6	No	790	60.5	No	57.7	No
Res 5152 (Residential)	1	B	768	58.2	60.4	No	58.3	59.2	No	768	60.1	No	57.3	No
Res 5153 (Residential)	1	B	870	56.8	59	No	56.8	57.8	No	870	58.8	No	55.9	No
Res 5154 (Residential)	1	B	908	56.3	58.5	No	56.3	57.3	No	908	58.3	No	55.4	No
Res 5155 (Residential)	1	B	939	55.8	58	No	55.8	56.8	No	939	57.8	No	54.9	No
Res 5156 (Residential)	1	B	974	55.4	57.5	No	55.4	56.3	No	974	57.3	No	54.5	No
Res 5157 (Residential)	1	B	1,014	55	57.1	No	55.0	55.9	No	1,014	56.9	No	54.1	No
Res 5158 (Residential)	1	B	489	62.5	64.6	No	62.5	63.5	No	489	64.5	No	61.6	No
Res 5159 (Residential)	1	B	582	62.6	64.7	No	62.6	63.6	No	582	64.5	No	61.6	No
Res 5160 (Residential)	1	B	595	62.3	64.5	No	62.4	63.3	No	595	64.3	No	61.5	No
Res 5161 (Residential)	1	B	885	58.7	60.9	No	58.8	59.7	No	885	60.7	No	57.8	No
Res 5162 (Residential)	1	B	962	57.3	59.4	No	57.3	58.3	No	962	59.3	No	56.4	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5163 (Residential)	1	B	1,030	56.7	58.9	No	56.8	57.7	No	1,030	58.6	No	55.7	No
Res 5164 (Residential)	1	B	1,055	56.3	58.4	No	56.3	57.3	No	1,055	58.1	No	55.3	No
Res 5165 (Residential)	1	B	917	58.6	60.8	No	58.6	59.6	No	917	60.5	No	57.7	No
Res 5166 (Residential)	1	B	1,001	56.6	58.8	No	56.7	57.6	No	1,001	58.6	No	55.7	No
Res 5167 (Residential)	1	B	1,031	54.5	56.6	No	54.5	55.4	No	1,031	56.5	No	53.6	No
Res 5168 (Residential)	1	B	510	62.8	64.9	No	62.8	63.8	No	510	64.8	No	62.0	No
Res 5169 (Residential)	1	B	595	61.6	63.8	No	61.7	62.6	No	595	63.6	No	60.8	No
Church 5170 (Church)	1	C	869	58.4	60.5	No	58.4	59.3	No	869	60.3	No	57.5	No
Res 5171 (Residential)	1	B	605	61.7	63.9	No	61.8	62.7	No	612	63.7	No	60.9	No
Res 5172 (Residential)	1	B	759	59.7	61.8	No	59.7	60.6	No	755	61.8	No	58.9	No
Res 5173 (Residential)	1	B	610	59.9	62.1	No	60.0	60.9	No	615	61.9	No	59.1	No
Res 5174 (Residential)	1	B	630	58.9	61	No	58.9	59.9	No	634	60.8	No	58.0	No

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Table of Receptors

Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5175 (Residential)	1	B	659	59	61.1	No	59.1	60.0	No	662	61.2	No	58.4	No
Res 5176 (Residential)	1	B	834	56.8	58.9	No	56.8	57.8	No	839	58.9	No	56.1	No
Daycare 5177 (Daycare)	1	C	1,011	56.6	58.8	No	56.6	57.6	No	1,011	58.6	No	55.8	No
Res 5178 (Residential)	1	B	683	58.6	60.8	No	58.7	59.6	No	686	60.7	No	57.9	No
Res 5179 (Residential)	1	B	854	56.4	58.6	No	56.5	57.4	No	858	58.4	No	55.7	No
Res 5180 (Residential)	1	B	715	58	60.1	No	58.0	59.0	No	716	60.1	No	57.3	No
Res 5181 (Residential)	1	B	867	55.8	58	No	55.9	56.8	No	870	58	No	55.2	No
Res 5182 (Residential)	1	B	758	57.3	59.5	No	57.3	58.3	No	759	59.5	No	56.8	No
Res 5183 (Residential)	1	B	849	55.5	57.6	No	55.5	56.5	No	852	57.6	No	54.8	No
Res 5184 (Residential)	1	B	907	55.8	57.9	No	55.8	56.8	No	911	57.9	No	55.1	No
Res 5185 (Residential)	1	B	639	62.7	64.9	No	62.8	63.8	No	631	64.8	No	62.1	No
Res 5186 (Residential)	1	B	697	58.5	60.6	No	58.5	59.6	No	689	60.8	No	58.1	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5187 (Residential)	1	B	718	57.8	59.9	No	57.8	58.9	No	710	60	No	57.3	No
Res 5188 (Residential)	1	B	798	56.9	59.1	No	56.9	58.0	No	797	59	No	56.4	No
Res 5189 (Residential)	1	B	827	56.9	59.1	No	56.9	58.0	No	826	59.1	No	56.4	No
Res 5190 (Residential)	1	B	862	55.5	57.7	No	55.5	56.6	No	862	57.6	No	55.0	No
Res 5191 (Residential)	1	B	897	55.4	57.6	No	55.4	56.5	No	898	57.5	No	54.8	No
Res 5192 (Residential)	1	B	936	55.3	57.5	No	55.3	56.4	No	937	57.4	No	54.7	No
Res 5193 (Residential)	1	B	590	64	**66.2**	***Yes***	64.1	65.2	No	582	**66.2**	***Yes***	63.7	No
Res 5194 (Residential)	1	B	676	61.6	63.8	No	61.7	62.7	No	668	63.7	No	60.9	No
† Res 5195 (Residential)	1	B	586	64.4	**66.6**	***Yes***	64.4	65.7	No	578	**66.5**	***Yes***	64.2	No
† Res 5196 (Residential)	1	B	545	**67.2**	**69.4**	***Yes***	67.2	69.0	Yes	535	**69.6**	***Yes***	68.6	Yes
† Res 5197 (Residential)	1	B	628	63.7	65.9	No	63.7	64.9	No	620	65.9	No	63.5	No
† Res 5198 (Residential)	1	B	612	**67.1**	**69.4**	***Yes***	67.1	69.0	Yes	603	**69.6**	***Yes***	68.7	Yes

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5199 (Residential)	1	B	723	62.3	64.5	No	62.3	63.5	No	714	64.4	No	62.0	No
Res 5200 (Residential)	1	B	794	58.4	60.6	No	58.4	59.5	No	786	60.4	No	57.8	No
Res 5201 (Residential)	1	B	841	58.4	60.6	No	58.5	59.5	No	833	60.6	No	57.9	No
Res 5202 (Residential)	1	B	868	58.1	60.2	No	58.1	59.2	No	860	60.2	No	57.5	No
Res 5203 (Residential)	1	B	869	58	60.1	No	58.0	59.1	No	861	60.1	No	57.3	No
Res 5204 (Residential)	1	B	921	57.2	59.3	No	57.2	58.3	No	913	59.3	No	56.6	No
Res 5205 (Residential)	1	B	950	56.6	58.7	No	56.6	57.7	No	944	58.7	No	55.9	No
Res 5206 (Residential)	1	B	753	62	64.1	No	62.0	63.2	No	744	64.1	No	61.7	No
Res 5207 (Residential)	1	B	788	61.7	63.8	No	61.7	62.9	No	779	63.7	No	61.3	No
Res 5208 (Residential)	1	B	872	57.8	59.9	No	57.8	58.9	No	863	59.9	No	57.3	No
Res 5209 (Residential)	1	B	930	55.3	57.5	No	55.3	56.5	No	922	57.3	No	54.9	No
Res 5210 (Residential)	1	B	956	55.3	57.4	No	55.2	56.4	No	948	57.3	No	54.8	No

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	782					262			213			276		170
Res 5211 (Residential)	1	B	996	55	57.1	No	54.9	56.0	No	988	57	No	54.5	No
Res 5212 (Residential)	1	B	824	61.2	63.4	No	61.2	62.4	No	815	63.3	No	61.0	No
Res 5213 (Residential)	1	B	909	57.5	59.7	No	57.5	58.6	No	901	59.6	No	57.1	No
Res 5214 (Residential)	1	B	854	61	63.1	No	61.0	62.2	No	844	63	No	60.7	No
Res 5215 (Residential)	1	B	954	57.3	59.5	No	57.3	58.4	No	945	59.3	No	56.8	No
Res 5216 (Residential)	1	B	879	60.7	62.9	No	60.7	61.9	No	869	62.8	No	60.5	No
Res 5217 (Residential)	1	B	980	57.1	59.2	No	57.1	58.2	No	971	59.1	No	56.6	No
Com 5218 (Commercial)	1	F	717	66.5	68.8	No	66.5	68.5	No	711	69.1	No	68.4	No
Res 5219 (Residential)	1	B	794	62.5	64.7	No	62.5	64.0	No	787	64.8	No	63.1	No
Res 5220 (Residential)	1	B	836	61.6	63.8	No	61.6	63.0	No	827	63.8	No	61.9	No
Res 5221 (Residential)	1	B	912	60.4	62.6	No	60.4	61.6	No	902	62.6	No	60.4	No
Church 5222 (Church)	1	C	580	62.6	64.7	No	62.6	63.8	No	568	64.9	No	62.8	No

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	782					262			213			276		170
Com 5223 (Commercial)	1	F	724	65.7	67.9	No	65.7	67.6	No	716	67.9	No	67.2	No
Res 5224 (Residential)	1	B	888	61.7	63.8	No	61.6	63.1	No	883	63.9	No	62.3	No
Res 5225 (Residential)	1	B	938	60.7	62.8	No	60.6	62.0	No	932	62.9	No	61.0	No
Res 5226 (Residential)	1	B	956	60.3	62.5	No	60.3	61.6	No	950	62.4	No	60.4	No
Res 5227 (Residential)	1	B	984	59.8	61.9	No	59.8	61.0	No	976	61.9	No	59.8	No
Res 5228 (Residential)	1	B	1,025	59.4	61.5	No	59.3	60.6	No	1,019	61.5	No	59.4	No
Res 5229 (Residential)	1	B	576	62.4	64.5	No	62.4	63.5	No	564	64.8	No	62.4	No
Res 5230 (Residential)	1	B	613	62.2	64.4	No	62.2	63.5	No	601	64.6	No	62.4	No
Res 5231 (Residential)	1	B	649	62.3	64.5	No	62.3	63.6	No	637	64.6	No	62.6	No
Res 5232 (Residential)	1	B	719	62	64.2	No	62.0	63.4	No	707	64.3	No	62.6	No
† Fire Sta.5233 (Fire Station)	1	C	937	63.9	**66.2**	***Yes***	63.9	65.8	No	940	**66.1**	***Yes***	65.4	No
Res 5234 (Residential)	1	B	506	63.3	65.4	No	63.3	64.3	No	494	65.8	No	63.3	No

