



US Army Corps
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Mobile District

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Mississippi Coastal Improvements Program (MsCIP)

Hancock, Harrison, and Jackson Counties, Mississippi

APPENDIX C REAL ESTATE



FOREWORD

This document is one of a number of technical appendices to the Mississippi Coastal Improvements Program (MsCIP) Comprehensive Plan and Integrated Feasibility Report and Environmental Impact Statement.

The Mississippi Coastal Improvements Program (MsCIP) Comprehensive Plan Integrated Feasibility Report and Environmental Impact Statement provides systems-based solutions and recommendations that address: hurricane and storm damage reduction, ecosystem restoration and fish and wildlife preservation, reduction of damaging saltwater intrusion, and reduction of coastal erosion. The recommendations contained in the Main Report/EIS also provide measures that aid in: greater coastal environmental and societal resiliency, regional economic re-development, and measures to reduce long-term risk to the public and property, as a consequence of hurricanes and coastal storms. The recommendations cover a comprehensive package of projects and activities that treat the environment, wildlife, and people, as an integrated system that requires a multi-tiered and phased approach to recovery and risk reduction, irrespective of implementation authority or agency.



Figure 1.
The MsCIP Study Area

The purpose of the Comprehensive Plan Report is to present, to the Congress of the United States, the second of two packages of recommendations (i.e., the first being the “interim” recommendations funded in May 2007, and this “final” response, as directed by the Congress), directed at recovery of vital water and related land resources damaged by the hurricanes of 2005, and development of recommendations for long-term risk reduction and community and environmental resiliency, within the three-county, approximately 70 mile-long coastal zone, including Mississippi Sound and its barrier islands, of the State of Mississippi.

1 This appendix, the Main Report/EIS, and all other appendices and supporting documentation, were
2 subject to Independent Technical Review (ITR) and an External Peer Review (EPR). Both review
3 processes will have been conducted in accordance with the Corps “Peer Review of Decision
4 Documents” process, has been reviewed by Corps staff outside the originating office, conducted by
5 a Regional and national team of experts in the field, and coordinated by the National Center of
6 Expertise in Hurricane and Storm Damage Protection, North Atlantic Division, U.S. Army Corps of
7 Engineers.

8 The report presents background on the counties that comprise the Mississippi coastline most
9 severely impacted by the Hurricanes of 2005, their pre-hurricane conditions, a summary of the
10 effects of the 2005 hurricane season, problem areas identified by stakeholders and residents of the
11 study area, a summary of the approach used in analyzing problems and developing
12 recommendations directed at assisting the people of the State of Mississippi in recovery,
13 recommended actions and projects that would assist in the recovery of the physical and human
14 environments, and identification of further studies and immediate actions most needed in a
15 comprehensive plan of improvements for developing a truly resilient future for coastal Mississippi.

16 This appendix contains detailed technical information used in the analysis of existing and future
17 without-project conditions, in the development of problem-solving measures, and in the analysis,
18 evaluation, comparison, screening, and selection of alternative plans, currently presented as
19 tentatively-selected recommendations contained in the Main Report/EIS.

20 Each appendix functions as a complete technical document, but is meant to support one particular
21 aspect of the feasibility study process. However, because of the complexity of the plan formulation
22 process used in this planning study, the information contained herein should not be used without
23 parallel consideration and integration of all other appendices, and the Main Report/EIS that
24 summarizes all findings and recommendations.

25 The Real Estate Appendix identifies and describes the lands, easements and rights-of-way (LER)
26 required for construction, operation and maintenance of the proposed projects. Further, the Real
27 Estate Appendix describes the estimated LER value, together with the estimated administrative and
28 incidental costs attributable to providing project LER, and the acquisition process.

29 The report is not written to the full feasibility level of detail and defers issues pertaining to borrow and
30 disposal sites and facility/utility relocations for further study during Pre-Construction, Engineering
31 and Design (PED) Phase when more specific information is available. At that time those Real Estate
32 Plans for projects recommended for further study will be revised to incorporate new data and
33 information.

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1 REAL ESTATE SUMMARY

2 The Real Estate Appendix is written to support the Mississippi Coastal Improvements Program
3 (MsCIP) - Comprehensive Report. The Real Estate Appendix discusses the land requirements
4 associated with each of the different alternatives studied for long term protection of the Mississippi
5 Coastline that includes portions of Hancock, Harrison and Jackson counties. The alternatives under
6 consideration which have real estate requirements are identified as Lines of Defense 1, 2, 3, and 4
7 along with Nonstructural Acquisition and Ecosystem Restoration areas. It is noted that the Bayou
8 Cumbest and Turkey Creek Ecosystem Restoration areas lay completely or partially within the
9 proposed acquisition areas. Although included in the acquisition estimates, a separate real estate
10 cost estimate is provided for each of these alternatives in the event a stand alone ecosystem
11 restoration project is recommended.

12 Table RES-1 identifies the alternatives evaluated by Real Estate, and provides a cost for real estate
13 acquisition for the given alternative. The total cost for each alternative includes an estimated cost for
14 land/improvements, relocation payments, and administrative costs to acquire lands and provide
15 relocation assistance services. Mobile District obtained land records tax data bases for 2005 from
16 the tax assessors' offices in Jackson, Harrison, and Hancock Counties, and provided the data bases
17 to Savannah District Real Estate. Mobile District also provided digital shape files of the various
18 alternatives included in the study. From the counties' data bases and the digital shape files, the
19 Savannah District Spatial Engineering Section designed a web based GIS program which includes a
20 footprint for each alternative. Spatial Engineering wrote a program to generate a data base that
21 includes the tax information for each parcel impacted by a given alternative.

22 Due to the magnitude of the project and the vast amount of data considered, a number of
23 assumptions were made in compiling the Real Estate costs. The numbers of impacted parcels for
24 the LOD 4 Option A, B & C alternatives varied. The process began by looking at parcels individually
25 to make a determination of approximately what percentage of the parcel may be impacted by the
26 footprint for construction of the berm or levee. As changes in the alternatives occurred, it became
27 apparent that it was not feasible to continue the analysis on a parcel by parcel basis.

28 Based on the first parcel by parcel analysis completed on more than 2,000 parcels, a determination
29 was made to estimate subsequent real estate takings based on a percentage factor. The total
30 number of properties impacted for a given alternative was firm. However, an assumption was made
31 that the land/improvements valuation would be based on a take of approximately 65% after allowing
32 for the partial takings for those properties impacted by the alternative. While costs are based on
33 assessed values from the 2005 tax year, an appraiser completed a market study using
34 approximately 135 comparable sales from the three coastal counties. All sales used occurred in the
35 first quarter of 2007. From these sales an "adjustment factor" for each county was established. The
36 sales indicated post Katrina real estate values were approximately double the pre-Katrina values
37 and the adjustment factors for each county ranged from 1.75 - 2.50 percent. For planning purposes,
38 this adjustment factor was used to bring the assessed values more in line with 2007 "market values".

39 An assumption was also made that there would be no relocation cost included for those landowners
40 or tenants where there were structures valued at less than \$3,000. It was considered likely that in
41 most cases any structure under \$3,000 may be an outbuilding or carport so these should not be
42 included. There may be some mobile homes with an assessed valued under \$3,000, but this is
43 thought to be a minimal number. For those parcels where the 2005 tax data indicated there was an
44 improvement valued over \$3,000, the value of that improvement and a relocation cost for a
45 displacee are included even though the improvement may have been destroyed by Katrina. This was

1 based on the assumption that the improvement would likely be rebuilt by the time acquisition for the
2 project is implemented.

3 A clear distinction could not be made in all cases as to whether a benefit cost for residential or
4 business relocation may apply, so an average cost of \$28,000 is used as a "relocation payment" for
5 parcels that were identified with pre Katrina improvements across all alternatives. There are a
6 number of factors pertaining to relocations that can impact the project both in cost and in schedule.
7 Payments for Housing of Last Resort, which would exceed the standard housing replacement
8 payments, are very likely due to the size of the project and the lack of available decent, safe and
9 sanitary housing in the area. Another factor that could increase cost and impact schedule is the cost
10 of business relocations. Depending on the type of business and the operation, this could involve
11 moving equipment and machinery to new locations. It is necessary to interview each impacted
12 individual and business during Pre-Construction, Engineering and Design Phase to determine the
13 requirements for relocation and to estimate a cost for the relocation.

14 The Acquisition alternative included 34 separate reaches and a total of 33,191 impacted parcels for
15 all the reaches. The Ecosystem Restoration areas for the Turkey Creek and Bayou Cumbest pilot
16 projects have a total of 74 parcels. For these alternatives no adjustments for partial takings were
17 made. One hundred percent of the adjusted values for the land and improvements was used for
18 estimating cost. Relocation costs were considered for every landowner/tenant where there was a
19 structure valued at \$3,000 or greater with the same reasoning as stated above and the average
20 "relocation payment" of \$28,000 was used.

21 Administrative costs for land acquisition are based on a cost of \$22,500 per parcel. This includes
22 both Federal and Non-Federal Costs. Administrative cost for relocation assistance under Public Law
23 91-646 is \$7,500 per displaced family/business. Total Real Estate acquisition costs for each
24 measure are rounded to the nearest thousand, and include land costs, relocation costs and
25 administrative costs.

26 It is likely that costs can be refined during the Pre-Construction, Engineering and Design Phase
27 when plans and specifications are available for a recommended plan. A Real Estate Supplement
28 (RES) will be prepared for each authorized component once the real estate requirements have been
29 sufficiently identified during PED. The RES will be submitted to CESAD-PDS-R for approval. The
30 RES will provide updated information as to final real estate requirements for a particular component
31 and will include updated data on the real estate values and costs since the majority of the costs and
32 values contained herein should not be relied upon beyond calendar year 2008. A Real Estate
33 Relocation Plan should also be prepared during PED for each authorized component requiring
34 relocations or displacement of individuals and/or businesses. The Relocation Plan will investigate
35 the availability of replacement housing within a specified radius and any unique or unusual problems
36 that should be considered.

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**Table RES-1.
Real Estate Summary of Costs**

Alternative	Purpose	County	Impacted Parcels	RE Costs
LOD1 Offshore Barrier Islands Options A-G	Off-shore Breakwater		5	\$19,000
LOD2 Beach/Dune Construction	HSDR	Hancock		\$19,000
LOD2 Beach/Dune Construction	HSDR	Harrison		\$19,000
LOD2 Beach/Dune Construction	HSDR	Jackson		\$19,000
LOD3 Pearlington Ring- Option A 20	Flood Damage Reduction	Hancock	111	\$8,883,000
LOD3 Pearlington Ring - Option B 30	Flood Damage Reduction	Hancock	120	\$9,340,000
LOD3 Bay St. Louis Ring Option A 20	Flood Damage Reduction	Hancock	42	\$120,246,000
LOD3 Bay St. Louis Ring Option B 30	Flood Damage Reduction	Hancock	576	\$156,364,000
LOD3 Elevated Roadway	Flood Damage Reduction	Hancock	427	\$44,939,000
LOD3 Elevated Roadway	Flood Damage Reduction	Harrison	1,031	\$502,215,000
LOD3 Forrest Heights Levee Option A 17	HSDR Flood Damage Reduction	Harrison	67	\$2,571,000
LOD3 Forrest Heights Levee Option B 21	HSDR Flood Damage Reduction	Harrison	67	\$2,649,000
LOD3 Elevated Roadway	Flood Damage Reduction	Jackson	137	\$39,005,000
LOD3 Ocean Springs Ring Option A 20	Flood Damage Reduction	Jackson	197	\$43,609,000
LOD3 Ocean Springs Ring Option B 30	Flood Damage Reduction	Jackson	576	\$119,542,000
LOD3 Gulf Park Estates Ring Option A 20	Flood Damage Reduction	Jackson	354	\$31,458,000
LOD3 Gulf Park Estates Ring Option B 30	Flood Damage Reduction	Jackson	399	\$34,051,000
LOD3 Gulf Park Estates Ring Option C 20	Flood Damage Reduction	Jackson	521	\$55,002,000
LOD3 Gulf Park Estates Ring Option D 30	Flood Damage Reduction	Jackson	561	\$58,603,000
LOD3 Belle Fontaine Ring Option A 20	Flood Damage Reduction	Jackson	228	\$19,366,000

Alternative	Purpose	County	Impacted Parcels	RE Costs
LOD3 Belle Fontaine Ring Option B 30	Flood Damage Reduction	Jackson	297	\$25,774,000
LOD3 Belle Fontaine Ring Option C 20	Flood Damage Reduction	Jackson	286	\$26,711,000
LOD3 Belle Fontaine Ring Option D 30	Flood Damage Reduction	Jackson	359	\$33,260,000
LOD3 Gautier Ring Option A 20	Flood Damage Reduction	Jackson	313	\$56,977,000
LOD3 Gautier Ring Option B 30	Flood Damage Reduction	Jackson	354	\$66,585,000
LOD3 Pascagoula Ring Option A 20	Flood Damage Reduction	Jackson	1,075	\$237,004,000
LOD3 Pascagoula Ring Option B 30	Flood Damage Reduction	Jackson	1,203	\$256,517,000
LOD3 Pascagoula Ring Option C 20	Flood Damage Reduction	Jackson	1,175	\$278,147,000
LOD3 Pascagoula Ring Option D 30	Flood Damage Reduction	Jackson	1,321	\$297,899,000
LOD3 Pascagoula Ring Option E.20	Flood Damage Reduction	Jackson	2,964	\$520,145,000
LOD3 Pascagoula Ring Option F 30	Flood Damage Reduction	Jackson	3,076	\$533,059,000
LOD3 Pascagoula Ring Option G 20	Flood Damage Reduction	Jackson	3,138	\$574,040,000
LOD3 Pascagoula Ring Option H 30	Flood Damage Reduction	Jackson	3,253	\$584,742,000
LOD4 Inland Barrier Option A 20	Flood Damage Reduction	Hancock	426	\$66,177,000
LOD4 Inland Barrier Option B 30	Flood Damage Reduction	Hancock	484	\$74,262,000
LOD4 Inland Barrier Option C 40	Flood Damage Reduction	Hancock	537	\$81,107,000
LOD4 St Louis Bay Surge Barrier Options A-C	Flood Damage Reduction	Hancock & Harrison	8	\$1,110,000
LOD4 Inland Barrier Option A 20	Flood Damage Reduction	Harrison	1,512	\$253,268,000
LOD4 Inland Barrier Option B 30	Flood Damage Reduction	Harrison	1,688	\$271,797,000
LOD4 Inland Barrier Option C 40	Flood Damage Reduction	Harrison	1,927	\$300,446,000
LOD4 Inland Barrier Option D 20	Flood Damage Reduction	Harrison	568	\$58,266,000
LOD4 Inland Barrier Option E 30	Flood Damage Reduction	Harrison	1,916	\$298,748,000
LOD4 Inland Barrier Option F 20	Flood Damage Reduction	Harrison	76	\$8,917,000

Alternative	Purpose	County	Impacted Parcels	RE Costs
LOD4 Inland Barrier Option G 30	Flood Damage Reduction	Harrison	189	\$20,801,000
LOD4 Inland Barrier Option H 40	Flood Damage Reduction	Harrison	209	\$28,271,000
LOD4 Inland Barrier Option I 20	Flood Damage Reduction	Harrison	225	\$23,938,000
LOD4 Inland Barrier Option J 30	Flood Damage Reduction	Harrison	171	\$25,351,000
LOD4 Back Bay of Biloxi Surge Barrier Options A-C	Flood Damage Reduction	Harrison & Jackson	8	\$1,767,000
LOD4 Inland Barrier Option A 20	Flood Damage Reduction	Jackson	323	\$58,506,000
LOD4 Inland Barrier Option B 30	Flood Damage Reduction	Jackson	361	\$66,571,000
LOD4 Inland Barrier Option C 40	Flood Damage Reduction	Jackson	404	\$76,231,000
Nonstructural Acquisition	Flood Damage Reduction	Hancock	17,845	\$4,241,808,000
Nonstructural Acquisition	Flood Damage Reduction	Harrison	10,912	\$2,722,752,000
Nonstructural Acquisition	Flood Damage Reduction	Jackson	4,434	\$775,345,000
Ecosystem Turkey Creek Option A	Ecosystem Restoration	Harrison	13	\$1,101,000
Ecosystem Turkey Creek Option B	Ecosystem Restoration	Harrison	8	\$752,000
Ecosystem Turkey Creek Option C	Ecosystem Restoration	Harrison	5	\$350,000
Ecosystem Bayou Cumbest	Ecosystem Restoration	Jackson	61	\$4,807,000

CONTENTS

1			
2	CHAPTER 1. GENERAL		1
3	1.1	Guidance	1
4	1.1.1	Engineer Regulations	1
5	1.1.2	Engineer Circulars	1
6	1.1.3	United States Code	1
7	1.1.4	Code of Federal Regulations	1
8	CHAPTER 2. THE REAL ESTATE REPORT		3
9	2.1	Statement of Purpose	3
10	2.2	Study Authority	3
11	2.3	Authorization for Entry for Construction	3
12	2.4	Assessment of Non-Federal Sponsor's Real Estate Acquisition Capability	4
13	2.5	Acquisition Schedule and Management Plan	4
14	2.5.1	Acquisition Implementation/Management Plan	4
15	2.5.2	Title/Ownership of Lands Acquired	4
16	2.6	Mitigation Lands	4
17	2.7	Zoning	5
18	2.8	Borrow Areas	5
19	2.9	Induced Flooding	6
20	2.10	Utility/Facility Relocations	6
21	2.11	Navigation Servitude	7
22	CHAPTER 3. LINES OF DEFENSE (LOD)		9
23	3.1	Line of Defense 1 - Offshore Barrier Islands	9
24	3.1.1	Project Description	9
25	3.1.2	Real Estate Requirements	14
26	3.1.3	Utility/Facility Relocation	14
27	3.1.4	Existing Projects/Studies	14
28	3.1.5	Environmental Impacts	14
29	3.1.6	Project Sponsor Responsibilities and Capabilities	14
30	3.1.7	Government Owned Property	15
31	3.1.8	Historical Significance	15
32	3.1.9	Mineral Rights	16
33	3.1.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	16
34	3.1.11	Public Law 91-646, Relocation Assistance Benefits	16
35	3.1.12	Attitude of Property Owners	16
36	3.1.13	Acquisition Schedule	17
37	3.1.14	Estates for Proposed Project	17
38	3.1.15	Real Estate Estimate	17
39	3.1.16	Summary of Potential Real Estate Issues	18
40	3.1.17	Chart of Accounts	18
41	3.2	Line of Defense 2 - Beach/Dune Construction	19
42	3.2.1	Hancock County Beaches	20
43	3.2.1.1	Project Description	20
44	3.2.1.2	Real Estate Requirements	24
45	3.2.1.3	Utility/Facility Relocation	25