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	782					262			213			276		170
Res 5235 (Residential)	1	B	546	62.5	64.7	No	62.5	63.5	No	534	65	No	62.5	No
Res 5236 (Residential)	1	B	583	62	64.1	No	62.0	63.0	No	571	64.4	No	62.0	No
Res 5237 (Residential)	1	B	622	61.4	63.6	No	61.4	62.5	No	610	63.8	No	61.4	No
Res 5238 (Residential)	1	B	651	61.2	63.3	No	61.2	62.2	No	639	63.4	No	61.1	No
Res 5239 (Residential)	1	B	684	60.9	63	No	60.9	62.0	No	672	63.1	No	60.8	No
Res 5240 (Residential)	1	B	703	60.8	63	No	60.8	62.0	No	691	63.1	No	60.9	No
Res 5241 (Residential)	1	B	795	60.9	63.1	No	60.9	62.3	No	783	63.3	No	61.6	No
Com 5242 (Commercial)	1	F	891	64.7	67	No	64.7	66.7	No	879	67	No	66.5	No
Res 5243 (Residential)	1	B	560	61.6	63.8	No	61.6	62.5	No	548	64.1	No	61.7	No
Res 5244 (Residential)	1	B	594	60.4	62.6	No	60.4	61.4	No	582	63.3	No	60.9	No
Res 5245 (Residential)	1	B	636	59.4	61.5	No	59.3	60.3	No	624	62.4	No	60.1	No
Res 5246 (Residential)	1	B	668	58.7	60.9	No	58.7	59.7	No	656	61.9	No	59.6	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5247 (Residential)	1	B	702	58.1	60.3	No	58.1	59.1	No	690	61.3	No	59.1	No
Res 5248 (Residential)	1	B	740	57.8	59.9	No	57.7	58.8	No	728	61	No	58.8	No
Res 5249 (Residential)	1	B	770	57.7	59.8	No	57.6	58.8	No	758	60.8	No	58.8	No
Res 5250 (Residential)	1	B	843	59.4	61.6	No	59.4	60.8	No	831	61.8	No	60.1	No
Res 5251 (Residential)	1	B	864	59.4	61.6	No	59.4	60.7	No	852	61.7	No	60.0	No
Com 5252 (Commercial)	1	F	974	63	65.2	No	62.9	64.8	No	962	65.1	No	64.4	No
Com 5253 (Commercial)	1	F	1,031	62	64.3	No	62.0	63.8	No	1,019	64.2	No	63.4	No
Res 5254 (Residential)	1	B	562	62.1	64.2	No	62.1	63.0	No	551	65.4	No	62.9	No
Res 5255 (Residential)	1	B	587	61.7	63.9	No	61.7	62.7	No	575	64.9	No	62.5	No
Res 5256 (Residential)	1	B	665	60.9	63.1	No	60.9	61.8	No	653	63.7	No	61.4	No
Res 5257 (Residential)	1	B	701	60.3	62.4	No	60.2	61.2	No	689	63.3	No	61.0	No
Res 5258 (Residential)	1	B	731	59.7	61.9	No	59.7	60.6	No	719	62.8	No	60.5	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5259 (Residential)	1	B	826	58.6	60.8	No	58.5	59.6	No	814	61.8	No	59.6	No
† Res 5260 (Residential)	1	B	517	64.4	**66.6**	***Yes***	64.4	65.3	No	493	**66.9**	***Yes***	64.4	No
† Res 5261 (Residential)	1	B	530	64.3	**66.5**	***Yes***	64.3	65.2	No	506	**66.7**	***Yes***	64.2	No
† Res 5262 (Residential)	1	B	544	64.1	**66.3**	***Yes***	64.1	65.0	No	520	**66.5**	***Yes***	64.0	No
† Res 5263 (Residential)	1	B	554	64	**66.3**	***Yes***	64.0	64.9	No	530	**66.4**	***Yes***	63.9	No
Res 5264 (Residential)	1	B	660	61.5	63.7	No	61.5	62.4	No	636	64.2	No	61.7	No
Res 5265 (Residential)	1	B	669	60.5	62.7	No	60.5	61.4	No	645	63	No	60.4	No
Res 5266 (Residential)	1	B	682	59.5	61.7	No	59.4	60.4	No	658	61.7	No	59.2	No
Res 5267 (Residential)	1	B	700	59.6	61.9	No	59.6	60.5	No	676	61.6	No	59.0	No
Res 5268 (Residential)	1	B	710	59.3	61.5	No	59.3	60.2	No	686	61	No	58.4	No
Res 5269 (Residential)	1	B	786	59.4	61.6	No	59.4	60.3	No	762	62	No	59.4	No
Res 5270 (Residential)	1	B	798	57.4	59.6	No	57.4	58.4	No	774	59.6	No	57.1	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5271 (Residential)	1	B	811	56.4	58.6	No	56.4	57.4	No	787	58.1	No	55.6	No
Res 5272 (Residential)	1	B	825	55.7	58	No	55.7	56.7	No	801	57.3	No	54.8	No
Res 5273 (Residential)	1	B	837	56.2	58.4	No	56.2	57.1	No	813	57.5	No	55.1	No
Res 5274 (Residential)	1	B	585	63.7	65.9	No	63.7	64.5	No	561	**66**	***Yes***	63.5	No
Res 5275 (Residential)	1	B	605	63	65.2	No	63.0	63.9	No	581	65.4	No	62.9	No
Res 5276 (Residential)	1	B	634	61.9	64.1	No	61.9	62.8	No	610	64.3	No	61.7	No
Res 5277 (Residential)	1	B	652	61.1	63.2	No	61.1	62.0	No	628	63.6	No	61.0	No
Res 5278 (Residential)	1	B	726	59.2	61.4	No	59.3	60.2	No	702	61.5	No	59.0	No
Res 5279 (Residential)	1	B	777	58.6	60.8	No	58.6	59.6	No	753	61.1	No	58.6	No
Res 5280 (Residential)	1	B	798	58.1	60.2	No	58.1	59.0	No	774	60.4	No	57.9	No
Res 5281 (Residential)	1	B	864	57.1	59.3	No	57.1	58.0	No	840	58.8	No	56.4	No
Res 5282 (Residential)	1	B	887	57	59.2	No	57.0	57.9	No	863	58.9	No	56.5	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5283 (Residential)	1	B	911	57.2	59.4	No	57.2	58.1	No	887	59.1	No	56.6	No
Res 5284 (Residential)	1	B	932	57.5	59.7	No	57.4	58.4	No	908	59.4	No	56.9	No
† Res 5285 (Residential)	1	B	532	63.7	65.9	No	63.7	64.6	No	508	65.6	No	63.0	No
Res 5286 (Residential)	1	B	583	63.1	65.3	No	63.1	64.0	No	559	65	No	62.5	No
Res 5287 (Residential)	1	B	664	62.2	64.4	No	62.2	63.1	No	640	64.4	No	61.9	No
Res 5288 (Residential)	1	B	701	61.1	63.3	No	61.1	62.0	No	677	63.4	No	60.8	No
Res 5289 (Residential)	1	B	742	59.6	61.8	No	59.6	60.5	No	718	61.9	No	59.4	No
Res 5290 (Residential)	1	B	786	58.4	60.6	No	58.4	59.3	No	762	60.5	No	58.0	No
Res 5291 (Residential)	1	B	833	57.3	59.5	No	57.2	58.2	No	809	59.4	No	56.9	No
Res 5292 (Residential)	1	B	865	56.9	59.1	No	56.9	57.9	No	841	59	No	56.5	No
Res 5293 (Residential)	1	B	942	56.9	59.1	No	56.8	57.8	No	918	59.1	No	56.7	No
Res 5294 (Residential)	1	B	976	57.2	59.4	No	57.2	58.1	No	952	59.4	No	57.0	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5295 (Residential)	1	B	1,029	57.3	59.5	No	57.3	58.2	No	1,005	59.4	No	57.0	No
Res 5296 (Residential)	1	B	1,049	57.2	59.4	No	57.2	58.1	No	1,025	59.3	No	56.9	No
Res 5297 (Residential)	1	B	547	63.2	65.5	No	63.2	64.1	No	635	65.2	No	62.6	No
Res 5298 (Residential)	1	B	602	62.4	64.7	No	62.4	63.3	No	692	64.4	No	61.8	No
Res 5299 (Residential)	1	B	731	61.6	63.9	No	61.5	62.4	No	847	63.5	No	61.0	No
Res 5300 (Residential)	1	B	788	60.5	62.8	No	60.5	61.4	No	901	62.6	No	60.0	No
Res 5301 (Residential)	1	B	832	59.6	61.9	No	59.5	60.4	No	955	61.7	No	59.1	No
Res 5302 (Residential)	1	B	885	58.6	60.9	No	58.6	59.5	No	1,006	60.7	No	58.1	No
Res 5303 (Residential)	1	B	924	58	60.3	No	57.9	58.9	No	1,056	60	No	57.5	No
Res 5304 (Residential)	1	B	1,016	57.2	59.5	No	57.2	58.1	No	1,149	59.3	No	56.9	No
† Res 5305 (Residential)	1	B	555	63	65.3	No	62.9	63.8	No	569	65.3	No	62.8	No
Res 5306 (Residential)	1	B	592	62	64.4	No	62.0	62.9	No	611	64.3	No	61.7	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5307 (Residential)	1	B	638	61.2	63.5	No	61.2	62.1	No	663	63.4	No	60.8	No
Res 5308 (Residential)	1	B	663	60.8	63.1	No	60.7	61.7	No	691	63	No	60.5	No
Res 5309 (Residential)	1	B	793	60.6	62.9	No	60.5	61.4	No	835	62.9	No	60.6	No
Res 5310 (Residential)	1	B	829	59.3	61.6	No	59.2	60.2	No	878	61.6	No	59.1	No
Res 5311 (Residential)	1	B	867	58	60.3	No	57.9	58.9	No	919	60.4	No	58.0	No
Res 5312 (Residential)	1	B	915	57	59.4	No	56.9	57.9	No	974	59.4	No	57.0	No
Res 5313 (Residential)	1	B	965	56.4	58.7	No	56.3	57.3	No	1,028	58.9	No	56.4	No
† Res 5314 (Residential)	1	B	570	64.4	**66.7**	***Yes***	64.4	65.3	No	546	**66.7**	***Yes***	64.4	No
Res 5315 (Residential)	1	B	727	59.6	62.1	No	59.5	60.5	No	716	61.9	No	59.9	No
Res 5316 (Residential)	1	B	850	58.8	61.2	No	58.8	59.7	No	851	61.2	No	59.1	No
Res 5317 (Residential)	1	B	997	56.2	58.6	No	56.1	57.1	No	1,022	58.7	No	56.8	No
Res 5318 (Residential)	1	B	763	60.5	62.9	No	60.4	61.4	No	744	62.9	No	60.6	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5319 (Residential)	1	B	862	59	61.4	No	59.0	59.9	No	853	61.5	No	59.3	No
Res 5320 (Residential)	1	B	983	57	59.4	No	57.0	58.0	No	992	59.6	No	57.6	No
Res 5321 (Residential)	1	B	1,016	57.2	59.5	No	57.1	58.1	No	1,018	59.8	No	57.8	No
† Res 5322 (Residential)	1	B	618	63.4	65.7	No	63.3	64.3	No	597	65.6	No	63.3	No
Res 5323 (Residential)	1	B	685	62.2	64.5	No	62.1	63.1	No	659	64.5	No	62.1	No
Res 5324 (Residential)	1	B	737	61	63.3	No	60.9	61.8	No	711	63.5	No	61.0	No
Res 5325 (Residential)	1	B	769	60.6	62.9	No	60.5	61.4	No	744	63	No	60.6	No
Res 5326 (Residential)	1	B	768	60.6	63	No	60.5	61.5	No	745	63.1	No	60.8	No
Res 5327 (Residential)	1	B	815	59.9	62.3	No	59.9	60.8	No	792	62.4	No	60.1	No
Res 5328 (Residential)	1	B	916	59.1	61.4	No	59.0	60.0	No	895	61.5	No	59.4	No
Res 5329 (Residential)	1	B	959	58.7	61	No	58.6	59.6	No	942	61.4	No	59.4	No
Res 5330 (Residential)	1	B	995	58.5	60.8	No	58.4	59.4	No	980	61.1	No	59.2	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 5331 (Residential)	1	B	530	63.7	**66**	***Yes***	63.6	64.6	No	517	**66**	***Yes***	63.7	No
† Res 5332 (Residential)	1	B	573	63.4	65.7	No	63.3	64.3	No	558	65.6	No	63.4	No
Res 5333 (Residential)	1	B	681	62	64.4	No	62.0	63.0	No	665	64.5	No	62.6	No
Res 5334 (Residential)	1	B	719	60.3	62.7	No	60.2	61.2	No	703	62.6	No	60.6	No
Res 5335 (Residential)	1	B	791	57.8	60.2	No	57.7	58.8	No	774	60.1	No	58.2	No
Res 5336 (Residential)	1	B	853	57.2	59.6	No	57.1	58.1	No	835	59.3	No	57.5	No
Res 5337 (Residential)	1	B	960	58.3	60.6	No	58.2	59.5	No	942	60.8	No	59.6	No
† Res 5338 (Residential)	1	B	573	63.3	65.7	No	63.2	64.5	No	567	65.8	No	64.7	No
† Res 5339 (Residential)	1	B	711	63.2	65.5	No	63.1	64.4	No	705	65.6	No	64.4	No
Res 5340 (Residential)	1	B	849	61.4	63.7	No	61.3	62.8	No	844	63.8	No	63.2	No
Res 5341 (Residential)	1	B	999	60.1	62.4	No	60.0	61.6	No	985	62.7	No	62.0	No
† Res 5342 (Residential)	1	B	536	65.1	**67.4**	***Yes***	65.1	66.6	Yes	531	**67.6**	***Yes***	67.0	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
† Res 5343 (Residential)	1	B	708	64.6	**66.9**	***Yes***	64.6	66.2	Yes	703	**67.1**	***Yes***	66.5	Yes
† Res 5344 (Residential)	1	B	820	64.4	**66.6**	***Yes***	64.3	66.1	Yes	815	**66.9**	***Yes***	66.4	Yes
Res 5345 (Residential)	1	B	549	63.7	65.8	No	63.6	64.5	No	569	**66.3**	***Yes***	63.3	No
Res 5346 (Residential)	1	B	802	60.2	62.3	No	60.0	61.0	No	841	63.4	No	60.4	No
Res 5347 (Residential)	1	B	538	64.4	**66.5**	***Yes***	64.3	65.2	No	556	**66.9**	***Yes***	63.9	No
Res 5348 (Residential)	1	B	712	61.9	64	No	61.8	62.7	No	738	64.9	No	61.8	No
Res 5349 (Residential)	1	B	726	61.3	63.4	No	61.2	62.1	No	759	64.5	No	61.4	No
Res 5350 (Residential)	1	B	786	60.7	62.8	No	60.5	61.5	No	821	63.8	No	60.8	No
Res 5351 (Residential)	1	B	600	63.4	65.5	No	63.3	64.2	No	622	**66.1**	***Yes***	63.0	No
Res 5352 (Residential)	1	B	728	62.5	64.6	No	62.4	63.2	No	748	65.5	No	62.4	No
Res 5353 (Residential)	1	B	647	62.3	64.4	No	62.2	63.1	No	660	65.2	No	62.1	No
Res 5354 (Residential)	1	B	671	62.2	64.3	No	62.1	63.0	No	679	65.1	No	62.0	No

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5355 (Residential)	1	B	783	62	64	No	61.8	62.7	No	803	65.1	No	62.0	No
Res 5356 (Residential)	1	B	585	64.2	**66.3**	***Yes***	64.1	65.0	No	558	**67.4**	***Yes***	64.3	No
Res 5357 (Residential)	1	B	730	62.1	64.2	No	62.0	62.8	No	722	65.2	No	62.0	No
Res 5358 (Residential)	1	B	858	61.5	63.6	No	61.3	62.2	No	863	65	No	61.7	No
Res 5359 (Residential)	1	B	656	63.9	65.9	No	63.7	64.6	No	615	**67.2**	***Yes***	64.0	No
Res 5360 (Residential)	1	B	646	63.8	65.8	No	63.6	64.5	No	651	**67.4**	***Yes***	64.2	No
Res 5361 (Residential)	1	B	818	61.9	63.9	No	61.7	62.6	No	787	65.4	No	62.1	No
Res 5362 (Residential)	1	B	910	61.3	63.3	No	61.1	62.0	No	904	64.8	No	61.5	No
Res 5363 (Residential)	1	B	909	60.1	62.2	No	59.9	60.9	No	939	63.4	No	60.3	No
Res 5364 (Residential)	1	B	921	59.9	62	No	59.7	60.7	No	952	63.3	No	60.1	No
Res 5365 (Residential)	1	B	942	59.7	61.7	No	59.5	60.4	No	975	62.9	No	59.8	No
Res 5366 (Residential)	1	B	956	59.5	61.5	No	59.3	60.2	No	990	62.8	No	59.6	No

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5367 (Residential)	1	B	959	60	62.1	No	59.8	60.7	No	987	63.3	No	60.2	No
Res 5368 (Residential)	1	B	971	59.8	61.9	No	59.6	60.6	No	1,000	63.1	No	60.0	No
Res 5369 (Residential)	1	B	992	59.5	61.6	No	59.3	60.3	No	1,023	62.9	No	59.7	No
Res 5370 (Residential)	1	B	1,003	59.3	61.4	No	59.1	60.1	No	1,035	62.7	No	59.5	No
Res 5371 (Residential)	1	B	925	60.9	62.9	No	60.7	61.6	No	946	64.2	No	61.0	No
Res 5372 (Residential)	1	B	974	60.5	62.6	No	60.4	61.3	No	992	63.8	No	60.6	No
Res 5373 (Residential)	1	B	937	60.8	62.9	No	60.7	61.5	No	959	64.2	No	61.0	No
Res 5374 (Residential)	1	B	988	60.4	62.5	No	60.3	61.2	No	1,007	63.8	No	60.6	No
Res 5375 (Residential)	1	B	1,008	60.4	62.4	No	60.3	61.1	No	1,029	63.8	No	60.5	No
Res 5376 (Residential)	1	B	1,022	60.2	62.3	No	60.1	61.0	No	1,043	63.6	No	60.4	No
Res 5377 (Residential)	1	B	1,051	60	62	No	59.8	60.7	No	1,070	63.4	No	60.1	No
Res 5378 (Residential)	1	B	1,067	59.8	61.8	No	59.6	60.5	No	1,087	63.2	No	60.0	No

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5379 (Residential)	1	B	1,046	60.2	62.2	No	60.0	60.9	No	1,066	63.6	No	60.3	No
Res 5380 (Residential)	1	B	1,063	60	62	No	59.8	60.7	No	1,085	63.4	No	60.2	No
Res 5381 (Residential)	1	B	1,090	59.7	61.7	No	59.6	60.4	No	1,112	63.1	No	59.9	No
Res 5382 (Residential)	1	B	1,107	59.5	61.6	No	59.4	60.2	No	1,129	63	No	59.7	No
Res 5383 (Residential)	1	B	580	64	65.9	No	63.8	64.7	No	763	**67.4**	***Yes***	64.1	No
Res 5384 (Residential)	1	B	672	63.4	65.4	No	63.2	64.1	No	876	**66.9**	***Yes***	63.6	No
Res 5385 (Residential)	1	B	835	61.9	63.9	No	61.7	62.6	No	1,089	65.6	No	62.2	No
Res 5386 (Residential)	1	B	1,095	59.3	61.4	No	59.2	60.0	No	987	63	No	59.7	No
Res 5387 (Residential)	1	B	931	61.2	63.2	No	61.0	61.9	No	1,138	64.8	No	61.4	No
Res 5388 (Residential)	1	B	653	63.3	65.2	No	63.0	63.9	No	721	**66.6**	***Yes***	63.3	No
Res 5389 (Residential)	1	B	801	62.1	64.1	No	61.8	62.7	No	854	65.7	No	62.4	No
Res 5390 (Residential)	1	B	918	61.2	63.1	No	60.9	61.8	No	969	64.7	No	61.3	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5391 (Residential)	1	B	928	60.9	62.8	No	60.6	61.5	No	987	64.5	No	61.1	No
Res 5392 (Residential)	1	B	505	64.8	**66.7**	***Yes***	64.6	65.7	No	578	**68**	***Yes***	65.0	No
Res 5393 (Residential)	1	B	556	64.5	**66.4**	***Yes***	64.3	65.4	No	627	**67.6**	***Yes***	64.7	No
Res 5394 (Residential)	1	B	676	63	64.9	No	62.7	63.7	No	750	**66.3**	***Yes***	63.0	No
Res 5395 (Residential)	1	B	824	61.6	63.6	No	61.3	62.3	No	897	65	No	61.7	No
Res 5396 (Residential)	1	B	934	60.6	62.5	No	60.3	61.2	No	1,003	64.1	No	60.8	No
Res 5397 (Residential)	1	B	949	60.3	62.2	No	60.0	60.9	No	1,021	63.8	No	60.5	No
Church 5398 (Church)	1	C	681	63.2	65.1	No	63.0	64.0	No	755	**66.3**	***Yes***	63.2	No
Church 5399 (Church)	1	C	962	59.6	61.5	No	59.4	60.4	No	1,036	63.1	No	59.9	No
Res 5400 (Residential)	1	B	1,091	57.9	59.9	No	57.7	58.6	No	1,119	61.6	No	58.3	No
Res 5401 (Residential)	1	B	1,078	57	59	No	56.9	57.8	No	1,134	60.7	No	57.5	No
Res 5402 (Residential)	1	B	925	62.7	64.8	No	62.7	64.5	No	957	**66.3**	***Yes***	63.4	No

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¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5403 (Residential)	1	B	999	62.4	64.4	No	62.3	64.2	No	1,039	65.3	No	63.2	No
Res 5404 (Residential)	1	B	1,075	62.8	64.8	No	62.7	64.6	No	1,125	65.6	No	64.0	No
Res 5405 (Residential)	1	B	1,145	62.3	64.4	No	62.3	64.2	No	1,199	65.1	No	63.7	No
Res 5406 (Residential)	1	B	1,093	59	61.1	No	59.0	60.6	No	1,098	63.7	No	59.5	No
Res 5407 (Residential)	1	B	1,196	57.8	59.9	No	57.7	59.4	No	1,203	61.8	No	57.8	No
Res 5408 (Residential)	1	B	1,019	60.2	62.3	No	60.1	61.8	No	1,004	64.9	No	60.6	No
Res 5409 (Residential)	1	B	1,068	59.7	61.9	No	59.7	61.3	No	1,024	64.6	No	60.2	No
Res 5410 (Residential)	1	B	1,171	56.6	58.7	No	56.5	58.1	No	1,125	61.7	No	57.4	No
Res 5411 (Residential)	1	B	1,246	56.4	58.6	No	56.3	58.0	No	1,205	61.6	No	57.1	No
Res 5412 (Residential)	1	B	1,183	56.4	58.5	No	56.3	57.9	No	1,120	61.4	No	57.0	No
Res 5413 (Residential)	1	B	1,276	54.6	56.7	No	54.5	56.2	No	1,210	59.6	No	55.0	No
Res 5414 (Residential)	1	B	1,109	59.3	61.4	No	59.2	60.8	No	1,039	64	No	59.6	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5415 (Residential)	1	B	1,072	59.5	61.6	No	59.4	61.0	No	1,002	64	No	59.5	No
Res 5416 (Residential)	1	B	1,191	56.1	58.2	No	56.0	57.5	No	1,120	61.4	No	56.9	No
Res 5417 (Residential)	1	B	1,269	56.1	58.2	No	56.0	57.5	No	1,198	62	No	57.5	No
Park 5418 (Recreation)	1	C	696	64.5	**66.6**	***Yes***	64.4	65.8	No	626	**67.5**	***Yes***	63.5	No
Park 5419 (Recreation)	1	C	858	61.8	63.9	No	61.8	63.1	No	788	65.7	No	61.8	No
Res 5420 (Residential)	1	B	1,100	58.2	60.3	No	58.2	59.4	No	1,030	63.5	No	59.4	No
Res 5421 (Residential)	1	B	1,210	55.1	57.2	No	55.1	56.4	No	1,140	61.6	No	57.2	No
Res 5422 (Residential)	1	B	1,084	58.7	60.8	No	58.7	59.9	No	1,015	63.7	No	59.5	No
Res 5423 (Residential)	1	B	1,157	57.6	59.7	No	57.6	58.7	No	1,087	63.1	No	58.9	No
Res 5424 (Residential)	1	B	1,217	56.7	58.8	No	56.7	57.8	No	1,147	62.7	No	58.4	No
Res 5425 (Residential)	1	B	1,225	56.9	59	No	56.9	58.1	No	1,156	62.6	No	58.3	No
Res 5426 (Residential)	1	B	1,040	59	61.1	No	58.9	60.2	No	971	63.7	No	59.5	No

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Table of Receptors

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5427 (Residential)	1	B	1,212	57.1	59.2	No	57.1	58.2	No	1,143	62.6	No	58.2	No
Res 5428 (Residential)	1	B	603	64.6	**66.8**	***Yes***	64.6	65.7	No	520	**67.5**	***Yes***	63.5	No
Res 5429 (Residential)	1	B	655	63.5	65.6	No	63.5	64.6	No	575	**66.8**	***Yes***	62.8	No
Res 5430 (Residential)	1	B	750	62.9	65	No	62.9	64.0	No	680	**66.1**	***Yes***	62.0	No
Res 5431 (Residential)	1	B	863	60.6	62.7	No	60.5	61.7	No	787	64.6	No	60.6	No
Res 5432 (Residential)	1	B	935	59.4	61.5	No	59.3	60.6	No	859	63.9	No	59.9	No
Res 5433 (Residential)	1	B	1,073	58.3	60.4	No	58.3	59.5	No	1,003	63.2	No	58.8	No
Res 5434 (Residential)	1	B	1,158	56.8	58.9	No	56.7	58.0	No	1,083	62.2	No	58.0	No
Res 5435 (Residential)	1	B	1,215	53.7	55.8	No	53.7	54.9	No	1,148	60.3	No	55.7	No
Res 5436 (Residential)	1	B	587	62.4	64.5	No	62.4	63.4	No	527	65.8	No	61.2	No
Res 5437 (Residential)	1	B	739	62.5	64.6	No	62.5	63.6	No	678	65.6	No	61.1	No
Res 5438 (Residential)	1	B	929	56.9	59	No	56.9	58.1	No	869	62.5	No	57.9	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5439 (Residential)	1	B	1,069	58.1	60.1	No	58.1	59.2	No	1,011	62.7	No	58.1	No
Res 5440 (Residential)	1	B	1,209	53.7	55.8	No	53.7	55.0	No	1,147	60.9	No	56.2	No
Res 5441 (Residential)	1	B	586	62.2	64.3	No	62.2	63.2	No	537	65.8	No	61.1	No
Res 5442 (Residential)	1	B	739	61.9	64	No	61.9	63.0	No	699	65.2	No	60.7	No
Res 5443 (Residential)	1	B	926	57.1	59.2	No	57.1	58.3	No	885	62.5	No	57.9	No
Res 5444 (Residential)	1	B	1,052	57.7	59.8	No	57.7	58.8	No	1,010	62.5	No	58.1	No
Res 5445 (Residential)	1	B	1,205	53.8	55.8	No	53.8	55.0	No	1,144	60.9	No	56.1	No
Res 5446 (Residential)	1	B	573	62.4	64.5	No	62.4	63.5	No	543	65.7	No	61.1	No
Res 5447 (Residential)	1	B	726	62.1	64.2	No	62.1	63.2	No	698	65.3	No	60.9	No
Res 5448 (Residential)	1	B	930	57.6	59.6	No	57.6	58.8	No	903	62.5	No	57.9	No
Res 5449 (Residential)	1	B	1,043	58.1	60.2	No	58.1	59.3	No	1,022	62.7	No	58.2	No
Res 5450 (Residential)	1	B	1,124	53.5	55.5	No	53.5	54.7	No	1,092	59	No	54.3	No