1	3.2.1.4	Existing Projects/Studies	25
2	3.2.1.5	Environmental Impacts	25
3	3.2.1.6	Project Sponsor Responsibilities and Capabilities	25
4	3.2.1.7	Government Owned Property	25
5	3.2.1.8	Historical Significance	25
6	3.2.1.9	Mineral Rights.....	26
7	3.2.1.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	26
8	3.2.1.11	Public Law 91-646, Relocation Assistance Benefits	26
9	3.2.1.12	Attitude of Property Owners	26
10	3.2.1.13	Acquisition Schedule	26
11	3.2.1.14	Estates for Proposed Project.....	26
12	3.2.1.15	Real Estate Estimate	27
13	3.2.1.16	Summary of Potential Real Estate Issues	28
14	3.2.1.17	Chart of Accounts	28
15	3.2.2	Harrison County Beaches	29
16	3.2.2.1	Project Description	29
17	3.2.2.2	Real Estate Requirements.....	34
18	3.2.2.3	Utility/Facility Relocation.....	34
19	3.2.2.4	Existing Projects/Studies	35
20	3.2.2.5	Environmental Impacts	35
21	3.2.2.6	Project Sponsor Responsibilities and Capabilities	35
22	3.2.2.7	Government Owned Property.....	35
23	3.2.2.8	Historical Significance	35
24	3.2.2.9	Mineral Rights.....	36
25	3.2.2.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	36
26	3.2.2.11	Public Law 91-646, Relocation Assistance Benefits	36
27	3.2.2.12	Attitude of Property Owners	36
28	3.2.2.13	Acquisition Schedule	36
29	3.2.2.14	Estates for Proposed Project.....	36
30	3.2.2.15	Real Estate Estimate	37
31	3.2.2.16	Summary of Potential Real Estate Issues	37
32	3.2.2.17	Chart of Accounts	38
33	3.2.3	Jackson County Beaches	38
34	3.2.3.1	Project Description	38
35	3.2.3.2	Real Estate Requirements.....	40
36	3.2.3.3	Utility/Facility Relocation.....	40
37	3.2.3.4	Existing Projects/Studies	41
38	3.2.3.5	Environmental Impacts	41
39	3.2.3.6	Project Sponsor Responsibilities and Capabilities	41
40	3.2.3.7	Government Owned Property.....	41
41	3.2.3.8	Historical Significance	41
42	3.2.3.9	Mineral Rights.....	41
43	3.2.3.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	42
44	3.2.3.11	Public Law 91-646, Relocation Assistance Benefits	42
45	3.2.3.12	Attitude of Property Owners	42
46	3.2.3.13	Acquisition Schedule	42
47	3.2.3.14	Estates for Proposed Project.....	42
48	3.2.3.15	Real Estate Estimate	43
49	3.2.3.16	Summary of Potential Real Estate Issues	43
50	3.2.3.17	Chart of Accounts	44

1	3.3	Line of Defense 3 - Elevated Roadways, Seawall, and Ring Levees.....	45
2	3.3.1	Hancock County Ring Levees, Pearlinton	47
3	3.3.1.1	Option A - Elevation 20.0 ft NAVD88	48
4	3.3.1.2	Option B - elevation 30.0 ft NAVD88.....	48
5	3.3.1.3	Project Description	48
6	3.3.1.4	Real Estate Requirements.....	51
7	3.3.1.5	Utility/Facility Relocation.....	52
8	3.3.1.6	Existing Projects/Studies	52
9	3.3.1.7	Environmental Impacts	52
10	3.3.1.8	Project Sponsor Responsibilities and Capabilities	52
11	3.3.1.9	Government Owned Property.....	53
12	3.3.1.10	Historical Significance	53
13	3.3.1.11	Mineral Rights.....	53
14	3.3.1.12	Hazardous, Toxic, and Radioactive Waste (HTRW)	53
15	3.3.1.13	Public Law 91-646, Relocation Assistance Benefits	53
16	3.3.1.14	Attitude of Property Owners	53
17	3.3.1.15	Acquisition Schedule	54
18	3.3.1.16	Estates for Proposed Project.....	54
19	3.3.1.17	Real Estate Estimate	55
20	3.3.1.18	Summary of Potential Real Estate Issues	56
21	3.3.1.19	Chart of Accounts	57
22	3.3.2	Hancock County Ring Levees, Bay St. Louis	58
23	3.3.2.1	Option A - Elevation 20.0 NAVD88.....	59
24	3.3.2.2	Option B - Elevation 30.0 NAVD88.....	59
25	3.3.2.3	Project Description	59
26	3.3.2.4	Real Estate Requirements.....	62
27	3.3.2.5	Utility/Facility Relocation.....	63
28	3.3.2.6	Existing Projects/Studies	63
29	3.3.2.7	Environmental Impacts	63
30	3.3.2.8	Project Sponsor Responsibilities and Capabilities	63
31	3.3.2.9	Government Owned Property.....	64
32	3.3.2.10	Historical Significance	64
33	3.3.2.11	Mineral Rights.....	64
34	3.3.2.12	Hazardous, Toxic, and Radioactive Waste (HTRW)	64
35	3.3.2.13	Public Law 91-646, Relocation Assistance Benefits	64
36	3.3.2.14	Attitude of Property Owners	64
37	3.3.2.15	Acquisition Schedule	65
38	3.3.2.16	Estates for Proposed Project.....	65
39	3.3.2.17	Real Estate Estimate	66
40	3.3.2.18	Summary of Potential Real Estate Issues	67
41	3.3.2.19	Chart of Accounts	68
42	3.3.3	Hancock County, Elevated Roadway.....	69
43	3.3.3.1	Project Description	70
44	3.3.3.2	Real Estate Requirements.....	72
45	3.3.3.3	Utility/Facility Relocation.....	73
46	3.3.3.4	Existing Projects/Studies	73
47	3.3.3.5	Environmental Impacts	73
48	3.3.3.6	Project Sponsor Responsibilities and Capabilities	73
49	3.3.3.7	Government Owned Property.....	74
50	3.3.3.8	Historical Significance	74
51	3.3.3.9	Mineral Rights.....	74

1	3.3.3.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	74
2	3.3.3.11	Public Law 91-646, Relocation Assistance Benefits	74
3	3.3.3.12	Attitude of Property Owners	74
4	3.3.3.13	Acquisition Schedule	75
5	3.3.3.14	Estates for Proposed Project.....	75
6	3.3.3.15	Real Estate Estimate	75
7	3.3.3.16	Summary of Potential Real Estate Issues	76
8	3.3.3.17	Chart of Accounts	77
9	3.3.4	Harrison County, Elevated Roadway	78
10	3.3.4.1	Project Description	78
11	3.3.4.2	Real Estate Requirements.....	81
12	3.3.4.3	Utility/Facility Relocation.....	82
13	3.3.4.4	Existing Projects/Studies	82
14	3.3.4.5	Environmental Impacts	82
15	3.3.4.6	Project Sponsor Responsibilities and Capabilities	82
16	3.3.4.7	Government Owned Property.....	82
17	3.3.4.8	Historical Significance	83
18	3.3.4.9	Mineral Rights.....	83
19	3.3.4.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	83
20	3.3.4.11	Public Law 91-646, Relocation Assistance Benefits	83
21	3.3.4.12	Attitude of Property Owners	83
22	3.3.4.13	Acquisition Schedule	83
23	3.3.4.14	Estates for Proposed Project.....	84
24	3.3.4.15	Real Estate Estimate	85
25	3.3.4.16	Summary of Potential Real Estate Issues	85
26	3.3.4.17	Chart of Accounts	86
27	3.3.5	Harrison County Forrest Heights Levee, City of Gulfport	87
28	3.3.5.1	Option A - Elevation 17.0 ft NAVD88	88
29	3.3.5.2	Option B - Elevation 21.0 ft NAVD88	88
30	3.3.5.3	Project Description	89
31	3.3.5.4	Real Estate Requirements.....	91
32	3.3.5.5	Utility/Facility Relocation.....	92
33	3.3.5.6	Existing Projects/Studies	92
34	3.3.5.7	Environmental Impacts	92
35	3.3.5.8	Project Sponsor Responsibilities and Capabilities	92
36	3.3.5.9	Government Owned Property.....	92
37	3.3.5.10	Historical Significance	93
38	3.3.5.11	Mineral Rights.....	93
39	3.3.5.12	Hazardous, Toxic, and Radioactive Waste (HTRW)	93
40	3.3.5.13	Public Law 91-646, Relocation Assistance Benefits	93
41	3.3.5.14	Attitude of Property Owners	93
42	3.3.5.15	Acquisition Schedule	93
43	3.3.5.16	Estates for Proposed Project.....	94
44	3.3.5.17	Real Estate Estimate	95
45	3.3.5.18	Summary of Potential Real Estate Issues	96
46	3.3.5.19	Chart of Accounts	97
47	3.3.6	Jackson County, Elevated Roadway	99
48	3.3.6.1	Project Description	99
49	3.3.6.2	Real Estate Requirements.....	100
50	3.3.6.3	Utility/Facility Relocation.....	101
51	3.3.6.4	Existing Projects/Studies	101

1	3.3.6.5	Environmental Impacts	101
2	3.3.6.6	Project Sponsor Responsibilities and Capabilities	101
3	3.3.6.7	Government Owned Property.....	102
4	3.3.6.8	Historical Significance	102
5	3.3.6.9	Mineral Rights.....	102
6	3.3.6.10	Hazardous, Toxic, and Radioactive Waste (HTRW)	102
7	3.3.6.11	Public Law 91-646, Relocation Assistance Benefits	102
8	3.3.6.12	Attitude of Property Owners	103
9	3.3.6.13	Acquisition Schedule	103
10	3.3.6.14	Estates for Proposed Project.....	103
11	3.3.6.15	Real Estate Estimate	104
12	3.3.6.16	Summary of Potential Real Estate Issues	105
13	3.3.6.17	Chart of Accounts	105
14	3.3.7	Jackson County Ring Levees, Ocean Springs	106
15	3.3.7.1	Option A - Elevation 20.0 ft NAVD88	107
16	3.3.7.2	Option B - Elevation 30.0 ft NAVD88	107
17	3.3.7.3	Project Description	107
18	3.3.7.4	Real Estate Requirements.....	110
19	3.3.7.5	Utility/Facility Relocation.....	111
20	3.3.7.6	Existing Projects/Studies	111
21	3.3.7.7	Environmental Impacts	111
22	3.3.7.8	Project Sponsor Responsibilities and Capabilities	111
23	3.3.7.9	Government Owned Property.....	112
24	3.3.7.10	Historical Significance	112
25	3.3.7.11	Mineral Rights.....	112
26	3.3.7.12	Hazardous, Toxic, and Radioactive Waste (HTRW)	112
27	3.3.7.13	Public Law 91-646, Relocation Assistance Benefits	112
28	3.3.7.14	Attitude of Property Owners	113
29	3.3.7.15	Acquisition Schedule	113
30	3.3.7.16	Estates for Proposed Project.....	113
31	3.3.7.17	Real Estate Estimate	114
32	3.3.7.18	Summary of Potential Real Estate Issues	115
33	3.3.7.19	Chart of Accounts	116
34	3.3.8	Jackson County Ring Levees, Gulf Park	118
35	3.3.8.1	Option A - Elevation 20.0 ft NAVD88	119
36	3.3.8.2	Option B - Elevation 30.0 ft NAVD88	119
37	3.3.8.3	Option C - Alternate Alignment, Elevation 20.0 ft NAVD88.....	119
38	3.3.8.4	Option D - Alternate Alignment, Elevation 30.0 ft NAVD88.....	119
39	3.3.8.5	Project Description	119
40	3.3.8.6	Real Estate Requirements.....	122
41	3.3.8.7	Utility/Facility Relocation.....	123
42	3.3.8.8	Existing Projects/Studies	123
43	3.3.8.9	Environmental Impacts	123
44	3.3.8.10	Project Sponsor Responsibilities and Capabilities	124
45	3.3.8.11	Government Owned Property.....	124
46	3.3.8.12	Historical Significance	124
47	3.3.8.13	Mineral Rights.....	124
48	3.3.8.14	Hazardous, Toxic, and Radioactive Waste (HTRW)	124
49	3.3.8.15	Public Law 91-646, Relocation Assistance Benefits	124
50	3.3.8.16	Attitude of Property Owners	125
51	3.3.8.17	Acquisition Schedule	125

1	3.3.8.18	Estates for Proposed Project.....	125
2	3.3.8.19	Real Estate Estimate	126
3	3.3.8.20	Summary of Potential Real Estate Issues	129
4	3.3.8.21	Chart of Accounts	130
5	3.3.9	Jackson County Ring Levees, Belle Fontaine	133
6	3.3.9.1	Option A - Elevation 20.0 ft NAVD88	134
7	3.3.9.2	Option B - Elevation 30.0 ft NAVD88	134
8	3.3.9.3	Option C - Alternate Alignment, Elevation 20.0 ft NAVD88.....	134
9	3.3.9.4	Option D - Alternate Alignment, Elevation 30.0 ft NAVD88.....	134
10	3.3.9.5	Project Description	135
11	3.3.9.6	Real Estate Requirements.....	137
12	3.3.9.7	Utility/Facility Relocation.....	138
13	3.3.9.8	Existing Projects/Studies	138
14	3.3.9.9	Environmental Impacts	138
15	3.3.9.10	Project Sponsor Responsibilities and Capabilities	139
16	3.3.9.11	Government Owned Property.....	139
17	3.3.9.12	Historical Significance	139
18	3.3.9.13	Mineral Rights.....	139
19	3.3.9.14	Hazardous, Toxic, and Radioactive Waste (HTRW)	139
20	3.3.9.15	Public Law 91-646, Relocation Assistance Benefits	139
21	3.3.9.16	Attitude of Property Owners	140
22	3.3.9.17	Acquisition Schedule	140
23	3.3.9.18	Estates for Proposed Project.....	140
24	3.3.9.19	Real Estate Estimate	141
25	3.3.9.20	Summary of Potential Real Estate Issues	144
26	3.3.9.21	Chart of Accounts	145
27	3.3.10	Jackson County Ring Levees, Gautier.....	148
28	3.3.10.1	Option A - Elevation 20.0 ft NAVD88	149
29	3.3.10.2	Option B - Elevation 30.0 ft NAVD88	149
30	3.3.10.3	Project Description	149
31	3.3.10.4	Real Estate Requirements.....	152
32	3.3.10.5	Utility/Facility Relocation.....	153
33	3.3.10.6	Existing Projects/Studies	153
34	3.3.10.7	Environmental Impacts	153
35	3.3.10.8	Project Sponsor Responsibilities and Capabilities	154
36	3.3.10.9	Government Owned Property.....	154
37	3.3.10.10	Historical Significance	154
38	3.3.10.11	Mineral Rights.....	154
39	3.3.10.12	Hazardous, Toxic, and Radioactive Waste (HTRW)	154
40	3.3.10.13	Public Law 91-646, Relocation Assistance Benefits	154
41	3.3.10.14	Attitude of Property Owners	155
42	3.3.10.15	Acquisition Schedule	155
43	3.3.10.16	Estates for Proposed Project.....	155
44	3.3.10.17	Real Estate Estimate	156
45	3.3.10.18	Summary of Potential Real Estate Issues	158
46	3.3.10.19	Chart of Accounts	158
47	3.3.11	Jackson County Ring Levees, Pascagoula/Moss Point.....	160
48	3.3.11.1	Option A - Elevation 20.0 ft NAVD88	160
49	3.3.11.2	Option B - Elevation 30.0 ft NAVD88	160
50	3.3.11.3	Option C - Washington Avenue Alternate Alignment, Elevation 20.0 ft NAVD88 .	161
51	3.3.11.4	Option D - Washington Avenue Alternate Alignment, Elevation 30.0 ft NAVD88 .	161