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5451 (Residential)	1	B	1,181	53.8	55.9	No	53.8	55.1	No	1,149	60.7	No	55.9	No
Res 5452 (Residential)	1	B	1,261	54.2	56.3	No	54.2	55.5	No	1,201	60.8	No	56.0	No
Res 5453 (Residential)	1	B	709	60.8	62.8	No	60.8	61.9	No	726	64	No	59.6	No
Res 5454 (Residential)	1	B	806	59.9	62	No	60.0	61.0	No	822	63.8	No	59.3	No
Res 5455 (Residential)	1	B	864	58.3	60.4	No	58.4	59.4	No	879	62.5	No	57.9	No
Res 5456 (Residential)	1	B	1,046	57.6	59.6	No	57.6	58.7	No	1,067	62.2	No	57.5	No
Res 5457 (Residential)	1	B	1,089	56.9	59	No	57.0	58.1	No	1,105	61.9	No	57.2	No
Res 5458 (Residential)	1	B	1,219	55.1	57.2	No	55.2	56.2	No	1,173	60.7	No	56.2	No
Res 5459 (Residential)	1	B	687	61.2	63.3	No	61.2	62.3	No	749	63.8	No	58.8	No
Res 5460 (Residential)	1	B	870	56.1	58.1	No	56.2	57.2	No	929	61.6	No	56.9	No
Res 5461 (Residential)	1	B	999	57.3	59.2	No	57.3	58.3	No	1,063	61.7	No	57.1	No
Res 5462 (Residential)	1	B	1,109	53.1	55.1	No	53.1	54.4	No	1,178	60.1	No	55.4	No

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Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5463 (Residential)	1	B	1,251	52.8	54.8	No	52.8	54.0	No	1,212	59.3	No	54.8	No
Res 5464 (Residential)	1	B	673	61	63.1	No	61.1	62.1	No	759	63.6	No	58.7	No
Res 5465 (Residential)	1	B	650	60.5	62.6	No	60.6	61.6	No	767	63.6	No	59.0	No
Res 5466 (Residential)	1	B	817	56.7	58.6	No	56.7	57.8	No	930	61.8	No	57.1	No
Res 5467 (Residential)	1	B	850	56.5	58.4	No	56.5	57.5	No	942	61.7	No	60.2	No
Res 5468 (Residential)	1	B	971	57.1	59.1	No	57.2	58.2	No	1,065	61.6	No	57.0	No
Res 5469 (Residential)	1	B	1,205	53.2	55.2	No	53.2	54.5	No	1,192	60.1	No	55.5	No
Res 5470 (Residential)	1	B	716	56.3	58.2	No	56.3	57.4	No	851	59.8	No	55.5	No
Res 5471 (Residential)	1	B	952	58	59.9	No	58.1	59.0	No	1,080	61.9	No	57.7	No
Res 5472 (Residential)	1	B	1,075	53.2	55.2	No	53.2	54.5	No	1,198	59.6	No	55.0	No
Res 5473 (Residential)	1	B	1,265	53.8	55.8	No	53.8	55.2	No	1,266	60	No	55.7	No
Res 5474 (Residential)	1	B	496	62.5	64.5	No	62.6	63.6	No	702	64.5	No	59.9	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5475 (Residential)	1	B	632	61.1	62.9	No	61.1	62.1	No	832	63.5	No	59.6	No
Res 5476 (Residential)	1	B	728	58.9	60.9	No	59.0	60.0	No	919	62.4	No	58.0	No
Res 5477 (Residential)	1	B	814	57.5	59.5	No	57.5	58.7	No	1,002	61.5	No	57.3	No
Res 5478 (Residential)	1	B	938	58.8	60.7	No	58.8	60.1	No	1,137	62.4	No	59.3	No
Res 5479 (Residential)	1	B	1,025	56.5	58.4	No	56.5	57.7	No	1,211	61	No	57.0	No
Res 5480 (Residential)	1	B	1,256	55.6	57.6	No	55.6	56.9	No	1,295	60.2	No	56.6	No
Res 5481 (Residential)	1	B	474	64	65.8	No	64.0	65.2	No	727	65.7	No	63.2	No
Res 5482 (Residential)	1	B	627	63.3	65.2	No	63.4	64.7	No	869	65.5	No	63.3	No
Res 5483 (Residential)	1	B	789	62.1	63.9	No	62.1	63.6	No	1,023	64.4	No	62.8	No
Res 5484 (Residential)	1	B	995	62.3	64.3	No	62.3	64.1	No	1,233	65	No	63.9	No
Res 5485 (Residential)	1	B	1,235	62.4	64.5	No	62.5	64.3	No	1,316	65.1	No	64.2	No
¥ Res 5486 (Residential)	1	B	780	64.7	**66.6**	***Yes***	64.3	65.7	No	989	**66.7**	***Yes***	65.7	No

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Site	No. of Rec. Rep.	Activity Category	Existing I-10 Alignment From original report: Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	Existing I-10 Alignment 2018 Re-analysis: 2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	2030 Build Alternative B' From previous study: Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Preferred Alternative: 2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5487 (Residential)	1	B	1,086	60.7	62.5	No	60.5	62.0	No	1,272	63.6	No	62.6	No
Res 5488 (Residential)	1	B	1,234	61.6	63.2	No	61.6	63.1	No	1,401	64.5	No	63.9	No
Res 5489 (Residential)	1	B	809	62.5	64.6	No	61.8	63.2	No	1,052	64.3	No	62.9	No
Res 5490 (Residential)	1	B	966	58.9	60.6	No	58.7	60.2	No	1,182	62.3	No	61.2	No
Res 5491 (Residential)	1	B	1,116	58.2	60.1	No	57.7	59.3	No	1,322	61.5	No	59.9	No
Res 5492 (Residential)	1	B	1,256	58	59.6	No	57.9	59.4	No	1,448	61.7	No	60.5	No
Res 5493 (Residential)	1	B	836	61.9	64	No	61.1	62.5	No	1,096	63.7	No	62.1	No
Res 5494 (Residential)	1	B	979	56.3	58.1	No	55.9	57.3	No	1,225	60.1	No	58.3	No
Res 5495 (Residential)	1	B	1,146	56.9	58.9	No	56.4	57.9	No	1,368	60.6	No	58.5	No
Res 5496 (Residential)	1	B	1,256	54.9	56.6	No	54.7	56.1	No	1,475	59.7	No	57.8	No
Res 5497 (Residential)	1	B	860	61.4	63.5	No	60.6	62.0	No	1,141	63.2	No	61.5	No
Res 5498 (Residential)	1	B	1,008	55.3	57.2	No	54.8	56.3	No	1,270	59.6	No	57.4	No

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Res 5499 (Residential)	1	B	1,211	53.8	55.5	No	53.5	55.0	No	1,448	57.4	No	55.9	No
Res 5500 (Residential)	1	B	885	61	63.1	No	60.2	61.6	No	1,187	62.9	No	61.1	No
Res 5501 (Residential)	1	B	931	60.3	62.5	No	59.5	60.9	No	1,258	62.3	No	60.4	No
Res 5502 (Residential)	1	B	969	54.9	56.8	No	54.3	55.6	No	1,272	57.2	No	55.6	No
Res 5503 (Residential)	1	B	1,022	54.5	56.4	No	54.0	55.4	No	1,308	58.8	No	56.5	No
Res 5504 (Residential)	1	B	1,103	55.7	57.6	No	55.1	56.7	No	1,367	59.8	No	57.6	No
Res 5505 (Residential)	1	B	1,004	58.3	60.4	No	57.5	59.0	No	1,398	61.1	No	59.0	No
Res 5506 (Residential)	1	B	1,088	55.1	57.1	No	54.4	55.8	No	1,430	59.1	No	56.4	No
Res 5507 (Residential)	1	B	1,128	54.8	56.8	No	54.2	55.7	No	1,455	59.1	No	56.6	No
Res 5508 (Residential)	1	B	1,057	57.3	59.4	No	56.6	58.1	No	1,486	60.5	No	58.2	No
Com 5509 (Office)	1	E	1,084	56.2	58.3	No	55.4	56.9	No	1,537	59.6	No	57.4	No
Res 5510 (Residential)	1	B	1,113	53.9	56	No	53.4	55.1	No	1,584	57.7	No	55.6	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 5511 (Civic Center)	1	C	557	64.3	**66.5**	***Yes***	63.4	64.6	No	1,263	64.4	No	62.2	No
Com 5512 (Office)	1	E	819	53.6	55.7	No	52.7	54.0	No	1,827	54.7	No	51.8	No
Com 5513 (Malaga Inn 1 st Floor)	1	E	662	54.9	57	No	54.0	55.3	No	1,698	55.2	No	52.5	No
Com 5513 (Malaga Inn 2 nd Floor Balcony)	1	E	662	60.3	62.4	No	57.5	58.8	No	1,698	57.6	No	55.4	No
Com 5513 (Malaga Inn 3 rd Floor Balcony)	1	E	662	58.5	60.7	No	59.3	60.5	No	1,698	59.4	No	57.4	No
Com 5514 (Malaga Inn 1st Floor)	1	E	784	54.9	57.1	No	54.0	55.4	No	1,847	56.2	No	53.0	No
Com 5514 (Malaga Inn 2 nd Floor Balcony)	1	E	784	58.6	60.7	No	57.6	58.9	No	1,847	58.4	No	55.7	No
Com 5515 (Malaga Inn 1 st Floor)	1	E	780	55.3	57.4	No	54.4	55.7	No	1,865	56.6	No	53.3	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 5515 (Malaga Inn 2 nd Floor Balcony)	1	E	780	59.1	61.3	No	58.1	59.4	No	1,865	58.9	No	56.2	No
Com 5516 (Malaga Inn 1 st Floor)	1	E	733	56.2	58.3	No	55.3	56.6	No	1,846	57.5	No	54.2	No
Com 5516 (Malaga Inn 2 nd Floor Balcony)	1	E	733	60.2	62.4	No	59.2	60.5	No	1,846	59.9	No	57.1	No
Com 5517 (Malaga Inn 1 st Floor)	1	E	693	56.8	58.9	No	55.9	57.3	No	1,805	57.8	No	54.7	No
Com 5517 (Malaga Inn 2 nd Floor Balcony)	1	E	693	60.9	63	No	59.9	61.2	No	1,805	60.4	No	57.8	No
Com 5518 (Office)	1	E	240	66.2	68.4	No	65.3	66.5	No	1,463	64.5	No	61.4	No
Com 5519 (Office)	1	E	291	64.9	67	No	63.9	65.1	No	1,535	62.9	No	60.1	No
Com 5520 (Motel)	1	E	256	64.7	66.8	No	63.7	64.8	No	1,529	61.8	No	59.6	No
Com 5521 (Office)	1	E	393	62.9	65	No	61.9	63.1	No	1,656	61.5	No	58.7	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 5522 (Holiday Inn)	1	E	854	55.1	57.2	No	54.2	55.5	No	2,167	56.5	No	53.3	No
Com 5523 (Admiral Semmes)	1	E	476	60.5	62.7	No	59.5	60.8	No	1,860	59.2	No	56.7	No
Com 5524 (Government Plaza)	1	C	342	61.1	63.3	No	59.9	61.2	No	1,799	60.7	No	58.8	No
Church 5525 (Church)	1	C	144	63	65.2	No	61.9	63.3	No	1,597	63.5	No	62.2	No
Com 5526 (Government)	1	C	303	59.4	61.6	No	58.8	60.4	No	1,745	61.2	No	59.5	No
Com 5527 (Museum of Mobile)	1	C	276	64	**66.2**	***Yes***	63.1	64.5	No	1,550	64.3	No	63.0	No
Com 5528 (Exploreum)	1	C	553	64.9	**67**	***Yes***	64.5	66.4	Yes	1,702	**66.5**	***Yes***	66.0	Yes
Park 5529 (Coopers Riverside Park)	1	C	872	62.1	64.2	No	62.1	64.2	No	1,088	64.9	No	64.3	No
¥ Com 5530 (Fort Conde)	1	C	54	**77.5**	**79.7**	***Yes***	76.1	77.0	Yes	1,316	**76.1**	***Yes***	76.0	Yes