1	3.3.11.5	Option E - Moss point Alternate Alignment, Elevation 20.0 ft NAVD88	161
2	3.3.11.6	Option F - Moss Point Alternate Alignment, Elevation 30.0 ft NAVD88	161
3	3.3.11.7	Option G - Combined Washington Avenue and Moss Point Alterative	
4		Alignments, Elevation 20.0 ft NAVD88	161
5	3.3.11.8	Option H - Combined Washington Avenue and Moss Point Alterative	
6		Alignments, Elevation 30.0 ft NAVD88	161
7	3.3.11.9	Project Description	161
8	3.3.11.10	Real Estate Requirements.....	165
9	3.3.11.11	Utility/Facility Relocation.....	168
10	3.3.11.12	Existing Projects/Studies	168
11	3.3.11.13	Environmental Impacts	168
12	3.3.11.14	Project Sponsor Responsibilities and Capabilities	168
13	3.3.11.15	Government Owned Property.....	168
14	3.3.11.16	Historical Significance	169
15	3.3.11.17	Mineral Rights.....	169
16	3.3.11.18	Hazardous, Toxic, and Radioactive Waste (HTRW)	169
17	3.3.11.19	Public Law 91-646, Relocation Assistance Benefits	169
18	3.3.11.20	Attitude of Property Owners	170
19	3.3.11.21	Acquisition Schedule	170
20	3.3.11.22	Estates for Proposed Project.....	170
21	3.3.11.23	Real Estate Estimate	171
22	3.3.11.24	Summary of Potential Real Estate Issues	179
23	3.3.11.25	Chart of Accounts	180
24	3.4	Line of Defense 4 - Inland Barrier and Surge Gates	187
25	3.4.1	Hancock County Inland Barrier	188
26	3.4.1.1	Option A - Elevation 20.0 ft NAVD88	189
27	3.4.1.2	Option B - Elevation 30.0 ft NAVD88	189
28	3.4.1.3	Option C - Elevation 40.0 ft NAVD88	189
29	3.4.1.4	Project Description	189
30	3.4.1.5	Real Estate Requirements.....	194
31	3.4.1.6	Utility/Facility Relocation.....	195
32	3.4.1.7	Existing Projects/Studies	195
33	3.4.1.8	Environmental Impacts	195
34	3.4.1.9	Project Sponsor Responsibilities and Capabilities	195
35	3.4.1.10	Government Owned Property.....	196
36	3.4.1.11	Historical Significance	196
37	3.4.1.12	Mineral Rights.....	196
38	3.4.1.13	Hazardous, Toxic, and Radioactive Waste (HTRW)	196
39	3.4.1.14	Public Law 91-646, Relocation Assistance Benefits	196
40	3.4.1.15	Attitude of Property Owners	196
41	3.4.1.16	Acquisition Schedule	197
42	3.4.1.17	Estates for Proposed Project.....	197
43	3.4.1.18	Real Estate Estimate	198
44	3.4.1.19	Summary of Potential Real Estate Issues	200
45	3.4.1.20	Chart of Accounts	201
46	3.4.2	St. Louis Bay Surge Barrier	203
47	3.4.2.1	Option A - Elevation 20.0 ft NAVD88	205
48	3.4.2.2	Option B - Elevation 30.0 ft NAVD88	205
49	3.4.2.3	Option C - Elevation 40.0 ft NAVD88	205
50	3.4.2.4	Project Description	205
51	3.4.2.5	Real Estate Requirements.....	206

1	3.4.2.6	Utility/Facility Relocation.....	206
2	3.4.2.7	Existing Projects/Studies.....	206
3	3.4.2.8	Environmental Impacts.....	207
4	3.4.2.9	Project Sponsor Responsibilities and Capabilities.....	207
5	3.4.2.10	Government Owned Property.....	207
6	3.4.2.11	Historical Significance.....	207
7	3.4.2.12	Mineral Rights.....	207
8	3.4.2.13	Hazardous, Toxic, and Radioactive Waste (HTRW).....	207
9	3.4.2.15	Attitude of Property Owners.....	208
10	3.4.2.16	Acquisition Schedule.....	208
11	3.4.2.17	Estates for Proposed Project.....	208
12	3.4.2.18	Real Estate Estimate.....	208
13	3.4.2.19	Summary of Potential Real Estate Issues.....	209
14	3.4.2.20	Chart of Accounts.....	210
15	3.4.3	Harrison County Inland Barrier.....	210
16	3.4.3.1	Option A - Elevation 20.0 ft NAVD88.....	211
17	3.4.3.2	Option B - Elevation 30.0 ft NAVD88.....	211
18	3.4.3.3	Option C - Elevation 40.0 ft NAVD88.....	211
19	3.4.3.4	Option D - Levee for Roadway, Elevation 20.0 ft NAVD88.....	212
20	3.4.3.5	Option E - Levee for Roadway, Elevation 30.0 ft NAVD88.....	212
21	3.4.3.6	Option F - Menge Avenue Alternate Route, Elevation 20.0 ft NAVD88.....	212
22	3.4.3.7	Option G - Menge Avenue Alternate Route, Elevation 30.0 ft NAVD88.....	212
23	3.4.3.8	Option H - Menge Avenue Alternate Route, Elevation 40.0 ft NAVD88.....	212
24	3.4.3.9	Option I - Levee for Roadway with Menge Avenue Alternate, Route Elevation 20.0 ft NAVD88.....	212
25			
26	3.4.3.10	Option J - Levee for Roadway with Menge Avenue Alternate, Route Elevation 30.0 ft NAVD88.....	212
27			
28	3.4.3.11	Project Description.....	212
29	3.4.3.12	Real Estate Requirements.....	218
30	3.4.3.13	Utility/Facility Relocation.....	220
31	3.4.3.14	Existing Projects/Studies.....	221
32	3.4.3.15	Environmental Impacts.....	221
33	3.4.3.16	Project Sponsor Responsibilities and Capabilities.....	221
34	3.4.3.17	Government Owned Property.....	221
35	3.4.3.18	Historical Significance.....	221
36	3.4.3.19	Mineral Rights.....	222
37	3.4.3.20	Hazardous, Toxic, and Radioactive Waste (HTRW).....	222
38	3.4.3.21	Public Law 91-646, Relocation Assistance Benefits.....	222
39	3.4.3.22	Attitude of Property Owners.....	222
40	3.4.3.23	Acquisition Schedule.....	223
41	3.4.3.24	Estates for Proposed Project.....	223
42	3.4.3.25	Real Estate Estimate.....	224
43	3.4.3.26	Summary of Potential Real Estate Issues.....	230
44	3.4.3.27	Chart of Accounts.....	230
45	3.4.4	Back Bay of Biloxi Surge Barrier.....	240
46	3.4.4.1	Option A - Elevation 20.0 ft NAVD88.....	242
47	3.4.4.2	Option B - Elevation 30.0 ft NAVD88.....	242
48	3.4.4.3	Option C - Elevation 40.0 ft NAVD88.....	242
49	3.4.4.4	Project Description.....	242
50	3.4.4.5	Real Estate Requirements.....	243
51	3.4.4.6	Utility/Facility Relocation.....	244

1	3.4.4.7	Existing Projects/Studies	244
2	3.4.4.8	Environmental Impacts	244
3	3.4.4.9	Project Sponsor Responsibilities and Capabilities	244
4	3.4.4.10	Government Owned Property	245
5	3.4.4.11	Historical Significance	245
6	3.4.4.12	Mineral Rights	245
7	3.4.4.13	Hazardous, Toxic, and Radioactive Waste (HTRW)	245
8	3.4.4.14	Public Law 91-646, Relocation Assistance Benefits	245
9	3.4.4.15	Attitude of Property Owners	245
10	3.4.4.16	Acquisition Schedule	245
11	3.4.4.17	Estates for Proposed Project.....	246
12	3.4.4.18	Real Estate Estimate	246
13	3.4.4.19	Summary of Potential Real Estate Issues	247
14	3.4.4.20	Chart of Accounts	247
15	3.4.5	Jackson County Inland Barrier.....	248
16	3.4.5.1	Option A - Elevation 20.0 ft NAVD88	249
17	3.4.5.2	Option B - Elevation 30.0 ft NAVD88	249
18	3.4.5.3	Option C - Elevation 40.0 ft NAVD88	249
19	3.4.5.4	Project Description	249
20	3.4.5.5	Real Estate Requirements.....	253
21	3.4.5.6	Utility/Facility Relocation.....	254
22	3.4.5.7	Existing Projects/Studies	254
23	3.4.5.8	Environmental Impacts	254
24	3.4.5.9	Project Sponsor Responsibilities and Capabilities	254
25	3.4.5.10	Government Owned Property	255
26	3.4.5.11	Historical Significance	255
27	3.4.5.12	Mineral Rights.....	255
28	3.4.5.13	Hazardous, Toxic, and Radioactive Waste (HTRW)	255
29	3.4.5.14	Public Law 91-646, Relocation Assistance Benefits	255
30	3.4.5.15	Attitude of Property Owners	256
31	3.4.5.16	Acquisition Schedule	256
32	3.4.5.17	Estates for Proposed Project.....	256
33	3.4.5.18	Real Estate Estimate	257
34	3.4.5.19	Summary of Potential Real Estate Issues	259
35	3.4.5.20	Chart of Accounts	260
36	3.5	Line of Defense 5 - Retreat and/or Relocation of Critical Facilities	262
37	CHAPTER 4. NONSTRUCTURAL	265	
38	4.1	Hancock County Acquisition	265
39	4.1.1	Project Description	265
40	4.1.2	Real Estate Requirements	267
41	4.1.3	Utility/Facility Relocation	268
42	4.1.4	Existing Projects/Studies	268
43	4.1.5	Environmental Impacts	268
44	4.1.6	Project Sponsor Responsibilities and Capabilities.....	268
45	4.1.7	Government Owned Property	269
46	4.1.8	Historical Significance	269
47	4.1.9	Mineral Rights	269
48	4.1.10	Hazardous, Toxic, and Radioactive Waste (HTRW).....	269
49	4.1.11	Public Law 91-646, Relocation Assistance Benefits.....	269
50	4.1.12	Attitude of Property Owners.....	270

1	4.1.13	Acquisition Schedule.....	270
2	4.1.14	Estates for Proposed Project	270
3	4.1.15	Real Estate Estimate.....	271
4	4.1.16	Summary of Potential Real Estate Issues	271
5	4.1.17	Chart of Accounts.....	272
6	4.2	Harrison County Acquisition	273
7	4.2.1	Project Description	273
8	4.2.2	Real Estate Requirements	275
9	4.2.3	Utility/Facility Relocation	276
10	4.2.4	Existing Projects/Studies	276
11	4.2.5	Environmental Impacts	276
12	4.2.6	Project Sponsor Responsibilities and Capabilities.....	276
13	4.2.7	Government Owned Property	277
14	4.2.8	Historical Significance	277
15	4.2.9	Mineral Rights	277
16	4.2.10	Hazardous, Toxic, and Radioactive Waste (HTRW).....	277
17	4.2.11	Public Law 91-646, Relocation Assistance Benefits.....	277
18	4.2.12	Attitude of Property Owners.....	278
19	4.2.13	Acquisition Schedule.....	278
20	4.2.14	Estates for Proposed Project	278
21	4.2.15	Real Estate Estimate.....	279
22	4.2.16	Summary of Potential Real Estate Issues	279
23	4.2.17	Chart of Accounts.....	280
24	4.3	Jackson County Acquisition.....	281
25	4.3.1	Project Description	281
26	4.3.2	Real Estate Requirements	283
27	4.3.3	Utility/Facility Relocation	284
28	4.3.4	Existing Projects/Studies	284
29	4.3.5	Environmental Impacts	284
30	4.3.6	Project Sponsor Responsibilities and Capabilities.....	284
31	4.3.7	Government Owned Property	285
32	4.3.8	Historical Significance	285
33	4.3.9	Mineral Rights	285
34	4.3.10	Hazardous, Toxic, and Radioactive Waste (HTRW).....	285
35	4.3.11	Public Law 91-646, Relocation Assistance Benefits.....	285
36	4.3.12	Attitude of Property Owners.....	286
37	4.3.13	Acquisition Schedule.....	286
38	4.3.14	Estates for Proposed Project	286
39	4.3.15	Real Estate Estimate.....	287
40	4.3.16	Summary of Potential Real Estate Issues	287
41	4.3.17	Chart of Accounts.....	288
42	CHAPTER 5. ECOSYSTEM RESTORATION.....	291	
43	5.1	Harrison County Turkey Creek	291
44	5.1.1	Project Description	292
45	5.1.2	Real Estate Requirements	293
46	5.1.3	Utility/Facility Relocation	293
47	5.1.4	Existing Projects/Studies	293

1	5.1.5	Environmental Impacts	293
2	5.1.6	Project Sponsor Responsibilities and Capabilities.....	293
3	5.1.7	Government Owned Property	294
4	5.1.8	Historical Significance.....	294
5	5.1.9	Mineral Rights	294
6	5.1.10	Hazardous, Toxic, and Radioactive Waste (HTRW).....	294
7	5.1.11	Public Law 91-646, Relocation Assistance Benefits.....	294
8	5.1.12	Attitude of Property Owners.....	294
9	5.1.13	Acquisition Schedule.....	294
10	5.1.14	Estates for Proposed Project	295
11	5.1.15	Real Estate Estimate.....	295
12	5.1.16	Summary of Potential Real Estate Issues	297
13	5.1.17	Chart of Accounts.....	297
14	5.2	Jackson County Bayou Cumbest.....	299
15	5.2.1	Project Description	300
16	5.2.2	Real Estate Requirements	302
17	5.2.3	Utility/Facility Relocation	302
18	5.2.4	Existing Projects/Studies	302
19	5.2.5	Environmental Impacts	302
20	5.2.6	Project Sponsor Responsibilities and Capabilities.....	302
21	5.2.7	Government Owned Property	303
22	5.2.8	Historical Significance	303
23	5.2.9	Mineral Rights	303
24	5.2.10	Hazardous, Toxic, and Radioactive Waste (HTRW).....	303
25	5.2.11	Public Law 91-646, Relocation Assistance Benefits.....	303
26	5.2.12	Attitude of Property Owners.....	304
27	5.2.13	Acquisition Schedule.....	304
28	5.2.14	Estates for Proposed Project	304
29	5.2.15	Real Estate Estimate.....	305
30	5.2.16	Summary of Potential Real Estate Issues	305
31	5.2.17	Chart of Accounts.....	306
32	EXHIBITS	307

1 FIGURES

2	Figure 1. The MsCIP Study Area	1
3	Figure 3.1.1-1. Location of the Mississippi Barrier Islands	10
4	Figure 3.1.1-2. Boundaries of the Gulf Islands National Seashore	10
5	Figure 3.1.8-1. Aerial photo of West and East Ship Island taken in 2001 showing historic	
6	sites.....	16
7	Figure 3.2-1. Mississippi Beaches.....	19
8	Figure 3.2.1.1-1. Hancock County Beaches.....	20
9	Figure 3.2.1.1-2. Typical Cross Sections, Hancock County Options A-D and E-H.....	22
10	Figure 3.2.1.1-3. Typical Cross Section, Hancock County Comparative Dune Options I	
11	and J	23
12	Figure 3.2.1.1-4. Typical Cross Section, Hancock County Option K	24
13	Figure 3.2.2.1-1. Project Location, Harrison County Beaches	30
14	Figure 3.2.2.1-2. Typical Cross Sections, Harrison County Options A-D and E-H	32
15	Figure 3.2.3.1-3. Typical Cross Section, Harrison County Comparative Dune Options I	
16	and J	33
17	Figure 3.2.2.1-4. Typical Cross Section, Harrison County Option K.....	34
18	Figure 3.2.3.1-1. Project Location, Jackson County Beaches.....	39
19	Figure 3.3.1-1. Vicinity Map, Pearlington	48
20	Figure 3.3.1.3-1. Pearlington Ring Levee.....	49
21	Figure 3.3.1.3-2. Pump/Culvert/Sub-basin Site Locations.....	50
22	Figure 3.3.2-1. Vicinity Map, Bay St. Louis	59
23	Figure 3.3.2.3-1. Bay St. Louis Ring Levee.....	60
24	Figure 3.3.2.3-2. Pump/Culvert/Sub-basin Site Locations.....	61
25	Figure 3.3.3-1. Vicinity Map near Waveland	70
26	Figure 3.3.3.1-1. Pump/Culvert/Boat Access Site Locations and Sub-basins	71
27	Figure 3.3.3.1-2. Culvert Site Location.....	71
28	Figure 3.3.4-1. Vicinity Map, Harrison County.....	78
29	Figure 3.3.4.1-1. Pump/Culvert/Sub-basin Site Locations, Harrison County.....	79
30	Figure 3.3.4.1-2. Pump/Culvert/Sub-basin Site Locations, Harrison County.....	79
31	Figure 3.3.4.1-3. Pump/Culvert/Sub-basin Site Locations, Harrison County.....	80
32	Figure 3.3.4.1-4. Pump/Culvert/Sub-basin Site Locations, Harrison County.....	80
33	Figure 3.3.5-1. Forrest Heights Levee Vicinity Map	88
34	Figure 3.3.5.2-1. Forrest Heights Levee Alignment with Detention Site Location	89
35	Figure 3.3.5.3-1. Turkey Creek Channel Clearing and Snagging Limits	90
36	Figure 3.3.6-1. Vicinity Map, Ocean Springs.....	99
37	Figure 3.3.6.1-1. Pump/Culvert/Sub-basin Site Location	100
38	Figure 3.3.7-1. Vicinity Map, Ocean Springs, MS	107
39	Figure 3.3.7.3-1. Ocean Springs Ring Levee	108
40	Figure 3.3.7.3-2. Pump/Culvert/Sub-basin Site Locations.....	109
41	Figure 3.3.8-1. Vicinity Map, Gulf Park Estates.....	118
42	Figure 3.3.8.5-1. Gulf Park Estates Ring Levee	120
43	Figure 3.3.8.5-2. Pump/Culvert/Sub-basin Site Locations.....	121
44	Figure 3.3.9-1. Vicinity Map, Belle Fontaine.....	134
45	Figure 3.3.9.5-1. Belle Fontaine Ring Levee.....	135
46	Figure 3.3.9.5-2. Pump/Culvert/Sub-basin Site Locations.....	136
47	Figure 3.3.10-1. Vicinity Map, Gautier.....	149
48	Figure 3.3.10.3-1. Gautier Ring Levee	150

1	Figure 3.3.10.3-2. Pump/Culvert/Sub-basin/Boat Access Site Locations.....	151
2	Figure 3.3.11-1. Vicinity Map, Pascagoula/Moss Point	160
3	Figure 3.3.11.9-1. Pascagoula/Moss Point Levee.....	163
4	Figure 3.3.11.9-2. Pump/Culvert/Sub-basin/Boat Access Site Locations.....	164
5	Figure 3.4.1-1 Vicinity Map Hancock County, MS.....	188
6	Figure 3.4.1.4-1. Hancock County Inland Barrier	190
7	Figure 3.4.1.4-2. Hancock County Inland Barrier	190
8	Figure 3.4.1.4-3. Hancock County Inland Barrier	191
9	Figure 3.4.1.4-4. Pump/Culvert/Sub-basins/Boat Access Site Locations.....	191
10	Figure 3.4.1.4-5. Pump/Culvert/Sub-basin Site Locations.....	192
11	Figure 3.4.1.4-6. Pump/Culvert/Sub-basin Site Locations.....	192
12	Figure 3.4.2-1. Thames River Gates, London, UK	204
13	Figure 3.4.2-2. St Louis Bay Surge Barrier Location	204
14	Figure 3.4.3-1. Vicinity Map Harrison County, MS	211
15	Figure 3.4.3.11-1. Pump/Culvert/Sub-basin Site Locations, Options A-E	213
16	Figure 3.4.3.11-2. Pump/Culvert/Sub-basin Site Locations, Options A-E	214
17	Figure 3.4.3.11-3. Pump/Culvert/Sub-basin Site Locations, Options A-E	214
18	Figure 3.4.3.11-4. Menge Avenue Alternate Route, Pump/Culvert, Sub-basin Site	
19	Locations, Options F-J	215
20	Figure 3.4.3.11-5. Menge Avenue Alternate Route, Pump/Culvert, Sub-basin Site	
21	Locations, Options F-J	216
22	Figure 3.4.3.11-6. Menge Avenue Alternate Route, Pump/Culvert, Sub-basin Site	
23	Locations, Options F-J	216
24	Figure 3.4.4-1. Thames River Gates, London, UK	241
25	Figure 3.4.4-2. Back Bay of Biloxi Surge Barrier Location	242
26	Figure 3.4.5-1. Vicinity Map Jackson County, MS.....	248
27	Figure 3.4.5.4-1. Jackson County Inland Barrier	250
28	Figure 3.4.5.4-2. Jackson County Inland Barrier	250
29	Figure 3.4.5.4-3. Jackson County Inland Barrier	251
30	Figure 3.4.5.4-4. Pump/Culvert/Sub-basin Site Locations.....	251
31	Figure 3.5-1. Maximum Probable Intensity Storm Surge Limits	263
32	Figure 4.1.1-1. Location of Acquisition Areas in Hancock County (dark green)	267
33	Figure 4.2.1-1. Location of Acquisition Area in Harrison County (dark green)	275
34	Figure 4.3.1-1. Location of Acquisition Areas in Jackson County (dark green)	283
35	Figure 5.1-1. Location of Restoration Sites in Harrison County	291
36	Figure 5.1.1-1. Turkey Creek, Harrison County	292
37	Figure 5.2-1. Location of Restoration Sites in Jackson County.....	300
38	Figure 5.2.1-1. Bayou Cumbest Jackson County.....	301

39

40 **TABLES**

41	Table RES-1. Real Estate Summary of Costs.....	3
42	Table 3.1.1-1. Options for Offshore Barrier Islands.....	11
43	Table 3.1.15-1. Offshore Barrier Islands Estimate	17
44	Table 3.1.17-1. Chart of Accounts - Offshore Barrier Islands.....	18
45	Table 3.2.1.1-1. Hancock County LOD2 Options	21
46	Table 3.2.1.15-1. LOD2 Hancock County Estimate.....	27
47	Table 3.2.1.17-1. Chart of Accounts - LOD2 Hancock County.....	28

1	Table 3.2.2.1-1. Harrison County LOD2 Options	31
2	Table 3.2.2.15-1. LOD2 Harrison County Estimate	37
3	Table 3.2.2.17-1. Chart of Accounts - LOD2 Harrison County	38
4	Table 3.2.3.1-1. Jackson County LOD2	40
5	Table 3.2.3.15-1. LOD2 Jackson County Estimate	43
6	Table 3.2.3.17-1. Chart of Accounts - LOD2 Jackson County	45
7	Table 3.3.1.17-1. Real Estate Cost Summary	55
8	Table 3.3.1.17-2. LOD3 Hancock County Ring Levee, Pearlington - Option A 20.0	
9	Estimate	55
10	Table 3.3.1.17-3. LOD3 Hancock County Ring Levee, Pearlington - Option B 30.0	
11	Estimate	56
12	Table 3.3.1.19-1. Chart of Accounts - LOD3 Hancock County Ring Levee, Pearlington -	
13	Option A	57
14	Table 3.3.1.19-2. Chart of Accounts - LOD3 Hancock County Ring Levee, Pearlington -	
15	Option B	58
16	Table 3.3.2.17-1. Real Estate Cost Summary	66
17	Table 3.3.2.17-2. LOD3 Hancock County Ring Levee, Bay St. Louis - Option A 20.0	
18	Estimate	66
19	Table 3.3.2.17-3. LOD3 Hancock County Ring Levee, Bay St. Louis - Option B 30.0	
20	Estimate	67
21	Table 3.3.2.19-1. Chart of Accounts - LOD3 Hancock County Ring Levee, Bay St. Louis -	
22	Option A	68
23	Table 3.3.2.19-2. Chart of Accounts - LOD3 Hancock County Ring Levee, Bay St. Louis -	
24	Option B	69
25	Table 3.3.3.15-1. LOD3 Hancock County Elevated Road Estimate	76
26	Table 3.3.3.17-1. Chart of Accounts - LOD3 Hancock County Elevated Road	77
27	Table 3.3.4.15-1. LOD3 Harrison County Elevated Road Estimate	85
28	Table 3.3.4.17-1. Chart of Accounts - LOD3 Harrison County Elevated Road	87
29	Table 3.3.5.17-1. Real Estate Cost Summary	95
30	Table 3.3.5.17-2. LOD3 Harrison County Forrest Heights Levee, Gulfport - Option A 17.0	
31	Estimate	95
32	Table 3.3.5.17-3. LOD3 Harrison County Forrest Heights Levee, Gulfport - Option B 21.0	
33	Estimate	96
34	Table 3.3.5.19-1. Chart of Accounts - LOD3 Harrison County Forrest Heights Levee,	
35	Gulfport - Option A	97
36	Table 3.3.5.19-2. Chart of Accounts - LOD3 Harrison County Forrest Heights Levee,	
37	Gulfport - Option B	98
38	Table 3.3.6.15-1. LOD3 Jackson County Elevated Road Estimate	104
39	Table 3.3.6.17-1. Chart of Accounts - LOD3 Jackson County Elevated Road	106
40	Table 3.3.7.17-1. Real Estate Cost Summary	114
41	Table 3.3.7.17-2. LOD3 Jackson County Ring Levee, Ocean Springs - Option A 20.0	
42	Estimate	114
43	Table 3.3.7.17-3. LOD3 Jackson County Ring Levee, Ocean Springs - Option B 30.0	
44	Estimate	115
45	Table 3.3.7.19-1. Chart of Accounts - LOD3 Jackson County Ring Levee, Ocean Springs	
46	- Option A	117
47	Table 3.3.7.19-2. Chart of Accounts - LOD3 Jackson County Ring Levee, Ocean Springs	
48	- Option B	117
49	Table 3.3.8.19-1. Real Estate Cost Summary	126
50	Table 3.3.8.19-2. LOD3 Jackson County Ring Levee, Gulf Park - Option A 20.0 Estimate	127

1	Table 3.3.8.19-3. LOD3 Jackson County Ring Levee, Gulf Park - Option B 30.0 Estimate	127
2	Table 3.3.8.19-4. LOD3 Jackson County Ring Levee, Gulf Park - Option C, Alternate	
3	Alignment, Elevation 20.0 Estimate.....	128
4	Table 3.3.8.19-5. LOD3 Jackson County Ring Levee, Gulf Park - Option D Alternate	
5	Alignment Elevation 30.0 Estimate.....	129
6	Table 3.3.8.21-1. Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park -	
7	Option A	130
8	Table 3.3.8.21-2. Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park -	
9	Option B	131
10	Table 3.3.8.21-3. Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park -	
11	Option C Alternate Alignment.....	132
12	Table 3.3.8.21-4. Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park -	
13	Option D Alternate Alignment.....	133
14	Table 3.3.9.19-1. Real Estate Cost Summary.....	141
15	Table 3.3.9.19-2. LOD3 Jackson County Ring Levee, Belle Fontaine - Option A 20.0	
16	Estimate	142
17	Table 3.3.9.19-3. LOD3 Jackson County Ring Levee, Belle Fontaine - Option B 30.0	
18	Estimate	142
19	Table 3.3.9.19-4. LOD3 Jackson County Ring Levee, Belle Fontaine - Option C Alternate	
20	Alignment, Elevation 20.0 Estimate.....	143
21	Table 3.3.9.19-5. LOD3 Jackson County Ring Levee, Belle Fontaine - Option D Alternate	
22	Alignment, Elevation 30.0 Estimate.....	144
23	Table 3.3.9.21-1. Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine	
24	- Option A	145
25	Table 3.3.9.21-2. Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine	
26	- Option B	146
27	Table 3.3.9.21-3. Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine	
28	- Option C Alternate Alignment.....	147
29	Table 3.3.9.21-4. Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine	
30	- Option D Alternate Alignment.....	148
31	Table 3.3.10.17-1. Real Estate Cost Summary.....	156
32	Table 3.3.10.17-2. LOD3 Jackson County Ring Levee, Gautier - Option A 20.0 Estimate.....	157
33	Table 3.3.10.17-3. LOD3 Jackson County Ring Levee, Gautier - Option B 30.0 Estimate.....	157
34	Table 3.3.10.19-1. Chart of Accounts - LOD3 Jackson County Ring Levee, Gautier -	
35	Option A	158
36	Table 3.3.10.19-2. Chart of Accounts - LOD3 Jackson County Ring Levee, Gautier -	
37	Option B	159
38	Table 3.3.11.9-1. Levee and Roadway/Railway Intersections.....	165
39	Table 3.3.11.10-1. Real Estate Requirements - LOD3 Pascagoula/Moss Point	
40	Alternatives	167
41	Table 3.3.11.19-1. PL 91-646 - Relocation Assistance	169
42	Table 3.3.11.23-1. Real Estate Cost Summary.....	171
43	Table 3.3.11.23-2. LOD3 Jackson County Ring Levee, Pascagoula/Moss Point - Option	
44	A 20.0 Estimate.....	172
45	Table 3.3.11.23-3. LOD3 Jackson County Ring Levee, Pascagoula/Moss Point - Option	
46	B 30.0 Estimate.....	173
47	Table 3.3.11.23-4. LOD3 Jackson County Ring Levee, Washington Avenue Alternate	
48	Alignment - Option C 20.0 Estimate	174
49	Table 3.3.11.23-5. LOD3 Jackson County Ring Levee, Washington Avenue	
50	Alternate Alignment - Option D 30.0 Estimate.....	175

1	Table 3.3.11.23-6. LOD3 Jackson County Ring Levee, Moss Point Alternate Alignment -	
2	Option E 20.0 Estimate	176
3	Table 3.3.11.23-7. LOD3 Jackson County Ring Levee, Moss Point Alternate Alignment -	
4	Option F 30.0 Estimate.....	177
5	Table 3.3.11.23-8. LOD3 Jackson County Ring Levee, Combined Washington Avenue	
6	and Moss Point Alternate Alignment - Option G 20.0 Estimate	178
7	Table 3.3.11.23-9. LOD3 Jackson County Ring Levee, Combined Washington Avenue	
8	and Moss Point Alternate Alignment - Option H 30.0 Estimate	179
9	Table 3.3.11.25-1. Chart of Accounts - LOD3 Jackson County Ring Levee,	
10	Pascagoula/Moss Point - Option A.....	180
11	Table 3.3.11.25-2. Chart of Accounts - LOD3 Jackson County Ring Levee,	
12	Pascagoula/Moss Point - Option B.....	181
13	Table 3.3.11.25-3. Chart of Accounts - LOD3 Jackson County Ring Levee, Washington	
14	Avenue Alternate Alignment - Option C.....	182
15	Table 3.3.11.25-4. Chart of Accounts - LOD3 Jackson County Ring Levee, Washington	
16	Avenue Alternate Alignment - Option D.....	183
17	Table 3.3.11.25-5. Chart of Accounts - LOD3 Jackson County Ring Levee, Moss Point	
18	Alternate Alignment - Option E.....	184
19	Table 3.3.11.25-6. Chart of Accounts - LOD3 Jackson County Ring Levee, Moss Point	
20	Alternate Alignment - Option F.....	185
21	Table 3.3.11.25-7. Chart of Accounts - LOD3 Jackson County Ring Levee, Combined	
22	Washington Avenue and Moss Point Alternate Alignment - Option G.....	186
23	Table 3.3.11.25-8. Chart of Accounts - LOD3 Jackson County Ring Levee, Combined	
24	Washington Avenue and Moss Point Alternate Alignment - Option H.....	187
25	Table 3.4.1.18-1. Real Estate Cost Summary.....	198
26	Table 3.4.1.18-2. LOD4 Hancock County Inland Barrier - Option A 20.0 Estimate	199
27	Table 3.4.1.18-3. LOD4 Hancock County Inland Barrier - Option B 30.0 Estimate	199
28	Table 3.4.1.18-4. LOD4 Hancock County Inland Barrier - Option C 40.0 Estimate	200
29	Table 3.4.1.20-1. Chart of Accounts - LOD4 Hancock County Inland Barrier - Option A	
30	20.0	201
31	Table 3.4.1.20-2. Chart of Accounts - LOD4 Hancock County Inland Barrier - Option B	
32	30.0	202
33	Table 3.4.1.20-3. Chart of Accounts - LOD4 Hancock County Inland Barrier - Option C	
34	40.0	203
35	Table 3.4.2.18-1. LOD4 St. Louis Bay Surge Barrier - Option A, B or C Estimate	209
36	Table 3.4.2.20-1. Chart of Accounts - LOD4 St. Louis Bay Surge Barrier - Option A, B or	
37	C	210
38	Table 3.4.3.11-1. Levee and Roadway/Railway Intersections.....	217
39	Table 3.4.3.12-1. Real Estate Requirements - LOD4 Harrison County	220
40	Table 3.4.3.21-1. PL 91-646 - Relocation Assistance	222
41	Table 3.4.3.25-1. Real Estate Cost Summary.....	224
42	Table 3.4.3.25-2. LOD4 Harrison County Inland Barrier - Option A 20.0 Estimate	225
43	Table 3.4.3.25-3. LOD4 Harrison County Inland Barrier - Option B 30.0 Estimate	225
44	Table 3.4.3.25-4. LOD4 Harrison County Inland Barrier - Option C 40.0 Estimate	226
45	Table 3.4.3.25-5. Option D - Levee for Roadway - Elevation 20.0 Estimate	226
46	Table 3.4.3.25-6. Option E - Levee for Roadway - Elevation 30.0 Estimate	227
47	Table 3.4.3.25-7. Option F - Menge Avenue Alternate Route - Elevation 20.0 Estimate.....	227
48	Table 3.4.3.25-8. Option G - Menge Avenue Alternate Route - Elevation 30.0 Estimate	228
49	Table 3.4.3.25-9. Option H - Menge Avenue Alternate Route - Elevation 40.0 Estimate	228

1	Table 3.4.3.25-10. Option I - Levee for Roadway with Menge Avenue Alternate - Route	
2	Elevation 20.0 Estimate.....	229
3	Table 3.4.3.25-11. Option J - Levee for Roadway with Menge Avenue Alternate - Route	
4	Elevation 30.0 Estimate.....	229
5	Table 3.4.3.27-1. Chart of Accounts - LOD4 Harrison County Inland Barrier - Option A	
6	20.0	231
7	Table 3.4.3.27-2. Chart of Accounts - LOD4 Harrison County Inland Barrier - Option B	
8	30.0	232
9	Table 3.4.3.27-3. Chart of Accounts - LOD4 Harrison County Inland Barrier - Option C	
10	40.0	233
11	Table 3.4.3.27-4. Chart of Accounts - LOD 4 Harrison County Inland Barrier Option D	
12	20.0 - Levee for Roadway	234
13	Table 3.4.3.27-5. Chart of Accounts - LOD 4 Harrison County Inland Barrier Option E	
14	30.0 - Levee for Roadway	235
15	Table 3.4.3.27-6. Chart of Accounts - LOD4 Harrison County Inland Barrier Option F 20.0	
16	- Menge Avenue Alternate Route	236
17	Table 3.4.3.27-7. Chart of Accounts - LOD4 Harrison County Inland Barrier Option G	
18	30.0 - Menge Avenue Alternate Route	237
19	Table 3.4.3.27-8. Chart of Accounts - LOD4 Harrison County Inland Barrier Option H	
20	40.0 - Menge Avenue Alternate Route	238
21	Table 3.4.3.27-9. Chart of Accounts - LOD4 Harrison County Inland Barrier Option I 20.0	
22	- Levee for Roadway with Menge Avenue Alternate Route	239
23	Table 3.4.3.27-10. Chart of Accounts - LOD4 Harrison County Inland Barrier Option J	
24	30.0 - Levee for Roadway with Menge Avenue Alternate Route	240
25	Table 3.4.4.18-1. LOD4 Back Bay of Biloxi Surge Barrier - Option A, B or C Estimate.....	246
26	Table 3.4.4.20-1. Chart of Accounts - LOD4 Back Bay of Biloxi Surge Barrier - Option A,	
27	B or C	247
28	Table 3.4.5.18-1. Real Estate Cost Summary	257
29	Table 3.4.5.18-2. LOD4 Jackson County Inland Barrier - Option A 20.0 Estimate	258
30	Table 3.4.5.18-3. LOD4 Jackson County Inland Barrier - Option B 30.0 Estimate	258
31	Table 3.4.5.18-4. LOD4 Jackson County Inland Barrier - Option C 40.0 Estimate.....	259
32	Table 3.4.5.20-1. Chart of Accounts LOD4 Jackson County Inland Barrier - Option A 20.0	260
33	Table 3.4.5.20-2. Chart of Accounts LOD4 Jackson County Inland Barrier - Option B 30.0	261
34	Table 3.4.5.20-3. Chart of Accounts LOD4 Jackson County Inland Barrier - Option C 40.0	262
35	Table 4.1.2-1. Hancock County Acquisition Reaches	268
36	Table 4.1.15-1. Hancock County Acquisitions Estimate	271
37	Table 4.1.17-1. Chart of Accounts - Hancock County Acquisitions	273
38	Table 4.2.2-1. Harrison County Acquisition Reaches	276
39	Table 4.2.15-1. Harrison County Acquisitions Estimate	279
40	Table 4.2.17-1. Chart of Accounts - Harrison County Acquisitions	281
41	Table 4.3.2-1. Jackson County Acquisition Reaches	284
42	Table 4.3.15-1. Jackson County Acquisitions Estimate.....	287
43	Table 4.3.17-1. Chart of Accounts - Jackson County Acquisitions	289
44	Table 5.1.15-1. Harrison County Turkey Creek Ecosystem Restoration Site Estimate	
45	Option A	295
46	Table 5.1.15-2. Harrison County Turkey Creek Ecosystem Restoration Site Estimate	
47	Option B	296
48	Table 5.1.15-3. Harrison County Turkey Creek Ecosystem Restoration Site Estimate	
49	Option C	296