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
¥ Com 5531 (Conde Charlotte Museum)	1	C	166	64.3	**66.5**	***Yes***	63.6	65.2	No	1,178	65.4	No	64.3	No
Com 5532 (Motel)	1	E	261	65.3	67.5	No	64.5	66.0	No	1,120	66.1	No	64.8	No
Com 5533 (Office)	1	E	149	67.6	69.8	No	66.5	67.8	No	1,217	67	No	65.3	No
Com 5534 (Office)	1	E	172	67.7	69.8	No	66.5	67.8	No	1,183	67.1	No	65.5	No
Com 5535 (Office)	1	E	200	66.5	68.7	No	65.6	67.0	No	1,142	66.5	No	64.9	No
Com 5553 (Commercial)	1	F	631	61.8	64	No	61.6	62.4	No	619	64.3	No	62.0	No
Com 5554 (Commercial)	1	F	748	60.6	62.7	No	60.3	61.1	No	736	62.8	No	60.5	No
Com 5555 (Commercial)	1	F	549	63.1	65.2	No	62.7	63.6	No	537	65.9	No	63.6	No
Com 5556 (Commercial)	1	F	671	62	64.1	No	61.6	62.5	No	659	64.6	No	62.3	No
Com 5557 (Commercial)	1	F	752	61	63.2	No	60.7	61.6	No	740	63.7	No	61.4	No
Com 5558 (Commercial)	1	F	591	63.6	65.8	No	63.3	64.1	No	579	66	No	63.6	No

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			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 5559 (Commercial)	1	F	728	62.5	64.6	No	62.3	62.9	No	712	64.5	No	62.1	No
Com 5560 (Commercial)	1	F	1,040	59.1	61.3	No	58.9	59.6	No	1,027	61.3	No	58.9	No
Com 5561 (Commercial)	1	F	748	62.3	64.5	No	62.1	62.8	No	724	64.3	No	61.8	No
Com 5562 (Commercial)	1	F	1,091	58.6	60.8	No	58.5	59.1	No	1,099	60.6	No	58.1	No
Com 5563 (Commercial)	1	F	933	58.8	60.9	No	58.6	59.2	No	1,074	60.6	No	58.0	No
Com 5564 (Commercial)	1	F	877	59	61.2	No	58.9	59.5	No	1,032	60.9	No	58.4	No
Com 5565 (Commercial)	1	F	944	58	60.2	No	58.0	58.6	No	1,148	60.1	No	57.7	No
Com 5566 (Commercial)	1	F	1,137	56.8	59	No	56.7	57.5	No	1,355	59	No	56.9	No
Com 5567 (Commercial)	1	F	652	60	62.1	No	59.9	60.6	No	885	62.2	No	59.9	No
Com 5568 (Commercial)	1	F	854	58.9	61.1	No	58.9	59.8	No	1,085	61.1	No	59.2	No
Com 5569 (Commercial)	1	F	803	59.8	62	No	59.8	60.9	No	1,010	62.1	No	60.6	No
Com 5570 (Commercial)	1	F	1,095	62.7	64.9	No	62.7	64.7	No	1,272	65.4	No	65.2	No

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¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 5571 (Commercial)	1	F	846	59.5	61.7	No	59.5	61.0	No	1,004	62	No	61.2	No
Com 5572 (Commercial)	1	F	746	62.8	65.1	No	62.2	63.5	No	578	66.4	No	63.5	No
Com 5573 (Commercial)	1	F	1,179	58.6	60.9	No	58.1	59.4	No	1,007	62.5	No	59.7	No
Com 5574 (Commercial)	1	F	642	64	66	No	63.3	64.2	No	559	68	No	64.4	No
Com 5575 (Commercial)	1	F	483	63.2	65.2	No	62.7	63.6	No	639	67	No	63.7	No
Com 5576 (Commercial)	1	F	1,067	59.1	60.4	No	58.6	58.8	No	1,168	62.9	No	59.8	No
Com 5577 (Commercial)	1	F	873	60.6	62.6	No	60.1	60.9	No	936	64.8	No	61.8	No
Com 5578 (Commercial)	1	F	1,306	57.2	59.3	No	56.7	57.7	No	1,296	62.2	No	58.8	No
Com 5579 (Commercial)	1	F	1,500	55.6	57.7	No	55.1	56.1	No	1,513	60.8	No	57.4	No
Com 5580 (Commercial)	1	F	856	61.5	63.7	No	61.0	62.0	No	824	65.2	No	62.2	No
Com 5581 (Commercial)	1	F	861	61.6	63.8	No	61.1	62.1	No	812	65.3	No	62.2	No
Com 5582 (Commercial)	1	F	1,012	59.9	62	No	59.4	60.4	No	937	64.2	No	60.8	No

† Oakdale Hist. Dist.

¥ Church Street Hist. Dist.

			Existing I-10 Alignment From original report				Existing I-10 Alignment 2018 Re-analysis			2030 Build Alternative B' From previous study			2040 Preferred Alternative	
Site	No. of Rec. Rep.	Activity Category	Dist. From Existing I-10 (feet)	2010 Noise Level (dBA)	2030 No-Build Level (dBA)	Noise Impact?	2020 PreBuild Level (dBA)	2040 NoBuild Level (dBA)	Noise Impact?	Dist. From Alt. B ' (Feet)	2030 Build Level (dBA)	Noise Impact ?	2040 Build Level (dBA)	Noise Impact?
	782					262			213			276		170
Com 5583 (Commercial)	1	F	1,374	56.9	59.1	No	56.5	57.5	No	1,301	62	No	58.4	No
Com 5584 (Commercial)	1	F	1,006	59.4	61.6	No	59.0	60.1	No	926	63.9	No	60.3	No
Com 5585 (Commercial)	1	F	1,102	59.8	62	No	59.3	61.0	No	154	61.9	No	60.5	No

† Oakdale Hist. Dist.
¥ Church Street Hist. Dist.

Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6001-RES	1	B	113	57.9	No	65.2	No	**66.7**	**Yes**
6002-RES	1	B	100	61.1	No	**68.1**	**Yes**	**69.6**	**Yes**
6003-RES	1	B	53	**66.8**	**Yes**	**73.0**	**Yes**	**74.2**	**Yes**
6004-RES	1	B	69	64.9	No	**71.4**	**Yes**	**72.8**	**Yes**
6005-RES	1	B	191	55.9	No	62.9	No	64.4	No
6006-RES	1	B	301	51.0	No	57.7	No	59.2	No
6007-RES	1	B	353	49.9	No	56.5	No	58.0	No
6008-RES	1	B	415	48.9	No	55.3	No	56.8	No
6009-RES	1	B	477	47.9	No	54.3	No	55.7	No
6010-RES	1	B	488	48.6	No	54.9	No	56.4	No
6011-RES	1	B	358	50.9	No	57.4	No	59.0	No
6012-RES	1	B	484	49.3	No	55.6	No	57.1	No
6013-RES	1	B	426	50.2	No	56.7	No	58.2	No
6014-RES	1	B	368	51.4	No	58.0	No	59.5	No
6015-RES	1	B	313	52.8	No	59.5	No	61.0	No
6016-RES	1	B	250	54.7	No	61.5	No	63.1	No
6017-RES	1	B	310	53.2	No	59.9	No	61.4	No
6018-RES	1	B	257	54.7	No	61.5	No	63.1	No
6019-RES	1	B	169	58.3	No	65.4	No	**66.9**	**Yes**
6020-RES	1	B	75	64.4	No	**71.1**	**Yes**	**72.4**	**Yes**
6021-RES	1	B	73	64.6	No	**71.2**	**Yes**	**72.5**	**Yes**
6022-RES	1	B	76	64.4	No	**70.8**	**Yes**	**72.2**	**Yes**
6023-RES	1	B	74	64.5	No	**70.9**	**Yes**	**72.2**	**Yes**
6024-RES	1	B	236	55.5	No	62.4	No	64.0	No
6025-RES	1	B	283	54.1	No	60.9	No	62.4	No
6026-RES	1	B	321	53.1	No	59.8	No	61.3	No
6027-RES	1	B	364	52.2	No	58.7	No	60.2	No
6028-RES	1	B	421	51.1	No	57.5	No	59.0	No
6029-RES	1	B	478	50.2	No	56.5	No	58.0	No
6030-RES	1	B	268	53.9	No	59.8	No	61.2	No
6031-RES	1	B	323	52.4	No	58.3	No	59.7	No
6032-CH	1	B	59	64.3	No	**71.3**	**Yes**	**72.8**	**Yes**
6033-RES	1	B	142	60.7	No	**66.8**	**Yes**	**68.1**	**Yes**
6034-RES	1	B	202	58.2	No	64.0	No	65.3	No
6035-RES	1	B	224	57.4	No	63.3	No	64.6	No
6036-RES	1	B	239	56.9	No	62.8	No	64.2	No
6037-RES	1	B	257	56.3	No	62.3	No	63.7	No
6038-RES	1	B	269	55.9	No	61.9	No	63.3	No
6039-RES	1	B	381	53.1	No	59.1	No	60.5	No
6040-RES	1	B	358	53.5	No	59.5	No	60.9	No

‡ Africatown Hist. Dist.

Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6041-RES	1	B	326	54.0	No	60.0	No	61.5	No
6042-RES	1	B	309	54.3	No	60.3	No	61.7	No
6043-RES	1	B	302	54.4	No	60.4	No	61.8	No
6044-RES	1	B	301	54.3	No	60.3	No	61.7	No
6045-RES	1	B	305	54.0	No	60.0	No	61.4	No
6046-RES	1	B	281	54.5	No	60.4	No	61.8	No
6047-RES	1	B	384	51.9	No	57.9	No	59.3	No
6048-RES	1	B	454	51.0	No	57.0	No	58.5	No
6049-RES	1	B	500	50.6	No	56.6	No	58.0	No
6050-RES	1	B	398	52.6	No	58.6	No	60.0	No
6051-RES	1	B	419	52.1	No	58.1	No	59.5	No
6052-RES	1	B	430	51.9	No	57.9	No	59.3	No
6053-RES	1	B	427	51.9	No	58.0	No	59.4	No
6054-RES	1	B	440	51.7	No	57.7	No	59.0	No
6055-RES	1	B	458	51.3	No	57.3	No	58.6	No
6056-RES	1	B	500	50.8	No	56.8	No	58.1	No
6057-RES	1	B	458	51.4	No	57.5	No	58.8	No
6058-RES	1	B	409	52.2	No	58.3	No	59.6	No
6059-BUS	1	E	297	54.4	No	60.5	No	61.9	No
6060-BUS	1	E	132	58.6	No	65.5	No	67.0	No
6061-BUS	1	E	128	58.9	No	65.7	No	67.2	No
6062-RES	1	B	261	55.1	No	61.4	No	62.8	No
6063-RES	1	B	408	52.2	No	58.3	No	59.6	No
6064-RES	1	B	408	52.3	No	58.4	No	59.6	No
6065-RES	1	B	443	51.9	No	58.0	No	59.2	No
6066-RES	1	B	509	51.2	No	57.2	No	58.3	No
6067-BUS	1	E	152	59.1	No	65.9	No	67.4	No
6068-BUS	1	E	358	52.5	No	59.0	No	60.5	No
6069-BUS	1	E	428	51.7	No	58.0	No	59.5	No
6070-BUS	1	E	93	62.6	No	68.6	No	69.9	No
6071-BUS	1	E	260	55.9	No	62.2	No	63.7	No
6072-BUS	1	E	488	52.8	No	58.9	No	60.0	No
6073-BUS	1	E	312	58.3	No	64.0	No	64.5	No
6074-RES	1	B	227	60.4	No	**66.4**	**Yes**	**67.0**	**Yes**
6075-RES	1	B	226	61.2	No	**67.0**	**Yes**	**67.6**	**Yes**
6076-RES	1	B	218	62.1	No	**67.9**	**Yes**	**68.4**	**Yes**
6077-RES	1	B	203	63.1	No	**68.8**	**Yes**	**69.2**	**Yes**
6078-RES	1	B	188	64.1	No	**69.6**	**Yes**	**70.0**	**Yes**
6079-RES	1	B	178	64.7	No	**70.2**	**Yes**	**70.6**	**Yes**
6080-RES	1	B	157	65.5	No	**70.9**	**Yes**	**71.3**	**Yes**

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Table of Receptors

Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6081-RES	1	B	140	**66.3**	Yes	**71.7**	Yes	**72.0**	Yes
6082-RES	1	B	141	**66.3**	Yes	**71.6**	Yes	**71.7**	Yes
6083-RES	1	B	204	64.9	No	**70.3**	Yes	**70.5**	Yes
6084-RES	1	B	268	63.6	No	**69.1**	Yes	**69.3**	Yes
6085-RES	1	B	345	62.2	No	**67.8**	Yes	**68.0**	Yes
6086-RES	1	B	374	61.6	No	**67.2**	Yes	**67.5**	Yes
6087-RES	1	B	388	60.8	No	**66.5**	Yes	**66.8**	Yes
6088-RES	1	B	372	59.9	No	65.7	No	**66.0**	Yes
6089-RES	1	B	367	58.9	No	64.7	No	65.2	No
6090-RES	1	B	366	58.4	No	64.3	No	64.7	No
6091-RES	1	B	144	65.5	No	**71.0**	Yes	**71.0**	Yes
6092-RES	1	B	131	63.2	No	**67.9**	Yes	**68.6**	Yes
6093-PAV	1	B	133	62.8	No	**67.4**	Yes	**68.2**	Yes
6094-RES	1	B	153	65.4	No	**70.5**	Yes	**70.8**	Yes
6095-RES	1	B	172	64.1	No	**69.2**	Yes	**69.6**	Yes
6096-RES	1	B	202	62.9	No	**68.0**	Yes	**68.5**	Yes
6097-RES	1	B	236	62.0	No	**67.2**	Yes	**67.6**	Yes
6098-RES	1	B	262	61.2	No	**66.5**	Yes	**66.9**	Yes
6099-RES	1	B	261	60.7	No	65.9	No	**66.4**	Yes
6100-RES	1	B	223	**66.7**	Yes	**71.9**	Yes	**72.1**	Yes
6101-RES	1	B	247	65.8	No	**71.1**	Yes	**71.2**	Yes
6102-RES	1	B	273	65.0	No	**70.3**	Yes	**70.5**	Yes
6103-RES	1	B	359	61.8	No	**67.4**	Yes	**67.6**	Yes
6104-RES	1	B	383	61.2	No	**66.7**	Yes	**67.0**	Yes
6105-RES	1	B	411	60.4	No	65.9	No	**66.2**	Yes
6106-RES	1	B	414	59.3	No	64.8	No	65.1	No
6107-RES	1	B	436	58.7	No	64.2	No	64.6	No
6108-RES	1	B	448	57.9	No	63.4	No	63.8	No
6109-RES	1	B	462	57.5	No	63.0	No	63.4	No
6110-RES	1	B	492	56.2	No	61.6	No	62.1	No
6111-RES	1	B	297	59.2	No	64.4	No	64.9	No
6112-RES	1	B	318	58.6	No	63.8	No	64.4	No
6113-RES	1	B	327	58.2	No	63.4	No	64.0	No
6114-RES	1	B	339	57.7	No	62.9	No	63.6	No
6115-RES	1	B	356	56.8	No	61.9	No	62.7	No
6116-RES	1	B	370	56.5	No	61.6	No	62.3	No
6117-RES	1	B	379	56.0	No	61.1	No	61.9	No
6118-RES	1	B	395	55.7	No	60.7	No	61.5	No
6119-RES	1	B	404	55.5	No	60.4	No	61.3	No
6120-RES	1	B	411	55.3	No	60.2	No	61.1	No

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Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6121-RES	1	B	427	54.9	No	59.8	No	60.7	No
6122-RES	1	B	440	54.7	No	59.5	No	60.4	No
6123-RES	1	B	439	54.6	No	59.4	No	60.3	No
6124-RES	1	B	443	54.4	No	59.2	No	60.2	No
6125-RES	1	B	448	54.3	No	59.0	No	60.1	No
6126-RES	1	B	218	58.9	No	63.7	No	64.6	No
6127-RES	1	B	233	58.4	No	63.1	No	64.1	No
6128-RES	1	B	265	57.3	No	62.0	No	63.0	No
6129-RES	1	B	287	56.7	No	61.3	No	62.4	No
6130-RES	1	B	308	56.1	No	60.8	No	61.9	No
6131-RES	1	B	322	55.8	No	60.5	No	61.6	No
6132-RES	1	B	331	55.6	No	60.2	No	61.4	No
6133-RES	1	B	327	55.6	No	60.2	No	61.4	No
6134-RES	1	B	265	56.7	No	61.1	No	62.4	No
6135-RES	1	B	223	57.8	No	62.1	No	63.4	No
6136-RES	1	B	155	60.2	No	64.3	No	65.6	No
6137-RES	1	B	102	63.0	No	**66.9**	**Yes**	**68.1**	**Yes**
6138-RES	1	B	141	60.9	No	64.9	No	**66.2**	**Yes**
6139-RES	1	B	138	60.9	No	65.0	No	**66.2**	**Yes**
6140-RES	1	B	140	60.8	No	64.8	No	**66.1**	**Yes**
6141-RES	1	B	136	61.0	No	65.0	No	**66.2**	**Yes**
6142-RES	1	B	144	60.6	No	64.6	No	65.9	No
6143-RES	1	B	140	60.8	No	64.8	No	**66.1**	**Yes**
6144-RES	1	B	144	60.6	No	64.6	No	65.9	No
6145-RES	1	B	150	60.3	No	64.3	No	65.6	No
6146-RES	1	B	138	60.9	No	64.9	No	**66.2**	**Yes**
6147-RES	1	B	128	61.5	No	65.4	No	**66.7**	**Yes**
6148-RES	1	B	134	61.2	No	65.1	No	**66.4**	**Yes**
6149-CH	1	B	108	62.8	No	**66.6**	**Yes**	**67.9**	**Yes**
6150-RES	1	B	134	61.3	No	65.2	No	**66.5**	**Yes**
6151-RES	1	B	146	60.6	No	64.5	No	65.9	No
6152-RES	1	B	241	57.2	No	61.4	No	62.8	No
6153-RES	1	B	250	56.8	No	61.1	No	62.4	No
6154-RES	1	B	231	57.3	No	61.5	No	62.9	No
6155-RES	1	B	235	57.2	No	61.4	No	62.7	No
6156-RES	1	B	237	57.1	No	61.3	No	62.7	No
6157-RES	1	B	238	57.1	No	61.3	No	62.7	No
6158-RES	1	B	239	57.1	No	61.2	No	62.6	No
6159-RES	1	B	238	57.1	No	61.2	No	62.6	No
6160-RES	1	B	241	57.0	No	61.1	No	62.5	No

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Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6161-RES	1	B	239	57.0	No	61.1	No	62.6	No
6162-RES	1	B	240	57.0	No	61.1	No	62.5	No
6163-RES	1	B	248	56.7	No	60.8	No	62.3	No
6164-RES	1	B	372	54.6	No	59.1	No	60.4	No
6165-RES	1	B	376	54.5	No	59.0	No	60.3	No
6166-RES	1	B	376	54.5	No	58.9	No	60.2	No
6167-RES	1	B	377	54.4	No	58.8	No	60.1	No
6168-RES	1	B	376	54.4	No	58.8	No	60.1	No
6169-RES	1	B	385	54.2	No	58.5	No	59.9	No
6170-RES	1	B	393	54.0	No	58.4	No	59.7	No
6171-RES	1	B	347	54.6	No	59.0	No	60.3	No
6172-RES	1	B	386	54.0	No	58.3	No	59.7	No
6173-RES	1	B	386	54.0	No	58.2	No	59.7	No
6174-RES	1	B	390	54.0	No	58.2	No	59.6	No
6175-RES	1	B	398	53.9	No	58.0	No	59.5	No
6176-RES	1	B	377	54.1	No	58.3	No	59.7	No
6177-RES	1	B	385	54.0	No	58.2	No	59.6	No
6178-RES	1	B	376	54.1	No	58.2	No	59.7	No
6179-RES	1	B	475	53.7	No	58.2	No	59.4	No
6180-RES	1	B	486	53.4	No	57.9	No	59.0	No
6181-RES	1	B	490	53.2	No	57.6	No	58.8	No
6182-RES	1	B	486	53.0	No	57.5	No	58.7	No
6183-RES	1	B	485	53.0	No	57.4	No	58.7	No
6184-RES	1	B	483	53.0	No	57.3	No	58.6	No
6185-BUS	1	E	189	58.6	No	62.6	No	64.0	No
6186-BUS	1	E	421	53.2	No	57.2	No	58.8	No
‡6187-RES	1	B	518	51.5	No	55.6	No	57.1	No
‡6188-CH	1	B	146	60.3	No	63.9	No	65.6	No
‡6189-RES	1	B	140	60.5	No	64.0	No	65.7	No
‡6190-RES	1	B	173	58.8	No	62.5	No	64.2	No
‡6191-RES	1	B	204	57.5	No	61.2	No	63.0	No
‡6192-RES	1	B	247	56.0	No	59.8	No	61.5	No
‡6193-RES	1	B	282	54.9	No	58.9	No	60.6	No
‡6194-RES	1	B	311	54.3	No	58.2	No	59.9	No
‡6195-RES	1	B	342	53.7	No	57.7	No	59.3	No
‡6196-RES	1	B	95	63.4	No	**66.7**	**Yes**	**68.4**	**Yes**
‡6197-RES	1	B	138	60.5	No	64.1	No	65.8	No
‡6198-RES	1	B	190	58.0	No	61.7	No	63.4	No
‡6199-RES	1	B	241	55.1	No	59.0	No	60.7	No
‡6200-RES	1	B	320	53.6	No	57.5	No	59.2	No

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Table of Receptors

Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6201-BUS	1	E	298	55.6	No	59.6	No	61.3	No
6202-RES	1	B	492	52.4	No	56.6	No	58.0	No
6203-BUS	1	E	464	52.9	No	57.3	No	58.6	No
6204-BUS	1	E	470	53.7	No	58.4	No	59.4	No
6205-BUS	1	E	232	58.2	No	62.5	No	63.8	No
6206-BUS	1	E	62	66.8	No	70.1	No	**71.7**	**Yes**
6207-BUS	1	E	275	64.8	No	70.4	No	70.5	No
6208-RES	1	B	333	63.6	No	**69.2**	**Yes**	**69.4**	**Yes**
6209-RES	1	B	397	62.3	No	**68.0**	**Yes**	**68.1**	**Yes**
6210-RES	1	B	477	60.7	No	**66.4**	**Yes**	**66.6**	**Yes**
6211-RES	1	B	276	62.3	No	**68.5**	**Yes**	**68.5**	**Yes**
6212-RES	1	B	393	59.3	No	65.7	No	65.7	No
6213-RES	1	B	419	58.7	No	65.2	No	65.2	No
6214-RES	1	B	469	58.0	No	64.3	No	64.4	No
6215-RES	1	B	229	63.8	No	**69.9**	**Yes**	**69.9**	**Yes**
6216-CH	1	B	346	60.3	No	**66.7**	**Yes**	**66.7**	**Yes**
6217-RES	1	B	385	59.3	No	65.8	No	65.8	No
6218-RES	1	B	484	57.7	No	64.0	No	64.0	No
6219-RES	1	B	462	57.8	No	64.2	No	64.3	No
6220-RES	1	B	419	58.5	No	65.0	No	65.0	No
6221-RES	1	B	391	59.1	No	65.6	No	65.6	No
6222-RES	1	B	263	62.5	No	**68.8**	**Yes**	**68.8**	**Yes**
6223-RES	1	B	192	65.3	No	**71.2**	**Yes**	**71.2**	**Yes**
6224-RES	1	B	117	**69.3**	**Yes**	**74.8**	**Yes**	**74.8**	**Yes**
6225-CH	1	B	428	58.1	No	64.6	No	64.6	No
6226-RES	1	B	333	59.6	No	65.9	No	65.9	No
6227-RES	1	B	301	60.2	No	**66.5**	**Yes**	**66.6**	**Yes**
6228-RES	1	B	311	60.1	No	**66.4**	**Yes**	**66.4**	**Yes**
6229-RES	1	B	259	61.2	No	**67.4**	**Yes**	**67.4**	**Yes**
6230-RES	1	B	194	62.8	No	**68.9**	**Yes**	**68.9**	**Yes**
6231-RES	1	B	254	61.4	No	**67.5**	**Yes**	**67.6**	**Yes**
6232-RES	1	B	317	60.2	No	**66.3**	**Yes**	**66.4**	**Yes**
6233-RES	1	B	376	59.2	No	65.3	No	65.4	No
6234-RES	1	B	193	64.3	No	**69.8**	**Yes**	**69.9**	**Yes**
6235-RES	1	B	236	63.3	No	**68.9**	**Yes**	**69.0**	**Yes**
6236-RES	1	B	284	62.2	No	**68.0**	**Yes**	**68.1**	**Yes**
6237-RES	1	B	329	61.3	No	**67.1**	**Yes**	**67.3**	**Yes**
6238-RES	1	B	364	60.8	No	**66.6**	**Yes**	**66.7**	**Yes**
6239-RES	1	B	432	59.7	No	65.5	No	65.7	No
6240-RES	1	B	471	59.0	No	64.8	No	65.1	No