1	Table 5.1.17-1. Chart of Accounts - Harrison County Turkey Creek Ecosystem	
2	Restoration Site Option A.....	297
3	Table 5.1.17-2. Chart of Accounts - Harrison County Turkey Creek Ecosystem	
4	Restoration Site Option B.....	298
5	Table 5.1.17-3. Chart of Accounts - Harrison County Turkey Creek Ecosystem	
6	Restoration Site Option C.....	299
7	Table 5.2.15-1. Jackson County Bayou Cumbest Ecosystem Restoration Estimate	305
8	Table 5.2.17-1. Chart of Accounts - Jackson County Bayou Cumbest Ecosystem	
9	Restoration.....	306
10		

CHAPTER 1. GENERAL

1.1 Guidance

1.1.1 *Engineer Regulations*

1. ER 405-1-12, Chapter 5 - Acquisition, 5 September 1978, Draft Revision, 9 June 2003
2. ER 405-1-12, Chapter 6 - Relocation Assistance Program, 23 March 1979, Draft Revision, 2 May 2003
3. ER 405-1-12, Chapter 12 - Real Estate Roles and Responsibilities for Civil Works: Cost Shared and Full Federal Projects, 1 May 1998, Draft Revision, 8 March 2003

1.1.2 *Engineer Circulars*

1. EC 405-1-11, Real Estate Acquisition, 30 December 2003

1.1.3 *United States Code*

1. Robert T Stafford Disaster Relief and Emergency Assistance Act, as amended, 42 USC § 5121et seq. (Stafford Act)
2. 42 USC, Chapter 61 - Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federally Assisted Programs

1.1.4 *Code of Federal Regulations*

1. Code of Federal Regulations, Title 49, Part 24 - Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally-Assisted Programs

CHAPTER 2. THE REAL ESTATE REPORT

2.1 Statement of Purpose

This report is tentative in nature and is to be used for planning purposes only. The report is written based on specific data from Mobile District and the tax assessors' offices in Hancock, Harrison and Jackson Counties, MS. There may be modifications to the plans that occur during Pre-Construction, Engineering and Design phase, thus changing the final acquisition area(s) and/or administrative and land cost. The Real Estate Appendix is intended to support the Comprehensive Report for the Mississippi Coastal Improvements Program. Due to the scale of the project, the Real Estate Appendix is formatted to include a separate Real Estate Plan (REP) for each of the different measures that are formulated. The Statement of Purpose will not be repeated in each REP. The author of this report has viewed the general Project areas. The State of Mississippi is the non-Federal sponsor for the project. Date of this report is November 2007.

2.2 Study Authority

The Coastal Mississippi Comprehensive Study was authorized by the Department of Defense Appropriations Act, 2006 (P.L. 109-148) 30 December 2005, which states: "For an additional amount for "Investigations" to expedite studies of flood and storm damage reduction related to the consequences of hurricanes in the Gulf of Mexico and Atlantic Ocean in 2005, \$37,300,000 to remain available until expended: **Provided, That using \$10,000,000 of the funds provided, the Secretary shall conduct an analysis and design for comprehensive improvements or modifications to existing improvements in the coastal area of Mississippi in the interest of hurricane and storm damage reduction, prevention of saltwater intrusion, preservation of fish and wildlife, prevention of erosion, and other related water resource purposes at full Federal expense: Provided further, That the Secretary shall recommend a cost-effective project, but shall not perform an incremental benefit-cost analysis to identify the recommended project, and shall not make project recommendations based upon maximizing net national economic development benefits; Provided further, That interim recommendations for near term improvements shall be provided within 6 months of enactment of this act with final recommendations within 24 months of this enactment.**"

2.3 Authorization for Entry for Construction

After the non-Federal sponsor completes its acquisition effort and prior to issuance of the solicitation for each construction contract, an informed, authorized, and accountable official of the non-Federal sponsor must execute and provide the district a written Authorization for Entry to all land, easements or rights -of-way (LER) that the Government determined the non-Federal sponsor must provide for that contract. The authorization form must also recite that the non-Federal sponsor is vested with sufficient title and interest in such LER. Further, the non-Federal sponsor must also provide the district with a Certificate of Authority that recites that the official signing the Authorization for Entry form on behalf of the non-Federal sponsor has the authority to furnish such authorization to the Government. Again, rather than including the form in each REP, the form will be included in the Real Estate Appendix as Exhibit "A", and the exhibit will be referenced in the REP.

2.4 Assessment of Non-Federal Sponsor's Real Estate Acquisition Capability

For cost shared projects, a thorough assessment of the non-Federal sponsor's legal and professional capability and experience to acquire and provide the LER for the construction, operations and maintenance of the project, including its condemnation authority and quick-take capability is required. The Capability Assessment checklist must be completed and included as part of the REP. Rather than including the checklist in each REP, the checklist will be included in the Real Estate Appendix as Exhibit "B", and the exhibit will be referenced in the REP. For this study, this assessment will be made during PED.

2.5 Acquisition Schedule and Management Plan

2.5.1 Acquisition Implementation/Management Plan

The acquisition of lands required for a cost shared project is the responsibility of the Non-Federal Sponsor. It is recommended that an Acquisition Implementation and Management Plan (AIMP) be prepared. This plan should outline the necessary steps required to successfully implement and execute the acquisitions. It should include staffing requirements, field office requirements, contracting requirements and schedules identifying milestones to meet completion dates. This plan should be developed jointly with participation from real estate division, the non-federal sponsor and the project manager to ensure adequate time for acquisition and to meet the schedule for advertisement for construction. A lead time of at least six to nine months prior to the estimated date for the availability of the appropriations should be allowed for preparation of the AIMP. It should be noted that on fast track acquisitions, there are several preliminary acquisition activities that can be accomplished during the PED phase such as surveys, title and appraisal requirements. If these activities are scheduled correctly, the acquisitions can be initiated as soon as the appropriations are made available thus saving 6 – 12 months from the acquisition schedule.

2.5.2 Title/Ownership of Lands Acquired

In cost shared projects, the project sponsor is responsible for acquiring real estate required for the project. Since the Non-Federal Sponsor would be required to operate and manage all lands acquired for the project, title to these lands would be acquired in the named of the sponsor. In the event the Federal Government performs the acquisition of lands, the lands would be acquired in the name of the sponsor. In this instance acquisition of LER by the Government on behalf of the sponsor will be by written agreement between the Government and the non-Federal sponsor.

2.6 Mitigation Lands

Implementation of structural plans would require placement of fill within parts of wetlands in Coastal Mississippi. Overall, structural measures have been developed in ways that avoid or minimize wetland impacts. See section 4.1.7, Mitigation Measures in the Environmental Appendix for a discussion on project impacts and measures for mitigation. Land costs for mitigation are not reflected in the Real Estate Appendix as the plan is to purchase credits from a mitigation bank. the cost of the mitigation credits is included in the Environmental Appendix. The cost presented in the Environmental Appendix does not include real estate administrative costs; these costs would be minimal since the purchase of credits from mitigation banks does not involve acquiring a real interest in land. There could be administrative costs incurred for document preparation. Although specific

1 mitigation sites have not been selected, for estimation purposes a cost of \$5,500 per acre is based
2 on costs to buy credits from established mitigation banks in the Mississippi coastal area. It is noted
3 that LERRD credit is not given for mitigation credits that may be purchased for a project. The cost to
4 purchase mitigation credits is considered as a construction cost.

5 **2.7 Zoning**

6 Title 17 of the Mississippi Code is legislation that enables the counties and municipalities within the
7 proposed project area to establish land use zoning ordinances for their jurisdictions to fulfill the goals
8 and objectives of their comprehensive plans. Potential relocations and redevelopment being
9 considered in the project may affect some current residential and commercial zoning in the counties
10 and may require variances or re-zoning of those areas for project implementation. Zoning
11 ordinances can be used to limit development in certain high-hazard areas or areas with sensitive
12 environmental resources. In areas where no development has taken place (vacant land) or where
13 development has been largely removed (total loss areas), zoning or rezoning of the property could
14 accomplish project objectives by limiting or prohibiting future development. Property devoid of
15 structures only retains its basic land value as dictated by market forces. That land value is influenced
16 to some extent by the natural hazards that may endanger any development that would be
17 constructed on the property. In the case of the study area, there are vast numbers of privately-
18 owned tracts where the structure has been totally destroyed leaving only a concrete slab or wood
19 pilings from the previous foundation. In these cases, rezoning the property for other land uses more
20 adaptable to and compatible with the natural hazards may accomplish program objectives. Zoning
21 of high-risk properties bordering the coast and some of the inlet areas could be used to reduce the
22 incidence of damages to certain types of development or all development.

23 Any rezoning of vacant land after purchase of at-risk properties for the project would be entirely up to
24 the local jurisdictions in accordance with the floodplain ordinances and any executed agreements for
25 project cooperation. Section 4.5.4 in the Nonstructural Appendix provides an in-depth discussion on
26 Land Use Regulation and Zoning for those counties and municipalities in the project areas.

27 **2.8 Borrow Areas**

28 Section 1.5 in the Engineering Appendix gives detailed information on the borrow sites being
29 considered for use in construction of the project. Section 1.5.5 discusses the on-shore borrow areas
30 which are permitted sites. A table is given for each county that lists the sites and type materials
31 available. A map shows the general location of the sites. Section 1.5.6 describes the offshore borrow
32 areas proposed for use. Section 1.5.7 describes the inland river system sand (dredged material) that
33 is in disposal areas. Diked disposal areas along the Black Warrior - Tombigbee River system and
34 the Tennessee-Tombigbee Waterway are available for use. A map of the disposal areas and tables
35 listing the sites and type real estate interest acquired in the sites are included. In summary the
36 proposed borrow sites are a mix of permitted commercial sites and disposal sites for which the
37 Government either owns or holds an easement interest. Current estimates for borrow material
38 indicate that sufficient sources are available for construction without having to acquire additional
39 sites from private landowners. However should any requirements be identified for acquisition of
40 additional borrow or disposal sites from private landowners, they would be considered part of the
41 LER, and the responsibility of the non-federal sponsor to acquire. The sponsor would have to comply
42 with any approval processes required by the respective county governments for using lands for new
43 borrow or disposal sites.

2.9 Induced Flooding

Lines of Defense 3 and 4 incorporate the use of levees and barriers in the structural measures proposed for storm damage reduction. When it rains, excess rainfall can be trapped behind the levees and can induce flooding even in the absence of a hurricane. During some hurricane events, when the gates are shut, and rainfall exceeds the average 10-yr intensity over the basin, some ponding from rainfall will occur. The design of the levees includes flap gates, culverts, pumping stations and drainage ditches to aid in water drainage and to channel excess runoff to either gated culverts or pumping stations which will transfer the excess flow to the outside of the levee thereby minimizing induced damages. Detailed modeling of all the interior sub-basins for all the areas was not possible for this report; therefore the exact extent of the ponding for extreme events is not precisely defined. However, in some of the areas, existing storage could be adequate to pond water without causing damage, even without pumps. In other areas that do have pumps, some rise in interior water during interior events greater than the 10-yr rain could occur, but may not cause damage. The design rationale is based on the minimum facility concept, and economic tradeoffs between induced flooding and pumping provisions were not examined. Further studies will detail the requirement for the appropriate ponding areas, pump sizes, or buyouts in the affected areas. No induced flooding is anticipated as a result of any of the tentatively selected plans. However, should there be a later determination that there will be induced damages for a given measure, a takings analysis will be prepared, the appropriate real estate interest to be acquired will be identified and the real estate estimate will be revised accordingly.

2.10 Utility/Facility Relocations

The term "relocation" shall mean providing a functionally equivalent facility to the owner of an existing utility, cemetery, highway or other public facility or town when such action is authorized in accordance with applicable legal principles of just compensation or as otherwise provided by Federal statute or any project report or House or Senate document referenced therein. Providing a functionally equivalent facility may take the form of adjusting, altering, lowering, raising, or replacement and attendant removal of the affected facility or part thereof. It is important to note that relocation assistance under Public Law 91-646 relates specifically to displaced persons, and should be distinguished from the separate concept of facility or utility relocations

The REP normally contains a description of the facility or utility relocations that must be performed including information regarding the general nature of the impact to each facility or utility; the identity of the owners of the affected facilities and utilities; the purpose of the affected facilities and utilities; whether the owners have compensable real property interests in the land on which the impacted portion of the facility or utility is located; the conclusions reached in an identified Preliminary or Final Attorney's Opinion of Compensability prepared in support of the relocations determinations; whether special legal authority or direction affects relocation classification [for example, the project's authorizing legislation or reports referenced therein; Section 111 of the River and Harbor and Flood Control Act of 1958 (33 U.S.C. §633)]; and other information relevant to the proper identification and performance of relocations necessitated by construction, operation, or maintenance of the project.

Due to level of study in this project, information about specific "relocations" is unknown. In general, it is known that roads would have to be ramped up at intersections for the proposed ring levee projects and that some public utility lines will have to be relocated. The Town of Moss Point in Jackson County has some municipal facilities that would need to be relocated. Each potential utility/facility relocation will be evaluated to determine relocation requirements and possible problems associated with the relocation. Once this assessment is made, the LERRD cost can be adjusted to reflect addition of the utility/faculty relocation cost which are currently included as a construction cost. Any

1 relocation requirements will be identified during PED along with the required supporting
2 documentation and estimated cost. Utility/facility relocations can add cost to the project and need to
3 be factored into the acquisition schedule timeline.

4 **2.11 Navigation Servitude**

5 For those lands required for construction that lay below the mean high water mark, navigation
6 servitude will apply. Navigation servitude is the dominant right of the Government under the
7 Commerce Clause of the U.S. Constitution (U.S. CONST. Art.I,§8,cl.3) to use, control and regulate
8 the navigable waters of the United States and the submerged lands hereunder for various
9 commerce-related purposes including navigation and flood control. In tidal areas, the servitude
10 extends to all lands below the, mean high water mark. In non-tidal areas, the servitude extends to all
11 lands within the bed and banks of a navigable stream that lie below the ordinary high water mark.
12 The determination of the availability of the navigation servitude should be made on a case by case
13 basis and consists of a two -step process. First the government must determine whether the project
14 serves a purpose that has a nexus to navigation. Purposes recognized by the courts to have the
15 nexus include navigation, flood control and hydroelectric power. If determined that such a nexus
16 exists, then the second step is to determine whether the land at issue is located below the mean or
17 ordinary high water mark of a navigable watercourse. As a general rule, the Government does not
18 acquire interests in real property that it already possesses or over which its use or control is or can
19 be legally exercised. Therefore, if the navigation servitude is found to be available as a result of
20 application of the process described in subparagraph b of this paragraph, then the Government will
21 generally exercise its rights hereunder and, to the extent of such rights, will not acquire a real
22 property interest in the land to which the navigation servitude applies. Generally, it is the policy of the
23 U.S. Army Corps of Engineers (USACE) to utilize the navigation servitude in all situations where
24 available, for cost shared and full Federal projects. The determination of availability will be made
25 during PED.

26

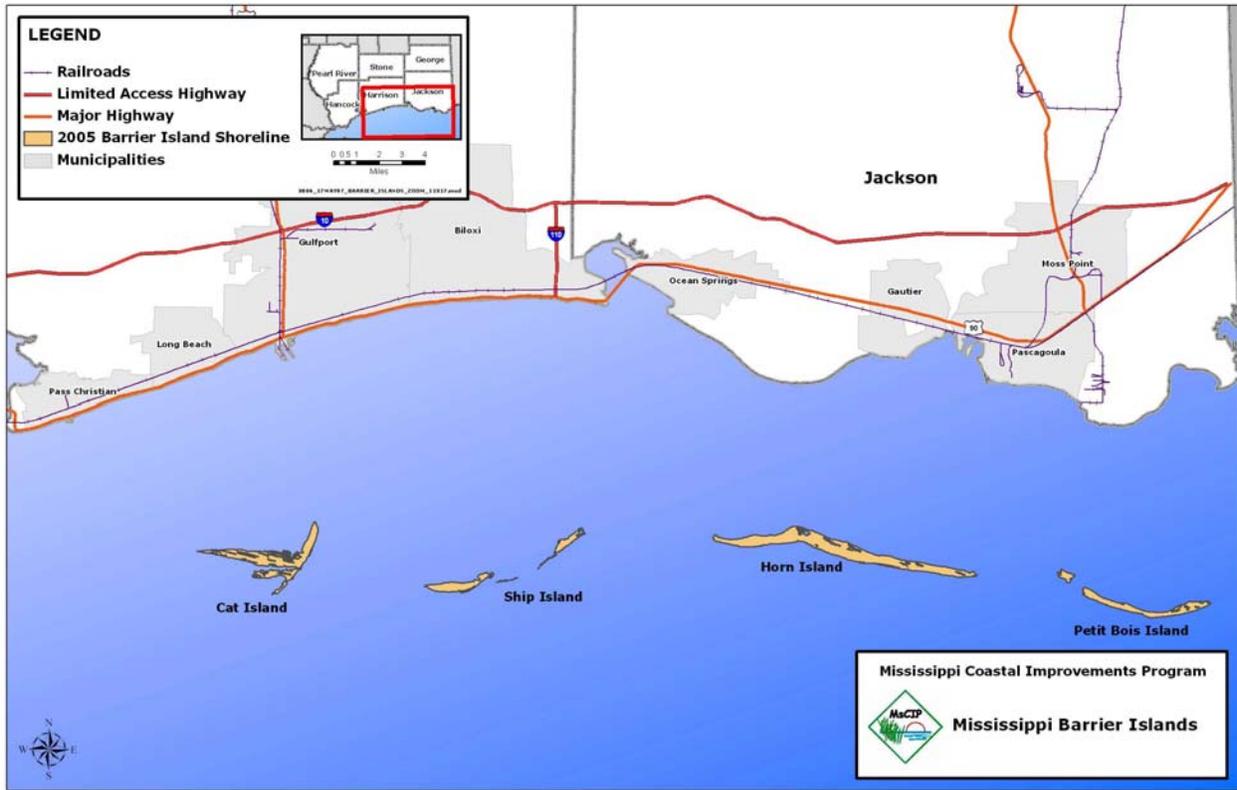
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1 **CHAPTER 3. LINES OF DEFENSE (LOD)**

2 **3.1 Line of Defense 1 - Offshore Barrier Islands**

3 **3.1.1 *Project Description***

4 The barrier islands of Mississippi are located 10 to 15 miles south of the mainland. Currently, there
5 are five islands in the chain that extends for 45 miles west from a point south of the Alabama –
6 Mississippi state line along the coast as shown in Figure 3.1.1-1. Currently, Ship Island exists as two
7 islands separated by a shallow sand bar. It was breached during Hurricane Camille in 1969 and
8 remains today as West and East Ship Island. Two maintained navigation channels pass through the
9 chain of islands. The Gulfport channel passes near the west end of West Ship Island and the
10 Pascagoula channel passes near the west end of Petit Bois Island. The present day location of the
11 channels prevents any further westward migration of either island. All of Petit Bois, Horn, and Ship
12 Islands and part of Cat Island are within the boundaries of the Gulf Islands National Seashore under
13 jurisdiction of the National Park Service (NPS) as shown in Figure 3.1.1-2. The approximate western
14 two thirds of the island is owned by the United States of America. The remaining portion of the island
15 is in private ownership among multiple owners of record. In most cases, the boundary extends one
16 mile from the shore of the island. Petit Bois and Horn Islands have also been designated as
17 Wilderness Areas by the U.S. Department of the Interior and have a higher degree of protection than
18 the other islands. Project construction will be on those lands within the boundaries of the Gulf
19 Islands National Seashore and will not impact private lands.