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Table of Receptors

Bay Bridge Road Area				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	268				5		72		88
6241-CITY	1	B	216	62.5	No	**68.4**	**Yes**	**68.5**	**Yes**
6242-RES	1	B	401	59.2	No	65.2	No	65.3	No
6243-RES	1	B	476	57.9	No	63.9	No	64.0	No
6244-RES	1	B	247	60.7	No	**66.9**	**Yes**	**66.9**	**Yes**
6245-RES	1	B	306	59.5	No	65.7	No	65.8	No
6246-RES	1	B	340	59.0	No	65.2	No	65.2	No
6247-RES	1	B	429	57.8	No	63.9	No	64.0	No
6248-RES	1	B	144	62.9	No	**69.0**	**Yes**	**69.0**	**Yes**
6249-RES	1	B	179	61.9	No	**68.1**	**Yes**	**68.1**	**Yes**
6250-RES	1	B	222	60.8	No	**67.1**	**Yes**	**67.1**	**Yes**
6251-RES	1	B	272	59.7	No	**66.0**	**Yes**	**66.1**	**Yes**
6252-RES	1	B	317	58.8	No	65.2	No	65.2	No
6253-RES	1	B	363	58.3	No	64.5	No	64.6	No
6254-RES	1	B	135	62.9	No	**69.1**	**Yes**	**69.1**	**Yes**
6255-RES	1	B	137	62.8	No	**68.9**	**Yes**	**69.0**	**Yes**
6256-RES	1	B	172	61.7	No	**68.0**	**Yes**	**68.0**	**Yes**
6257-RES	1	B	208	60.8	No	**67.1**	**Yes**	**67.1**	**Yes**
6258-RES	1	B	258	59.6	No	**66.0**	**Yes**	**66.0**	**Yes**
6259-RES	1	B	305	58.6	No	65.0	No	65.1	No
6260-RES	1	B	344	58.0	No	64.4	No	64.4	No
6261-RES	1	B	149	62.3	No	**68.5**	**Yes**	**68.5**	**Yes**
6262-RES	1	B	240	59.9	No	**66.3**	**Yes**	**66.3**	**Yes**
6263-RES	1	B	291	58.7	No	65.2	No	65.2	No
6264-RES	1	B	342	57.9	No	64.3	No	64.3	No
‡6265-BUS	1	E	64	66.2	No	69.4	No	**71.0**	**Yes**
6266-RES	1	B	442	58.6	No	64.9	No	65.0	No
6267-RES	1	B	459	58.3	No	64.6	No	64.7	No
6268-BUS	1	E	81	61.9	No	69.0	No	70.6	No

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US 90 & US 98 near Daphne				Existing Alignment		Existing Alignment		2040 Build Alternative B'	
Site	No. of Rec. Rep.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	135				7		14		18
7001-RES	1	B	157	65.8	No	**67.3**	**Yes**	**68.8**	**Yes**
7002-RES	1	B	156	64.4	No	**67.5**	**Yes**	**68.2**	**Yes**
7003-RES	1	B	201	63.5	No	65.4	No	**66.9**	**Yes**
7004-RES	1	B	357	59.3	No	61.9	No	62.9	No
7005-RES	1	B	429	**67.3**	**Yes**	60.2	No	61.3	No
7006-RES	1	B	118	**67.8**	**Yes**	**69.6**	**Yes**	**71.0**	**Yes**
7007-COM	1	E	119	67.7	No	69.5	No	**71.0**	**Yes**
7008-COM	1	E	447	61.1	No	59.9	No	61.0	No
7009-COM	1	E	296	64.4	No	62.8	No	64.1	No
7010-RES	1	B	189	63.1	No	**66.1**	**Yes**	**66.8**	**Yes**
7011-RES	1	B	221	62.3	No	64.8	No	65.7	No
7012-RES	1	B	245	61.2	No	64.0	No	64.9	No
7013-RES	1	B	463	64.3	No	59.4	No	60.8	No
7014-COM	1	E	179	64.4	No	66.3	No	67.7	No
7015-RES	1	B	191	65.1	No	**66.0**	**Yes**	**66.7**	**Yes**
7016-RES	1	B	166	64.9	No	**66.8**	**Yes**	**67.1**	**Yes**
7017-RES	1	B	161	65.0	No	**66.8**	**Yes**	**68.2**	**Yes**
7018-RES	1	B	180	65.4	No	65.6	No	**66.7**	**Yes**
7019-RES	1	B	159	65.2	No	**66.9**	**Yes**	**68.6**	**Yes**
7020-RES	1	B	161	62.7	No	**66.7**	**Yes**	**68.3**	**Yes**
7021-RES	1	B	231	60.0	No	64.1	No	65.8	No
7022-RES	1	B	226	61.1	No	62.1	No	64.3	No
7023-RES	1	B	178	61.0	No	63.4	No	65.6	No
7024-RES	1	B	341	60.6	No	59.6	No	61.8	No
7025-RES	1	B	190	60.7	No	62.8	No	65.1	No
7026-RES	1	B	185	60.5	No	62.9	No	65.2	No
7027-RES	1	B	398	55.3	No	57.9	No	60.2	No
7028-RES	1	B	537	53.3	No	56.2	No	58.4	No
7029-RES	1	B	688	51.4	No	54.3	No	56.4	No
7030-RES	1	B	965	54.2	No	52.3	No	54.3	No
7031-RES	1	B	629	53.7	No	55.9	No	58.0	No
7032-RES	1	B	871	51.2	No	53.5	No	55.4	No
7033-RES	1	B	992	50.4	No	52.4	No	54.3	No
7034-RES	1	B	1057	51.7	No	52.0	No	53.8	No
7035-RES	1	B	821	51.8	No	53.3	No	55.4	No
7036-RES	1	B	744	51.4	No	53.5	No	55.6	No
7037-RES	1	B	776	50.1	No	53.1	No	55.1	No
7038-RES	1	B	1044	50.0	No	51.4	No	53.3	No
7039-RES	1	B	975	50.7	No	51.7	No	53.6	No

US 90 & US 98 near Daphne				**Existing Alignment**		**Existing Alignment**		**2040 Build Alternative B'**	
Site	No. of Rec. Rep.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	135				7		14		18
7040-RES	1	B	876	51.4	No	52.4	No	54.3	No
7041-RES	1	B	776	50.0	No	53.1	No	55.1	No
7042-RES	1	B	999	60.8	No	51.3	No	53.2	No
7043-RES	1	B	183	60.5	No	63.0	No	65.3	No
7044-RES	1	B	196	60.3	No	62.5	No	64.8	No
7045-RES	1	B	196	61.2	No	62.4	No	64.8	No
7046-RES	1	B	171	61.0	No	63.4	No	65.7	No
7047-RES	1	B	402	55.9	No	57.6	No	60.0	No
7048-RES	1	B	389	55.8	No	57.8	No	60.1	No
7049-RES	1	B	399	55.6	No	57.6	No	59.9	No
7050-RES	1	B	411	61.0	No	57.5	No	59.7	No
7051-RES	1	B	176	60.8	No	63.2	No	65.5	No
7052-RES	1	B	457	54.7	No	57.0	No	59.1	No
7053-RES	1	B	504	53.7	No	56.5	No	58.5	No
7054-RES	1	B	569	53.5	No	55.5	No	57.7	No
7055-RES	1	B	584	53.8	No	55.3	No	57.4	No
7056-RES	1	B	559	52.9	No	55.6	No	57.7	No
7057-RES	1	B	632	51.5	No	54.7	No	56.7	No
7058-RES	1	B	862	49.8	No	52.3	No	54.1	No
7059-RES	1	B	955	52.2	No	51.5	No	53.3	No
7060-RES	1	B	696	53.5	No	54.0	No	55.8	No
7061-RES	1	B	599	54.4	No	55.3	No	57.1	No
7062-RES	1	B	534	**66.2**	**Yes**	56.2	No	58.0	No
7063-COM	1	E	78	66.9	No	69.2	No	70.9	No
7064-COM	1	E	183	64.5	No	62.8	No	65.0	No
7065-COM	1	E	94	66.2	No	67.3	No	68.8	No
7066-COM	1	E	84	66.6	No	69.4	No	70.6	No
7067-COM	1	E	157	67.6	No	65.5	No	66.6	No
7068-COM	1	E	92	67.3	No	69.5	No	70.1	No
7069-COM	1	E	109	66.4	No	68.3	No	68.9	No
7070-COM	1	E	109	65.7	No	68.2	No	68.8	No
7071-RES	1	B	745	53.7	No	53.9	No	55.2	No
7072-RES	1	B	661	56.6	No	55.4	No	56.6	No
7073-RES	1	B	512	56.9	No	58.2	No	59.5	No
7074-RES	1	B	493	57.3	No	58.4	No	59.6	No
7075-RES	1	B	439	58.7	No	58.9	No	60.0	No
7076-RES	1	B	332	57.3	No	60.3	No	61.1	No
7077-RES	1	B	412	56.5	No	58.9	No	59.8	No
7078-RES	1	B	465	54.5	No	58.1	No	59.0	No

US 90 & US 98 near Daphne				**Existing Alignment**		**Existing Alignment**		**2040 Build Alternative B'**	
Site	No. of Rec. Rep.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	135				7		14		18
7079-RES	1	B	606	52.5	No	56.1	No	57.2	No
7080-RES	1	B	862	50.4	No	52.8	No	54.1	No
7081-RES	1	B	910	57.1	No	52.0	No	53.4	No
7082-RES	1	B	347	57.5	No	59.0	No	60.7	No
7083-RES	1	B	309	57.4	No	59.5	No	61.5	No
7084-RES	1	B	311	64.1	No	59.3	No	61.6	No
7085-COM	1	E	171	64.2	No	65.5	No	66.1	No
7086-COM	1	E	185	70.9	No	65.6	No	66.3	No
7087-COM	1	E	85	66.6	No	**72.2**	**Yes**	**72.9**	**Yes**
7088-COM	1	E	481	58.2	No	58.7	No	59.7	No
7089-COM	1	E	455	65.7	No	59.7	No	61.0	No
7090-COM	1	E	119	67.0	No	66.9	No	68.8	No
7091-COM	1	E	101	64.2	No	68.7	No	70.4	No
7092-COM	1	E	174	61.2	No	64.9	No	66.8	No
7093-COM	1	E	279	60.6	No	62.8	No	64.8	No
7094-COM	1	E	278	60.2	No	62.0	No	64.0	No
7095-COM	1	E	284	66.2	No	61.6	No	63.7	No
7096-COM	1	E	100	66.1	No	67.7	No	69.7	No
7097-COM	1	E	99	64.3	No	67.5	No	69.5	No
7098-RES	1	B	569	56.1	No	57.6	No	59.5	No
7099-RES	1	B	496	55.7	No	57.7	No	59.8	No
7100-RES	1	B	541	56.0	No	57.3	No	59.4	No
7101-RES	1	B	556	55.0	No	57.6	No	59.7	No
7102-RES	1	B	710	54.9	No	56.4	No	58.3	No
7103-RES	1	B	747	55.2	No	56.2	No	58.1	No
7104-RES	1	B	627	54.8	No	56.5	No	58.4	No
7105-RES	1	B	720	55.1	No	56.1	No	58.0	No
7106-RES	1	B	641	56.3	No	56.3	No	58.2	No
7107-RES	1	B	489	55.9	No	57.5	No	59.5	No
7108-RES	1	B	763	55.7	No	57.1	No	58.8	No
7109-RES	1	B	889	55.4	No	56.8	No	58.5	No
7110-RES	1	B	605	56.9	No	56.6	No	58.4	No
7111-RES	1	B	438	59.9	No	58.1	No	60.1	No
7112-RES	1	B	260	57.6	No	61.1	No	63.2	No
7113-RES	1	B	812	56.7	No	58.1	No	59.6	No
7114-RES	1	B	703	56.9	No	57.7	No	59.3	No
7115-RES	1	B	660	57.5	No	57.9	No	59.5	No
7116-RES	1	B	507	61.7	No	58.5	No	60.3	No
7117-RES	1	B	189	**68.7**	**Yes**	63.0	No	65.0	No