1

2

3

Figure 3.1.1-1.
Location of the Mississippi Barrier Islands



4

5

6

Figure 3.1.1-2.
Boundaries of the Gulf Islands National Seashore

7 Data shows that the islands have lost approximately 20 to 25 percent of their land mass since pre-
 8 Camille times. Figures 3.1.2.1-1 through 3.1.2.1-4 in the Engineering Appendix illustrate the changes
 9 in the footprints of the islands from pre-Camille to post-Katrina. The islands have been heavily
 10 influenced by the various hurricanes including even the lower intensity ones. Hurricane George, in
 11 1998, even though a small hurricane, proved to be devastating to the islands due to heavy erosion
 12 from waves. Many of the higher dune systems on the islands were destroyed and much of the
 13 elevation the islands once had is gone. Most of the islands are now very susceptible to over-wash
 14 during storms. Another result of being submerged during Hurricane Katrina was the loss of much of
 15 the maritime pine forest that existed on the islands. The trees, mostly now dead from the salt water

1 submergence, played a major role in preventing erosion both from wind and any surges against the
2 islands. Modeling efforts have concluded that over a wide range of storms, there would be some
3 protection provided to the eastern coast of Mississippi along the Jackson County shoreline if the
4 islands are in the pre-Camille condition. The options considered for restoration of the offshore barrier
5 islands are listed in Table 3.1.1-1.

6 **Table 3.1.1-1.**
7 **Options for Offshore Barrier Islands**

Option	Measure
Option A	Restore Island Footprint
Option B	Replenish Sand in Littoral Zone, Inland Source
Option C	Replenish Sand in Littoral Zone, Inland & Offshore Sources
Option D	Environmental Restoration w/2-foot Dune
Option E	Environmental Restoration w/6-foot dune
Option F	Environmental Restoration of Sea Grass Beds
Option G	Restoration of Ship Island Breach

8
9 Several approaches to restoration of the islands were considered. Option A proposes to add new
10 land mass to the islands by using sand dredged and transported from an off-shore location. This
11 sand would come from the St. Bernard Shoals located about 45 miles south of the barrier islands.
12 The shaping of the sand into beaches, dunes and marsh areas will not affect the existing islands
13 other than that narrow strip of land that will form the boundary between the existing island and the
14 new land mass. This option can be used in combination with other options under this line of defense
15 should it be desired to restore habitat on the existing islands. Restoration of Ship Island to a pre-
16 Camille configuration includes closing the post-Katrina, 4-mile long breach to a 2000-foot width and
17 with elevation 20.0 dunes, along with some rebuilding of the other islands to a larger land area. As
18 the new land mass is added to the existing islands, portions of the new island will be planted with
19 various types of vegetation to provide habitat and to aid against erosion.

20 To increase the size of the footprint of each island and restore them back to a pre-Camille footprint
21 will involve several different operations, some of which can take place concurrently. The source of
22 sand that has been designated as the potential borrow area will require additional investigation using
23 both geophysical techniques and physical sampling. The sand is expected to be in submerged
24 shoals that will have to be located and mapped prior to any removal of the sand. This will be
25 completed during design and before the construction begins.

26 Each of the islands will require that a “dump basin” be excavated by dredging before any sand is
27 transported from the borrow areas which are located offshore about 45 miles south of the islands.
28 These basins are required due to the depth of the water which is too shallow for the dredges to
29 approach the islands. The basins will typically be located about one mile from the beach of the
30 respective island where sand is being added to surrounding waters. These basins will be of sufficient
31 size to allow a large quantity of sand to be stored after being bottom dumped from a hopper dredge.
32 The material dredged from these basins is anticipated to be unsuitable for placement on the islands
33 and is expected to be transported to permitted disposal areas. As each basin is completed, a hopper
34 dredge can begin to remove sand from the borrow area and transport it to the basin where it can be
35 quickly dumped, allowing the dredge to have minimal delays between trips. When the sand in a
36 basin reaches a set capacity, a cutter head, suction dredge will move the sand from the basin to the
37 area where the sand is needed. Where needed, booster pumps will be utilized. The discharge from
38 the suction dredge will be moved over the areas where the size of the island is being increased. As

1 an area is filled to the desired grade, the sand will be shaped into dunes, basins and beaches. As
2 this earthwork is completed for a given area, planting can begin. The suction dredge will be moved
3 as needed to accommodate the excavation of the basins and the transfer of the sand from the
4 basins to the islands. It is anticipated that the suction dredge will be moved, and then remobilized
5 several times during the entire process for completing an islands enlargement.

6 Option B and Option C propose to restore the islands by supplementing the sand in the littoral
7 system through the use of inland and off-shore sand sources. This could be accomplished by adding
8 sand in specific locations based on sediment transport modeling. This would allow the littoral
9 currents to move the sand onto the islands where the natural process of island building could take
10 place. This would not directly affect the present-day islands and would help mitigate any effects of
11 dredging the ship channels that pass through the chain of islands where sand may have been lost
12 from the system. The construction of inland waterways in Alabama and Mississippi has resulted in
13 continuing maintenance dredging to maintain the channel depths and alignments. This dredged
14 material is now accumulated in disposal areas along the banks of the river. Dredging of some of the
15 areas along the river has produced large quantities of sand that have potential use for replenishment
16 of littoral zones such as are found along the Mississippi Barrier Islands. An inventory of current
17 disposal sites indicates that approximately 30,000,000 cubic yards of sand is available. Only
18 disposal sites that contain a minimum of 100,000 cubic yards of sand were included in the inventory.
19 Of interest to this study are disposal sites that are located along the Black Warrior – Tombigbee
20 River system and the Tennessee – Tombigbee Waterway. Material from these sites could easily be
21 transported by barge down the river system for use among the islands littoral zone. To add off-site
22 sand into the littoral system under Option B, material from inland dredged material disposal sites
23 would be transported by barge down the river system for use among the islands littoral zones.

24 Each of the areas designated for adding sand will require that a staging area where barges could be
25 unloaded and the sand spread over the selected area. The sand would be transported from each of
26 numerous disposal sites located up the river systems. The size of the locks on the river systems and
27 the depth of associated channels will dictate the size of barges that can be used. As the barges are
28 unloaded at each site, the sand would be pumped to spreader barges that would be able to cover an
29 area sufficient to control the depth of sand placement.

30 Option C would help restore the islands by supplementing the sand in select littoral system zones
31 with sand obtained from both inland river and offshore borrow areas. Like Option B, this could be
32 accomplished by adding sand in specific locations based on sediment transport modeling. This
33 option would limit addition of sand to the areas east of Ship Island and Petit Bois Island. These two
34 areas were selected based on cooperation between the National Park Service (NPS, 2007) and the
35 Corps of Engineers and is based on restoration policy of natural resources with the NPS. Both of
36 these islands are affected by the presence of navigation channels that limit westward migration.
37 Placement of sand into these two areas would add sediment into the system and would allow the
38 littoral currents to move the sand onto the islands where the natural process of island building could
39 take place. The sand that could be used in this option may come from the same offshore borrow
40 area as Option A, the St. Bernard Shoals located about 45 miles south of the barrier islands and the
41 lower inland river sand described in Option B. The sand from the inland river sources would be from
42 the lower-most areas.

43 Options D and E involve environmental restoration of the islands consisting of shaping existing sand
44 into dunes on the beaches with planted vegetation and planting of maritime forests on the existing
45 islands where they were mostly destroyed by Hurricane Katrina. For Option D the dune would be
46 shaped from sand that would be removed from the surface between the constructed dune and the
47 edge of the vegetation north of the dune. The dune would have height of 2-feet with a 1v to 3h
48 slopes and a crest width of 6 feet. The dune would be continuous for the length of the gulf-side,
49 south beach. While not designed as a structural defense against storms, the dune would be used as

1 a platform to establish a line of sea oats that in turn would help in the natural process of creating
2 larger and more pronounced sand dunes. The dunes would build with time as wind driven deposits
3 of sand become trapped by the vegetation. For Option E, the dune would have height of 6-feet with a
4 1v to 3h slopes and a crest width of 6 feet. The sand required to construct a dune of this size would
5 be more than could be removed from the existing beach berm and would come from the same
6 offshore borrow area as the sand used in Option A. Placement of the sand would require moving the
7 sand from a hopper dredge to a staging area on the beach, then moving the sand to the area of
8 placement along the beach.

9 Option F involves environmental restoration of the sea grass beds that have historically existed on
10 the north side of the islands in the Mississippi Sound. Despite continual changes that occur, the
11 barrier islands remain to buffer the mainland from storms and provide habitat for the rich, diverse
12 wildlife residing within the area. The amount of acres of sea grasses to be planted at each island,
13 based on 50 percent of pre-Camille acreage, is as follows: Cat – 210 acres, Ship – 760 acres, Horn
14 – 2,650 acres, and Petit Bois – 780 acres. This option will involve only the planting of various types
15 of marine aquatic vegetation in selected areas around the islands. No actual construction activities
16 will take place.

17 Option G proposes to fill the Ship Island breach. The pre-Camille footprint of Ship Island was
18 obtained from historical records, and showed the area that was breached during Hurricane Camille
19 forming two separate islands. West and East Ship Island has two major historic sites that are in
20 danger from the continuing erosion of the barrier islands. Current studies by the Corps indicate that
21 restoring the two islands to a single island, pre-Camille condition may prevent the rapid erosion of
22 the beaches that is now occurring as well as helping to provide wave erosion on the mainland.
23 Estimates indicated that the restoration of Ship Island to a single land mass off the Mississippi coast
24 will involve approximately 21 million cubic yards of sand. Fort Massachusetts was originally built on
25 the western tip of Ship Island. The westward migration of sand along the southern shore and erosion
26 of the northern shore now has put the fort almost a mile from the western tip of the island, but
27 dangerously close to being in the Sound. Several emergency beach re-nourishments have taken
28 place over the last 35 years through use of operations and maintenance material from the federally
29 authorized Gulfport Harbor Navigation Project to protect the fort from wave action during winter
30 storms. At present, the NPS is again requesting that the Corps place sand along the shore near the
31 fort in conjunction with dredging operations at the Federal Gulfport Harbor navigation channel. This
32 emergency placement of sand is being repeated about every five to six years. The immediate
33 erosion problem will require re-nourishment of the beach adjacent to the fort similar to the past
34 protection projects. The problem of a long-term fix may be tied to closing the three mile wide breach
35 known as Camille Pass between West and East Ship Island. As well as the sand placement, the
36 plan would include sculpting the sand into beaches, dunes, swales, and marshes. Different types of
37 vegetation planting would also be included to restore habitat on the newly created land. The filling of
38 Camille Pass will also provide a designation of a Federal Beach that would be subject to long term
39 maintenance if needed.

40 Review of literature indicates that suitable sand can be obtained from St. Bernard Shoals which is
41 located about 45 miles south of Ship Island. This sand should be very high quality material and could
42 be used in the island reconstruction. If this offshore sand source is used, a basin would be dredged
43 near each of the islands to discharge the sand being transported from the borrow area. Using this
44 procedure, the hopper dredge could enter the basin and bottom dump the sand. This would be much
45 faster than pumping off the sand. Doing this would also allow the basin to be placed outside the
46 boundaries of the National Seashore. As the basin is filled, a suction dredge would be mobilized to
47 the site and using this type of the equipment, the sand could be moved to the area where the
48 material is needed to create additional land mass. As the sand is placed on the new land mass, it
49 would be sculpted into dunes and swales which would vary from sea level up to heights of 20 feet.

1 Another source of sand could be sand from inland river systems as discussed in Option B. Material
2 from these sites could easily be transported by barge down the river system for use as replacement
3 sand in the littoral system of the barrier islands. The offshore sand source and the sand from the
4 inland river systems sites provide sufficient sand for the project construction. The anticipated
5 amount of sand required for each island is as follows:

6 Cat Island – 14,600,000 cubic yards

7 Ship Island – 21,240,000 cubic yards

8 Horn Island – 21,240,000 cubic yards

9 Petit Bois Island – 9,300,000 cubic yards

10 **3.1.2 Real Estate Requirements**

11 Real Estate requirements for Line of Defense 1 will include a Permit from DOI/NPS to allow for
12 beach re-nourishment, dune construction and plantings to include submerged aquatic vegetation. It
13 will also be necessary to obtain a license from the Minerals Management Agency for mining of sand
14 from those offshore borrow areas in the outer continental shelf, and also to create the “dump basins”
15 needed at each island during construction. It is noted that the Engineering Appendix suggests the
16 use of “permitted disposal areas” for borrow and disposal activity. An assumption is made that some
17 type of permit will be required for borrow/disposal of materials in these areas. This will be
18 investigated further in the next phase, Pre-Construction, Engineering and Design.

19 **3.1.3 Utility/Facility Relocation**

20 There are no utility or facility relocations in any of the options for the offshore barrier islands.

21 **3.1.4 Existing Projects/Studies**

22 Several emergency beach re-nourishments have taken place over the last 35 years on Ship Island to
23 protect Fort Massachusetts from wave action during winter storms. This emergency placement of
24 sand is being repeated about every five to six years. Sand has come from dredging of the federally
25 authorized Gulfport Harbor Navigation Project. Other relevant projects and studies are found in the
26 main report at Section 1.6, History of the Investigation and Section 1.7, Prior and On-Going Studies,
27 Reports and Programs.

28 **3.1.5 Environmental Impacts**

29 None of the options described for the offshore barrier islands are expected to cause negative
30 impacts to the surrounding environment. See the Main Report, Chapter 6. Environmental Effects of
31 Plans and the Environmental Appendix, for a full discussion on environmental effects.

32 **3.1.6 Project Sponsor Responsibilities and Capabilities**

33 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
34 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
35 all alterations and relocations of facilities, structures and improvements determined by the
36 government to be necessary for construction of the Project.

37 Since the project will be constructed on lands in the Outer Continental Shelf, any new lands created
38 as a result of the project will be considered lands of the United States of America. Prior to

1 advertisement of any construction contract, the NFS shall furnish to the government an Authorization
2 for Entry for Construction (Exhibit “A” to the Real Estate Appendix) to all lands, easements and
3 rights-of-way, as necessary. The NFS will also furnish to the government evidence supporting their
4 legal authority to grant rights-of-way to such lands. The NFS shall comply with applicable provisions
5 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law
6 91-646, approved 2 January 1971, and amended by Title IV of the Surface Transportation Uniform
7 Relocation Assistance Act of 1987, Public Law 100-17, effective 2 April 1989, in acquiring real estate
8 interests for the Project, and inform all affected persons of applicable benefits, policies, and
9 procedures in connection with said Act(s). A form for the Assessment of the Non-Federal Sponsor’s
10 Capability to Acquire Real Estate is at Exhibit “B” to the Real Estate Appendix. The assessment will
11 be made during PED phase.

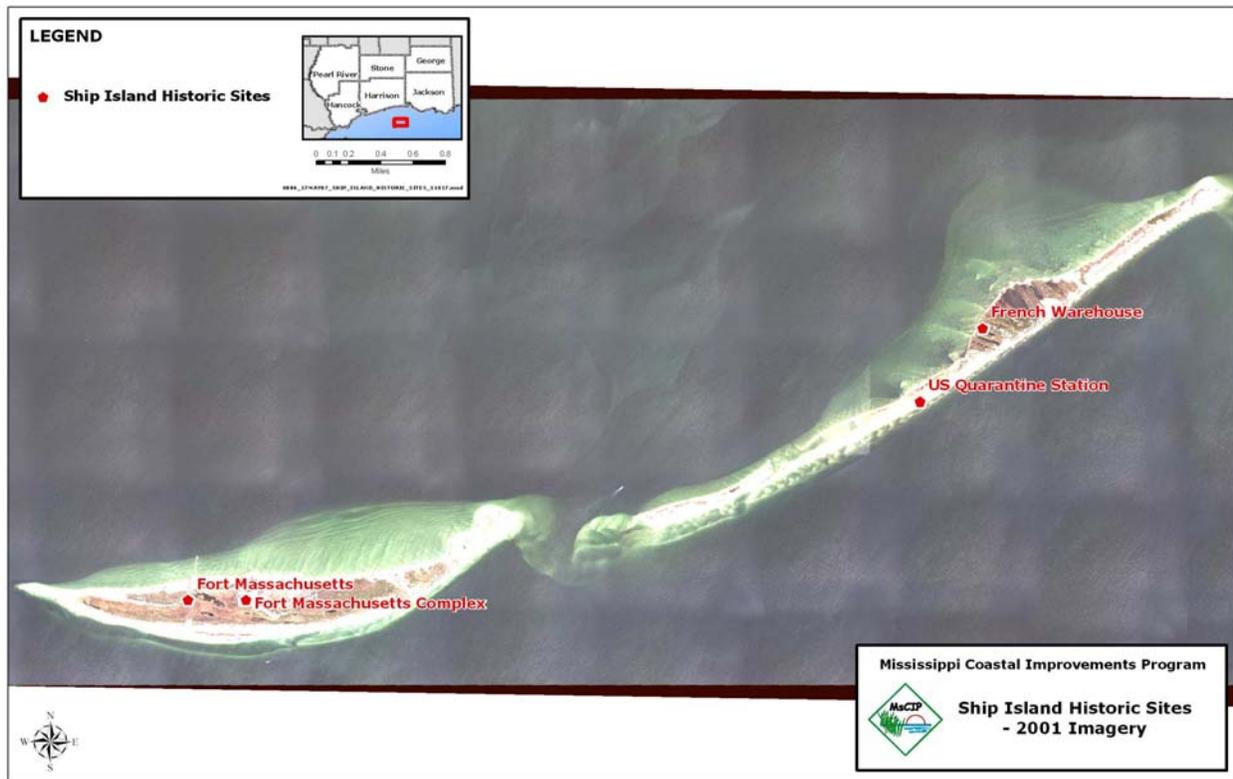
12 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
13 lands it provides and the value of the relocations that are required for the project. Generally, for the
14 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
15 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
16 non-federal sponsor provided for the project as required by the Government. The NFS cannot
17 receive credit for the value of any LER, including incidental costs, which were previously provided as
18 an item of cooperation for another Federal project, including projects that preceded enactment of
19 WRDA 1986.

20 **3.1.7 Government Owned Property**

21 All of Petit Bois, Horn, and Ship Islands and the western two thirds of Cat Island are within the
22 boundaries of the Gulf Islands National Seashore under jurisdiction of the NPS. In most cases, the
23 boundary extends one mile from the shore of the island. The remaining portion of Cat Island is in
24 private ownership held among multiple owners of record.

25 **3.1.8 Historical Significance**

26 The breach of Ship Island has created problems for the National Park Service due to the location of
27 two historically important sites. Fort Massachusetts is located on the northern shore of West Ship
28 and the French Warehouse is located on the northern shore of East Ship Island. Both of these sites
29 are endangered by on-going erosion of the shoreline with Mississippi Sound. Another site, known as
30 the Quarantine Station, has already been lost to erosion. These sites are shown in Figure 3.1.8-1.
31 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
32 on cultural and archaeological resources.



1

Figure 3.1.8-1.

Aerial photo of West and East Ship Island taken in 2001 showing historic sites

2

3

3.1.9 Mineral Rights

4

There are no known mineral activities within the scope of the proposed project.

5

3.1.10 Hazardous, Toxic, and Radioactive Waste (HTRW)

6

Due to the extent of the islands and lack of prior development, no preliminary assessment was performed to identify the possibility of hazardous waste on the sites. These studies will be conducted during the next phase of work. See Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

7

8

9

10

3.1.11 Public Law 91-646, Relocation Assistance Benefits

11

Not Applicable

12

3.1.12 Attitude of Property Owners

13

There are no known objections to the proposed project.

14

1 **3.1.13 Acquisition Schedule**

2 All permits must be obtained prior to advertisement for construction. This could be accomplished in
 3 90 - 120 days. An acquisition schedule will be made during PED and will be a joint effort of the NFS,
 4 the project manager and Real Estate.

5 **3.1.14 Estates for Proposed Project**

6 No estates are required for the project. All work will be done by permit from the appropriate agency.

7 **3.1.15 Real Estate Estimate**

8 The real estate cost estimate at Table 3.1.15-1 includes a cost for Federal and non-Federal
 9 administrative costs. Administrative costs are those costs incurred for verifying ownership of lands,
 10 certification of those lands required for project purposes, legal opinions, analysis or other
 11 requirements that may be necessary, during PED. With the exception of a portion of Cat Island that
 12 is privately owned, the project will be constructed on offshore barrier islands owned by the Federal
 13 Government, so no additional land costs are anticipated. That portion of Cat Island that is privately
 14 owned will not be impacted by the project. No cost is included for upland borrow sites as sites have
 15 been identified where it will be advantageous to remove fill to make room for future disposal. All
 16 costs are for obtaining permits. If further real estate requirements are identified during PED or if
 17 there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared. A
 18 25% contingency is applied to the current estimate. Due to the ownership of the islands, the same
 19 administrative cost is projected for any individual option or combinations of options.

20
 21

**Table 3.1.15-1.
 Offshore Barrier Islands Estimate**

a. Lands and Improvements/Permits				0
			Subtotal	0
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs				0
e. Administrative Cost				15,000
		Relocation	Acquisition	Total
Federal		0	7,500	7,500
Non-Federal		0	7,500	7,500
		0	15,000	15,000
Subtotal				15,000
Contingencies (25%)				3,750
		Totals		18,750
		Rounded		19,000

22

1 **3.1.16 Summary of Potential Real Estate Issues**

2 The requirement for using borrow material from the "permitted" sites will be further investigated
 3 during PED. Typically if borrow sites are required, this would be considered as part of the LERRD
 4 requirements. Real estate would provide an analysis during PED to compare the cost of acquiring an
 5 upland borrow site with the cost of using a commercial borrow site and make a determination which
 6 method is most cost effective. See Section 2.8 Borrow Areas on page 5.

7 Should an upland borrow site become a necessary real estate acquisition requirement, valuation of
 8 lands will be performed. Land costs associated with an upland site and administrative costs will be
 9 added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED
 10 or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be
 11 prepared and provided to CESAD-PDS-R for review and approval.

12 Requirements for long term O&M and any associated real estate interests will be identified during
 13 PED.

14 **3.1.17 Chart of Accounts**

15 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 16 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 17 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 18 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 19 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 20 Table 3.1.17-1 shows the CWBS for real estate activities.

21 **Table 3.1.17-1.**
 22 **Chart of Accounts - Offshore Barrier Islands**

01B	Lands and Damages / Permits	Federal	Non Federal	Total
01B40	Acquisition/Review of NFS	7,500		7,500
01B20	Acquisition by NFS		7,500	7,500
01BX	Contingencies (25%)	<u>1,875</u>	<u>1,875</u>	<u>3,750</u>
	Subtotal	9,375	9,375	18,750
01F	PL 91-646 Assistance			
01F20	By NFS			
01FX	Contingencies (25%)			
	Subtotal			
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS			
01R2B	PL91-646 Relocation Payment by NFS			
01R2D	Review of NFS			
01RX	Contingencies (25%)			
	Subtotal			
	Totals	9,375	9,375	18,750
	Rounded			19,000

3.2 Line of Defense 2 - Beach/Dune Construction

The Mississippi Mainland shoreline extends approximately 68 miles, and is divided into three coastal counties: Jackson, Harrison, and Hancock Counties, Figure 3.2-1. The Mississippi coast beaches are a valuable asset and provide vital environmental, cultural, recreational, and economic resources; they assist in maintaining the health and productivity of adjacent waters and provide for diverse cultural and recreational activities.



Figure 3.2-1.
Mississippi Beaches

Essentially all the beaches along coastal Mississippi are man-made. Harrison County has the most beach-front with 26-miles extending from Biloxi Bay to St. Louis Bay. Hancock County has several miles of beach and Jackson County only a short length. In total, the beaches extend along less than half of the Mississippi coastline. Most of the dunes that previously existed along these beaches were destroyed by Katrina and much of the beach was damaged. Reconstruction of the dunes, where beaches exist, will provide reduction of damaging wave action from smaller storms. A project to restore the beaches in Harrison County has been funded and is underway. Other projects to construct dunes to a height of 5-feet in Harrison County and to 2-feet in Hancock and Jackson County have been proposed as interim projects, have been designed and are awaiting funding.

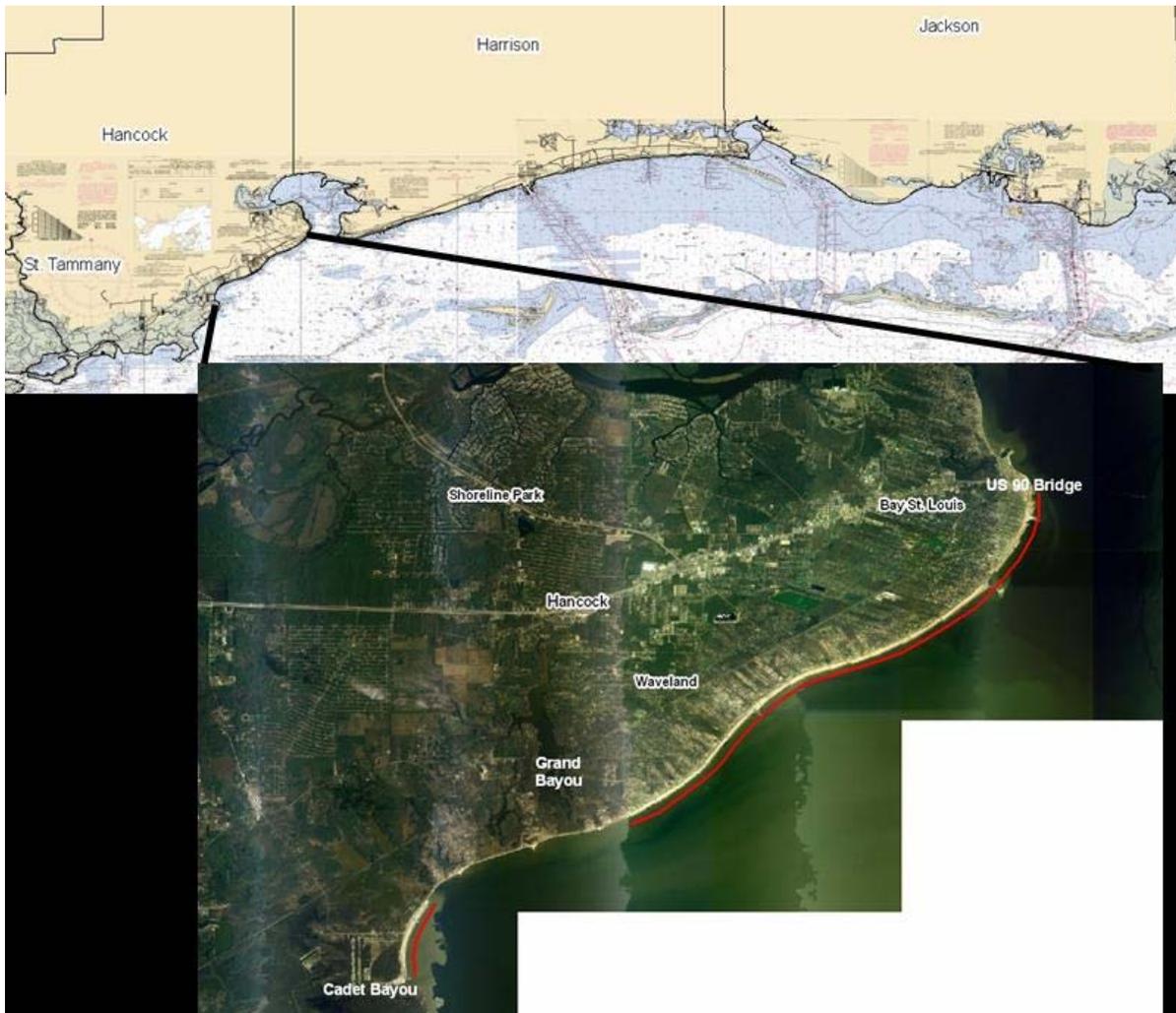
Dunes are consistent with a more natural appearing defense than a hard structure. Construction of dunes will include adding vegetation and sand fencing to help stabilize the dunes. The dunes would be a sacrificial barrier, but could also be important by providing additional protection for the toe of the existing roadway, especially in an elevated seawall or roadway configuration as LOD-3. Placement of the dunes directly against a raised seawall or roadway would also serve aesthetically to mask the appearance of a structural barrier.

1 **3.2.1 Hancock County Beaches**

2 **3.2.1.1 Project Description**

3 The purpose of this project is to provide hurricane storm damage reduction and restoration of the
4 shoreline to six miles of public beaches along the Hancock County, MS coastline which was
5 impacted by tidal flooding during Hurricane Katrina in August 2005.

6 Hancock County is the western-most coastal county in Mississippi and is located approximately
7 95 miles west of Mobile, Alabama and approximately 40-miles east of New Orleans, Louisiana.
8 Hancock County is bordered to the east by Harrison County, MS, and to the west by the Mississippi-
9 Louisiana state line. The County consists of two municipalities: Bay St. Louis and Waveland. The
10 beaches along the Hancock County shoreline, shown in Figure 3.2.1.1-1, are separated in two
11 sections: the reach extending approximately 6-miles from Grand Bayou in Waveland to the US 90
12 bridge in Bay St Louis, and the reach extending northeastward approximately 1-mile from Cadet
13 Bayou.



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**Figure 3.2.1.1-1.
Hancock County Beaches**

1 The Hancock County shoreline south of the US 90 bridge is protected by an 8 mile long seawall
 2 extending from the US 90 bridge to Cadet Bayou. The Hancock County beaches were constructed
 3 for shore protection; however, the area provides added outdoor recreation and environmental
 4 benefits. The project was a local project constructed by Hancock County. The area experiences
 5 wave and wind erosion and is therefore periodically maintained or re-nourished with sand. The
 6 elevation of the seawall ranges between +3.8 and +5.0 feet National Geodetic Vertical Datum
 7 (NGVD). The seawall fronting the downtown Bay St Louis beaches is significantly higher. A sand
 8 beach was constructed along approximately 6 miles of the seawall in 1967 as part of the emergency
 9 repair and protection following Hurricane Betsy (September 1965). The approximately 1 mile section
 10 of beach fronting the downtown Bay St Louis area was constructed during the construction of the US
 11 90 Bridge. The 1 mile section extending from Bayou Cadet was constructed in 2005.

12 The Hancock County beaches were re-nourished in 1994 with material from a borrow area located
 13 approximately 1000 feet offshore. The beaches fronting downtown Bay St Louis, the northeast
 14 section of the beaches, were again re-nourished in 1996 with material from a borrow area located on
 15 the north side of the US 90 bridge. The existing Hancock County beach profile consists of a berm
 16 only feature which extends approximately 150 ft from the seawall to the Mississippi Sound. The
 17 berm elevation varies from approximately 5.0 ft at the seawall to 3.5 ft at the slope break to the
 18 Mississippi Sound. The downtown Bay St Louis area beaches include a bluff with an elevation of
 19 about +12 feet.

20 The project includes evaluation of eleven options in Hancock County as listed in Table 3.2.1.1-1.

21 **Table 3.2.1.1-1.**
 22 **Hancock County LOD2 Options**

Option	Description						
	Dune			Berm		Plantings	Sand Fencing
	Elevation (ft)	Width (ft)	Side Slope	Width (ft)			
A*	10	40	1:3	80			
B*	8	50	1:3	80			
C*	10	20	1:3	100			
D*	8	30	1:3	80			
E*	10	40	1:3	80	X	X	
F*	8	50	1:3	80	X	X	
G*	10	20	1:3	100	X	X	
H*	8	30	1:3	100	X	X	
I**	10	55	1:3	Extend to accommodate		X	
J**	10	55	1:3	Extend to accommodate	X	X	
K**				Add 2ft, 60 ft width	X	X	

23 * Options are in conjunction with the LOD3 Seawall

24 ** Options are without a seawall

25
 26 The future with-project evaluations for Hancock County included 11 options which were evaluated
 27 for environmental restoration and enhancement of environmental habitat and hurricane storm
 28 damage reduction. Options A through D include four design cross-sections with varying dune and
 29 berm configurations. The berm and dune options would be constructed adjacent to the seawall along
 30 the length of the beach. For environmental and economic purposes, Options E through H further
 31 evaluated the four design cross-sections to include sand fencing and plantings on the dune to

1 provide environmental habitat and to reduce sand transport due to the strong winds, which
 2 frequently occur during storms. The wider dune features would provide for a larger spatial extent
 3 with which to create environmental habitat. Options A through H were evaluated in conjunction with
 4 the Line of Defense 3 seawall. Typical cross sections for Options A through D are shown in Figure
 5 3.2.1.1-2. The same cross sections were used for Options E through H. For Options E through H,
 6 sea oats would be planted on the seaward dune face in an 18 by 18 inch grid pattern, with a total of
 7 three rows of plants starting at the seaward toe of the dune.