Table of Receptors

US 90 & US 98 near Daphne				**Existing Alignment**		**Existing Alignment**		**2040 Build Alternative B'**	
Site	No. of Rec. Rep.	Activity Category	Dist from EP (ft)	2016 Existing Level (dBA)	Noise Impact?	2040 NoBuild Level (dBA)	Noise Impact?	2040 Build Level (dBA)	Noise Impact?
	135				7		14		18
7118-COM	1	E	68	67.2	No	70.2	No	**72.2**	**Yes**
7119-RES	1	B	164	60.6	No	63.9	No	65.9	No
7120-RES	1	B	390	61.3	No	59.5	No	61.4	No
7121-RES	1	B	237	65.4	No	62.4	No	64.2	No
7122-RES	1	B	109	63.7	No	**66.7**	**Yes**	**68.7**	**Yes**
7123-RES	1	B	291	64.8	No	61.4	No	63.3	No
7124-COM	1	E	131	61.7	No	65.8	No	67.9	No
7125-COM	1	E	230	60.6	No	61.7	No	63.8	No
7126-COM	1	E	231	63.2	No	61.7	No	63.8	No
7127-COM	1	E	160	**71.6**	**Yes**	64.3	No	66.4	No
7128-COM	1	E	56	67.8	No	**72.5**	**Yes**	**74.6**	**Yes**
7129-RES	1	B	181	62.3	No	63.2	No	65.2	No
7130-RES	1	B	171	61.6	No	63.6	No	65.6	No
7131-RES	1	B	188	61.8	No	62.9	No	64.9	No
7132-RES	1	B	183	**68.1**	**Yes**	63.1	No	65.1	No
7133-RES	1	B	73	**69.8**	**Yes**	**69.5**	**Yes**	**71.6**	**Yes**
7134-COM	1	E	85	66.0	No	**71.1**	**Yes**	**72.3**	**Yes**
7135-RES	1	B	450	53.3	No	57.1	No	57.9	No

APPENDIX K

Addendum to
Air Quality Analysis

An Addendum to

Air Quality Analysis Technical Report

For the
Interstate 10
Mobile River Bridge and Bayway Project

ALDOT Project No. DPI-0030(005)

Mobile and Baldwin Counties, Alabama

Prepared For:

ALABAMA DEPARTMENT OF TRANSPORTATION

March 18, 2019

1 Executive Summary

This report is an addendum to the ***Air Quality Analysis Technical Report For The Interstate 10 Mobile River Bridge and Bayway Widening Project*** presented in Appendix I of the signed DEIS, herein referred to as "the original report". This document is not intended to be a stand-alone air quality report. To properly interpret the information in this addendum, the reader should have the original report available to understand the updates presented in this report.

The I-10 Mobile River Bridge and Bayway Project is a proposal to increase the capacity of I-10 by constructing a new six-lane bridge across the Mobile River and replacing the existing four-lane I-10 bridges over Mobile Bay with eight lanes at an elevation above the 100-year storm event.

This air quality analysis evaluates whether National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO) would be exceeded at receptor locations in the vicinity of the most congested intersection within the project study area. The primary standard for CO was designed by the U. S. Environmental Protection Agency (EPA) to protect against adverse health effects. Information regarding ozone, mobile source air toxics (MSATs), and particulate matter 2.5 (PM 2.5) is also provided.

The project is located within Mobile and Baldwin Counties, which are both currently in attainment for CO, Ozone, nitrogen dioxide, and particulate matter (PM 2.5 and PM 10).

The NAAQS for CO is 35 parts per million (ppm) for the 1-hour standard and 9-ppm for the 8-hour standard. Using dispersion modeling, worst-case 1-hour CO concentrations were modeled for multiple receptors located in the vicinity of the most congested intersection within the project study area. Results of the analysis indicate that CO concentrations under the Preferred Alternative conditions will not exceed the NAAQS in 2040 Design Year.

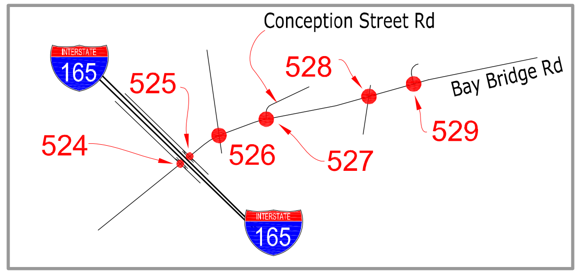
Since the original report, the planning team has selected Alternative B' as the Preferred Alternative. The year that construction is planned to begin is 2020. Traffic volume predictions for this addendum were projected to the build year (2020) and a twenty year future (2040) and adjusted for the consideration that the project may be partially funded by tolls. The analysis documented in this addendum is based on the design hour volumes from the I-10 Mobile River Bridge Interstate Modification Request (IMR) dated August 2018 with the improvements considered acceptable from an operational standpoint by FHWA in their letter to ALDOT dated October 3, 2018.

2 Carbon Monoxide Modeling

2.1 Selection of Intersection Which Represents the Worst Possible Case for Air Quality.

An in-depth traffic study has been completed for this project which takes into account many different aspects of this project's design and effects it may have on traffic patterns around the project area. This study included the possibility that some of the project funding would be supplied by tolling. This traffic study revealed the Preferred Alternative would produce the worst case of traffic congestion along Bay

Bridge Road as the peak-hour west-bound traffic on that roadway is restricted by the merging movements required to travel north on I-165. The following graphic from the IMR depicts this area with intersections numbers for that correlate to the traffic analysis results table in the IMR. The IMR Traffic analysis results table shows Level of Service (LOS) "F" at intersections 525-529. This suggests that congestion cascades through the intersections to the east of the intersection of Bay Bridge Road with I-165, especially for west bound traffic.



EPA guidance, Guideline for Modeling Carbon Monoxide from Roadway Intersections, recommends that the signalized intersections with the highest traffic volumes and the worst LOS be analyzed for CO impacts. Therefore, this entire area was selected for modeling for worst case vehicular CO emissions.

2.2 Methodology

Carbon monoxide is an odorless, colorless gas that interferes with the delivery of oxygen to the body's organs and tissues. The incomplete burning of carbon in fuels produces CO. High concentrations of CO can occur along roadsides in heavy traffic, particularly at major intersections, and in enclosed areas, such as garages and poorly ventilated tunnels. Peak CO concentrations typically occur during the colder months of the year when CO vehicular emissions are greater and nighttime inversion conditions are more frequent. Factors that can determine CO vehicular emissions are free-flow and idle factors.

In order to evaluate whether National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO) would be exceeded at receptor locations in the project area, free-flow and idle factors are determined from a database modeling which simulates mover vehicle emissions. A baseline worst case emissions simulation for this area was evaluated using the worst-case input parameters and the resulting emissions factors were used into a dispersion model for all links.

Secondly these factors are input along with the geometric layout of the intersection as traffic links with traffic volumes and modeled at worst case weather conditions for dispersion. A dispersion model of this area in which all queue links were modeled using traffic from the worst case scenario of cascading congestion and departing link at full capacity. The CAL3QHC dispersion model (see Section 2.4) evaluates the worst possible (highest possible) concentration of air pollutants at given locations in the area. The assumption was made that if this worst case condition does not exceed the NAAQS then this project has reached project level conformity and no further action is needed. This methodology and associated assumptions are based on the precedents and guidance found in the FHWA "Carbon Monoxide (CO) Categorical Hot-Spot Finding with Moves2014a" and in the EPA "Guideline for Modeling Carbon Monoxide from Roadway Intersections."

2.3 MOtor Vehicle Emission Simulator (MOVES).

Since the analysis preformed for the DEIS, the EPA has released MOVES2014a and more recently MOVES2014b. The EPA now requires that MOVES2014a be used to predict emissions rates for vehicles for project level conformity analysis. The state of Alabama uses the methodology from **Federal Highway Administration (FHWA) Carbon Monoxide (CO) Categorical Hot-spot Finding With MOVES2014a** for modeling carbon monoxide. The FHWA's *Carbon Monoxide Categorical Hot-Spot Finding Technical Report* dated June 2017. For project-level conformity determination in CO maintenance areas, ALDOT may rely on this document in place an independent CO hot-spot analysis when all parameters of a project fall within the acceptable ranges given in the associated memorandum. This project falls within the acceptable range for most but not all modeled parameters.

Limiting criteria from technical report	**Values for project area**
Design Year ≥ 2017	Design Year = 2040
Ambient Temperature ≥ -10 (ºF)	January average lows Temp = 42 (ºF)
Approaching Roadway Grades ≤ 2%	Measured In-Place Grade ≈ 1.8%

Since all the parameters which apply to MOVES2014a as shown in the above table fall within the acceptable ranges, the MOVES analysis (Section 3) of the *Carbon Monoxide Categorical Hot-Spot Finding Technical Report* is applicable to this project. Therefore, the following emissions rates from Section 3 of that report are used as worst case values in the required dispersion modeling for this project-level conformity determination.

Idle CO Emission Factors	**Running CO Emissions Factors**
18.58 grams per hour	5.581 grams per mile

2.4 Predicting pollutant concentrations near roadway intersections.

Dispersion modeling was performed with CAL3QHC, an U.S. EPA-recommended microcomputer-based model to predict CO concentrations from both moving and idling motor vehicles at roadway intersections. The model includes the CALINE-3 line-source dispersion model and a traffic algorithm for estimating vehicular queue lengths at signalized intersections. The model permits the estimation of total air pollutant concentrations from both moving and idling vehicles. Because idle emissions account for a substantial portion of the total emissions at an intersection, the model is relatively insensitive to traffic speed.

Dispersion modeling was performed in accordance with "User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections" (EPA-454/R-92-006, revised; September 1995), hereafter referenced as "the CAL3QHC User's Guide." Version 2.0 of CAL3QHC and Microstation V8i SS4 were utilized to facilitate data input and allowed a "view" of the intersection showing roadway geometry and receptor locations so that the accuracy of input coordinates could be checked.

Certain meteorological variables are required for dispersion modeling in CAL3QHC. The values used are shown in the following table:

Meteorological Variable	Dispersion Modeling Input
Averaging Time in Minutes (ATIM)	60 Minutes (1-hour)
Ambient Background CO Concentration (AMB)	• 2 ppm in 1-Hour & • 2 ppm in 8-Hour
Mixing Height in Meters (MIXH)	1,000 Meters
Atmosphere Stability Class (CLAS)	3 (C)
Setting Velocity (VS)	0 cm/sec
Deposition Velocity (VD)	0 cm/sec
Wind Speed (U)	1 m/sec
Wind Angle Range:	Every 10°, from 0° to 360°
Surface Roughness Coefficient (Zo)	175 centimeters (see text below)

Receptor locations are chosen per Section 2.2 of EPA "Guideline for Modeling Carbon Monoxide from Roadway Intersections (454/R-92-005, September 1992)". For this project there are no locations with expected maximum concentrations. General public access is along the roadways in pedestrian areas which are general areas rather than specific. For this reason, reasonableness for receptor location selection presented general locations rather than specific locations. Concentrations were modeled for a grid of locations adjacent to the modeled roadways. The worst case location for CO concentrations was found to be in the pedestrian areas of the Right-of-Way near west-bound lanes of Bay Bridge Road. The latest traffic model for the proposed design of this link was modeled in a dispersion model. The results of this model revealed a maximum one-hour concentration of 4.8 ppm (parts per million) which is below both the one-hour and eight-hour NAAQS.

Because the one-hour analysis results were well below the one-hour criteria of 35 ppm and also below the eight-hour criteria of 9.0 ppm, an eight-hour air analysis is not necessary (FHWA Technical Advisory T6640.8a, Item 8 (b)).

3 Particulate Matter 2.5

This project is located in an area designated by the U.S. EPA as being in attainment for PM 2.5; therefore, an assessment is not required.

4 Ozone

This project is located in an area designated by the U.S. EPA as being in attainment for ozone; therefore, an assessment is not required.

5 Mobile Source Air Toxics (MSAT)

In the DEIS, this project was categorized as needing a qualitative analysis for MSAT. This project is still categorized as needing a qualitative analysis. Since the DIES the EPA has released new information and a MOVES 2104. The FHWA has subsequently the guidance, "Updated Interim Guidance on Mobile

Source Air Toxic Analysis in NEPA Documents," dated October 18, 2016. Therefore, the qualitative analysis for this project is amended to be as follows:

5.1 MSAT qualitative analysis

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at:
https://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.cfm

For each alternative in this EIS, the amount of mobile source air toxics (MSAT) emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because the VMT estimated for the No Build Alternative is higher than for any of the Build Alternatives, higher levels of MSAT are not expected from any of the Build Alternatives compared to the No Build. It is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of the Environmental Protection Agency's (EPA) national control programs that are projected to reduce annual MSAT emissions by over 90 percent from 2010 to 2050 (Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents, Federal Highway Administration, October 12, 2016). Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations. Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations. In sum, under the Preferred Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build Alternative, due to the reduced VMT associated with more direct routing, and due to EPA's MSAT reduction programs.

5.2 Discussion regarding health impacts.

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, https://www.epa.gov/iris). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA’s Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, “[t]he absence of adequate data to develop a sufficiently confident dose-response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk (EPA IRIS database, Diesel Engine Exhaust, Section II.C. https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0642.htm#quainhal).”

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/ internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

6 References

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