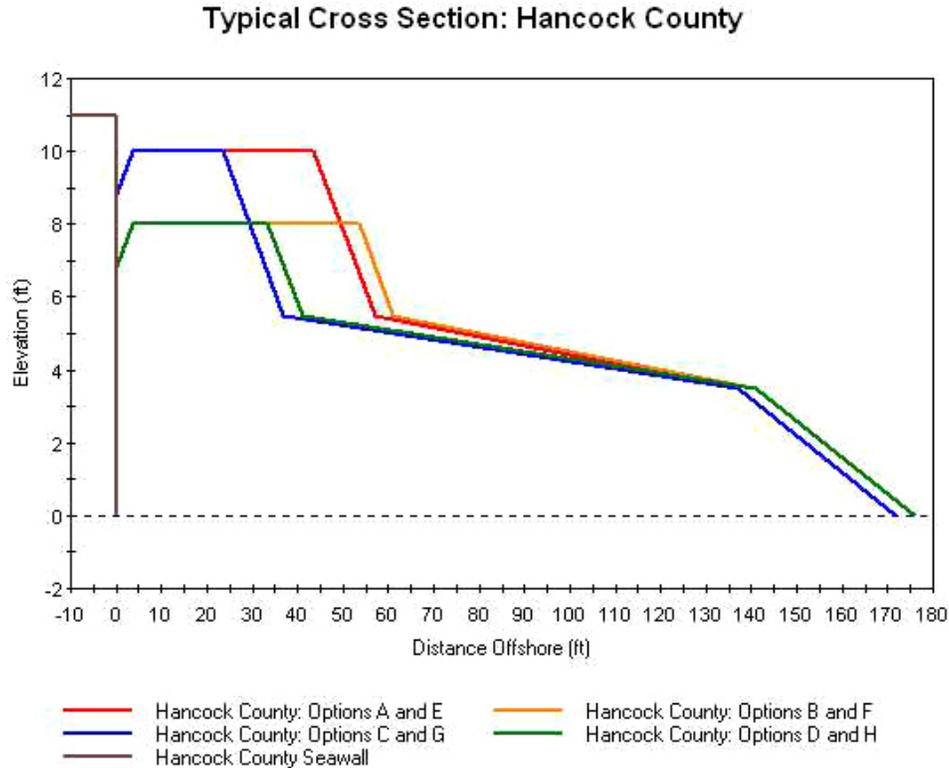
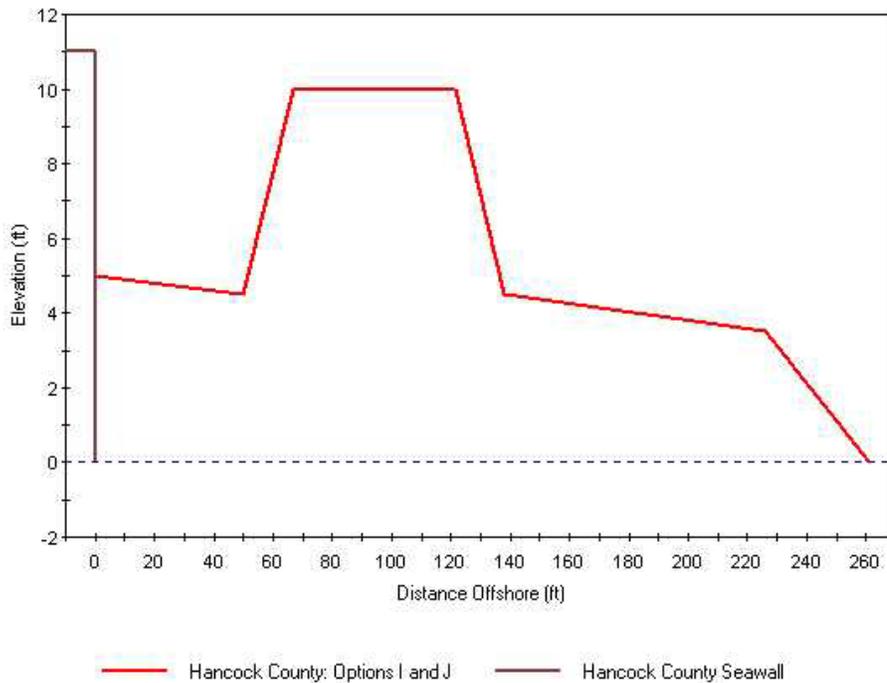


Figure 3.2.1.1-2.
Typical Cross Sections, Hancock County Options A-D and E-H

12 Options I and J are comparative with-project options, for future evaluation, consisting of a design
 13 cross-section which includes a dune and berm constructed as a stand alone project which does not
 14 incorporate the Line of Defense 3 seawall. Option I consists of a dune feature constructed
 15 approximately 50 ft seaward of the seawall. The berm width would be extended to accommodate the
 16 placement of the dune feature. Sand fencing would be placed on the dunes to reduce sand transport
 17 due to the strong winds which frequently occur during storms. The cross section for Option J is the
 18 same as Option I; however the dune would be planted to provide for additional environmental
 19 habitat. For Option J, sea oats would be planted on both the landward and seaward dune face in an
 20 18 by 18 inch grid pattern, with a total of three rows of plants starting at the landward and seaward
 21 toes of the dune. The dunes will require initial and continued maintenance of vegetation and sand
 22 fencing. A typical cross section for Options I and J is shown in Figure 3.2.1.1-3.

Typical Cross Section: Hancock County

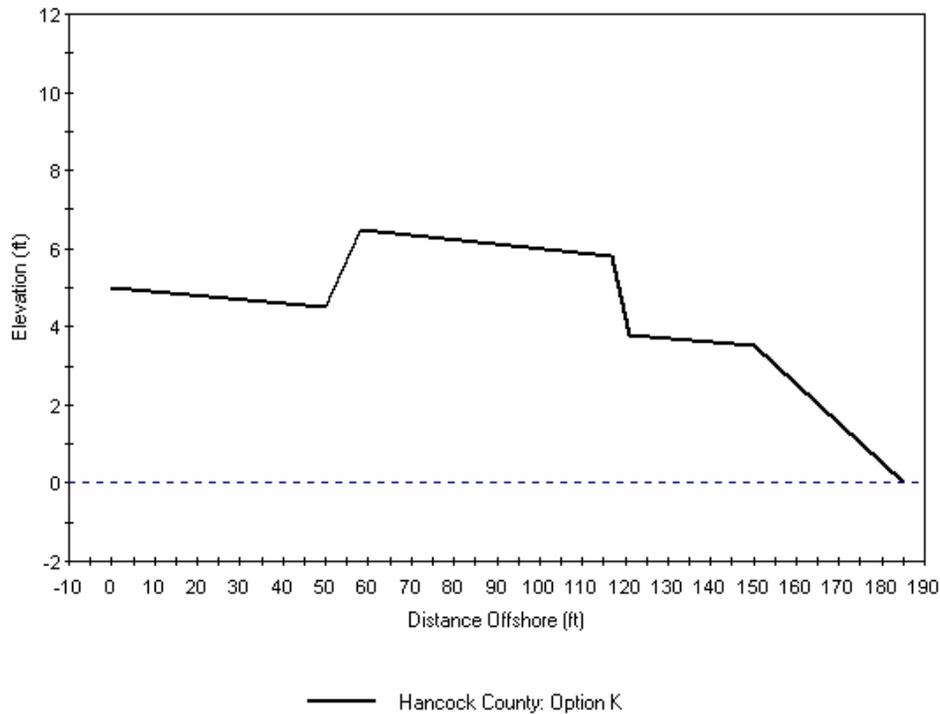


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Figure 3.2.1.1-3.
Typical Cross Section, Hancock County Comparative Dune Options I and J

Option K is also an option for future evaluation which consists of an elevated berm section constructed primarily for the creation of environmental habitat. Option K would be constructed as a stand alone option which does not incorporate the Line of Defense 3 seawall. The elevated berm section would be constructed approximately 50 ft seaward of the existing seawall to an elevation 2 ft above the existing berm with a width of approximately 60 ft. The berm width would not be extended to accommodate the placement of the elevated berm feature. The new feature would be vegetated and sand fencing would be placed to create environmental habitat and to reduce sand transport due to the strong winds which frequently occur during storms. For Option K, sea oats would be planted in a 30 by 30 inch grid pattern over the entire elevated berm area. The new feature will require initial and continued maintenance of vegetation and sand fencing. A typical cross section for Option K is shown in Figure 3.2.1.1-4.

Typical Cross Section: Hancock County



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Figure 3.2.1.1-4.
Typical Cross Section, Hancock County Option K

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3.2.1.2 Real Estate Requirements

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Real Estate requirements for Line of Defense 2 for Hancock County include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), the right to construct a dune atop the existing beach along with a fence and dune vegetation. Hancock County Tax Maps show parcels under private ownership that are seaward of Beach Boulevard and the seawall. However, under statutory authority, the State claims ownership of all lands seaward of the seawall, and an assumption is made that no further easements will be needed on those lands. An assumption is made that a real estate interest would have been obtained to allow for the original construction of the beaches and subsequent re-nourishment activity. This will be confirmed upon further analysis during PED.

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The recommended plan proposes to use material from an inventory of upland borrow sites to construct the dune. See Section 2.8 Borrow Areas on page 5. A specific site has not been identified or confirmed for use at time of this report. Typically if borrow sites are required, this would be considered a part of the LERRD requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an upland borrow site with the cost of using a commercial borrow site and make a determination which method is most cost effective. Access to the project will be along public roadways and staging is expected to be on sponsor owned lands if required. Addendum C of the Economics Appendix discusses the availability of public parking and access for all three counties. No public access issues have been identified. However, if additional public beach access or parking is required, the sponsor will be responsible for acquiring those real estate interests. Acquisition of additional interests for access and parking are considered as requirements for participation in a Federal project and are not considered as creditable items toward project cost.

1 **3.2.1.3 Utility/Facility Relocation**

2 Some temporary rework of the storm drainage system may be necessary during construction of the
3 project. See Chapter 2 Section 2.10 for more detailed discussion.

4 **3.2.1.4 Existing Projects/Studies**

5 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
6 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

7 **3.2.1.5 Environmental Impacts**

8 None of the options described for LOD2 are expected to cause negative impacts to the surrounding
9 environment. See the Main Report, Chapter 6. Environmental Effects of Plans and the
10 Environmental Appendix, for a full discussion on environmental effects.

11 **3.2.1.6 Project Sponsor Responsibilities and Capabilities**

12 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
13 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
14 all alterations and relocations of facilities, structures and improvements determined by the
15 government to be necessary for construction of the Project.

16 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
17 the United States Government. Prior to advertisement of any construction contract, the NFS shall
18 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
19 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
20 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
21 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
22 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
23 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
24 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
25 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
26 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
27 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

28 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
29 lands it provides and the value of the relocations that are required for the project. Generally, for the
30 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
31 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
32 non-federal sponsor provided for the project as required by the Government. The NFS cannot
33 receive credit for the value of any LER, including incidental costs, which were previously provided as
34 an item of cooperation for another Federal project, including projects that preceded enactment of
35 WRDA 1986.

36 **3.2.1.7 Government Owned Property**

37 There are no known Government owned lands within the proposed project.

38 **3.2.1.8 Historical Significance**

39 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
40 on cultural and archaeological resources.

1 **3.2.1.9 Mineral Rights**

2 There are no known mineral activities within the scope of the proposed project.

3 **3.2.1.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

4 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
5 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
6 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

7 **3.2.1.11 Public Law 91-646, Relocation Assistance Benefits**

8 Not Applicable.

9 **3.2.1.12 Attitude of Property Owners**

10 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
11 However, numerous public meetings have been held at different locations throughout the study area
12 to inform stakeholders and property owners about the study and the protective measures under
13 consideration for the Mississippi coastal area. A number of local newspapers have published articles
14 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
15 may occur as a result of the project. Some of these articles can be found on web sites. While many
16 of the locals may welcome the benefits of the proposed project, there are some who oppose the
17 project.

18 **3.2.1.13 Acquisition Schedule**

19 An assumption is made that the sponsor holds an interest in all lands required for the project.
20 Certification of lands acquired/owned by the sponsor will be necessary prior to advertisement for
21 construction. This can be accomplished within 30 days. However, if a borrow area or temporary work
22 area easements become a requirement, 6-12 months should be allowed for easement acquisition of
23 the sites. An acquisition schedule will be made during PED and will be a joint effort of the NFS, the
24 project manager and Real Estate.

25 **3.2.1.14 Estates for Proposed Project**

26 An assumption is made that no easements will be required on lands seaward of the seawall. Should
27 a borrow site be required, the Borrow Easement should be used. The Temporary Work Area
28 Easement will be used for any staging or temporary work areas if required. The estates
29 recommended are standard estates.

30 **BORROW EASEMENT.**

31 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
32 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
33 _____ and _____); subject, however, to existing easements for public roads and highways, public
34 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
35 such rights and privileges in said land as may be used without interfering with or abridging the rights
36 and easement hereby acquired.

37 **TEMPORARY WORK AREA EASEMENT.**

38 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
39 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,

1 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
 2 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
 3 backfill, move, store and remove equipment and supplies, and erect and remove temporary
 4 structures on the land and to perform any other work necessary and incident to the construction of
 5 the _____ Project, together with the right to trim, cut, fell and remove there from
 6 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 7 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 8 rights and privileges as may be used without interfering with or abridging the rights and easement
 9 hereby acquired; subject, however, to existing easements for public roads and highways, public
 10 utilities, railroads and pipelines.

11 **3.2.1.15 Real Estate Estimate**

12 The real estate cost estimate at Table 3.2.1.15-1 includes a cost for Federal and non-Federal
 13 administrative costs. Administrative costs are those costs incurred for verifying ownership of lands,
 14 certification of those lands required for project purposes, legal opinions, analysis or other
 15 requirements that may be necessary, during PED. The State claims ownership of those lands
 16 seaward of the seawall, so no additional land costs are anticipated. No cost is included for an upland
 17 borrow site. The requirement, if any, for an upland borrow site will be identified during PED. If further
 18 real estate requirements are identified during PED or if there is a significant increase in cost, a
 19 supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to the
 20 current estimate. The same administrative cost is projected for any individual option or combinations
 21 of options.

22 **Table 3.2.1.15-1.**
 23 **LOD2 Hancock County Estimate**

a. Lands and Improvements/Permits				0
			Subtotal	0
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs				0
e. Administrative Cost				15,000
		Relocation	Acquisition	Total
	Federal	0	7,500	7,500
	Non-Federal	0	7,500	7,500
		0	15,000	15,000
Subtotal				15,000
Contingencies (25%)				3,750
		Totals		18,750
		Rounded		19,000

24

3.2.1.16 Summary of Potential Real Estate Issues

The requirement for borrow areas or temporary work areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements. Typically if borrow sites are required, Real estate would provide an analysis during PED to compare the cost of acquiring an upland borrow site with the cost of using a commercial borrow site and make a determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

Should borrow areas or temporary work areas become a necessary real estate acquisition requirement, valuation of lands will be performed. Land costs associated with these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared.

Any requirements for relocation contracts pertaining to facilities/utilities will be identified and completed during PED.

Specific requirements for long term O&M and any associated real estate interests will be identified during PED.

Should condemnation of any required real estate interest be necessary, it is the responsibility of the NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate Acquisition Capability. However, if the real estate interest is one that the NFS does not have authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

3.2.1.17 Chart of Accounts

The cost estimate for all Federal and non-Federal real estate activities necessary for implementation of the project after completion of the feasibility study for land acquisition, construction, LERRD, and other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate cost estimate is then incorporated into the Total Current Working Estimate utilizing the Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at Table 3.2.1.17-1 shows the CWBS for real estate activities.

**Table 3.2.1.17-1.
Chart of Accounts - LOD2 Hancock County**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages / Permits			
01B40	Acquisition/Review of NFS	7,500		7,500
01B20	Acquisition by NFS		7,500	7,500
01BX	Contingencies (25%)	<u>1,875</u>	<u>1,875</u>	<u>3,750</u>
	Subtotal	9,375	9,375	18,750
01F	PL 91-646 Assistance			
01F20	By NFS			
01FX	Contingencies (25%)			
	Subtotal			

01A	Project Planning	Federal	Non-Federal	Totals
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS			
01R2	PL91-646 Relocation Payment by			
B	NFS			
01R2				
D	Review of NFS			
01RX	Contingencies (25%)			
	Subtotal			
	Totals	9,375	9,375	18,750
	Rounded			19,000

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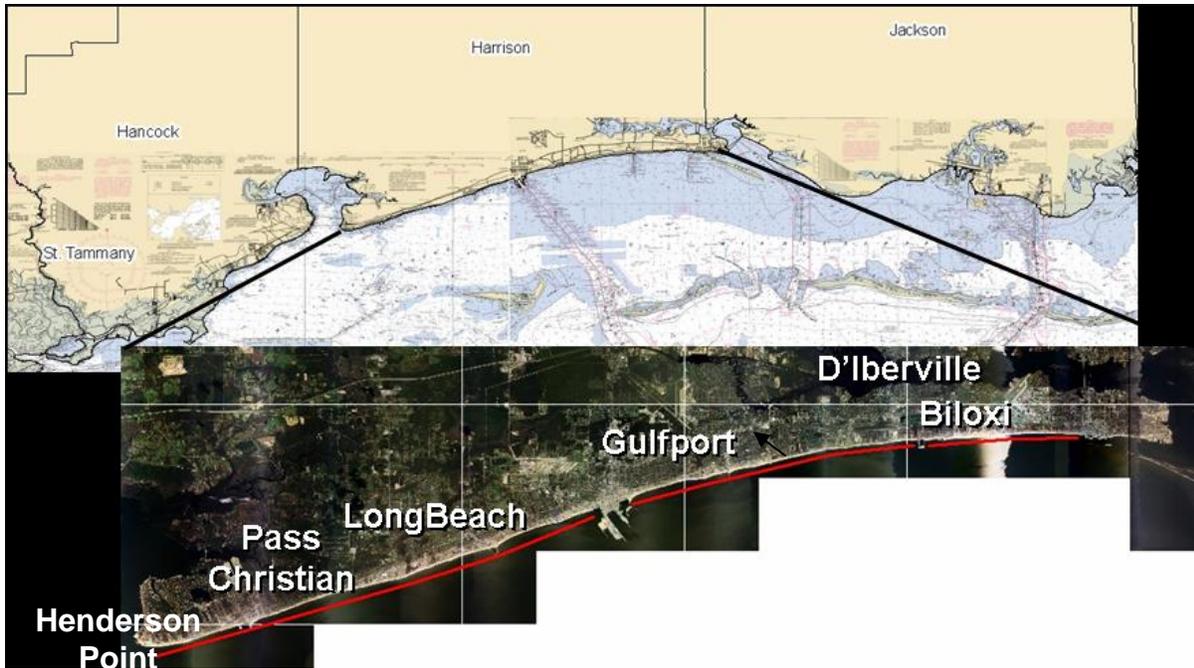
2 **3.2.2 Harrison County Beaches**

3 **3.2.2.1 Project Description**

4 The purpose of this project is to provide hurricane storm damage reduction and restoration of the
5 shoreline to 26 miles of public beaches along Harrison County, MS coastline which was impacted by
6 tidal flooding during Hurricane Katrina in August 2005.

7 The Mississippi mainland shoreline is divided into three coastal counties: Jackson, Harrison, and
8 Hancock Counties. Harrison County, extends approximately 26-miles, has the largest population,
9 and the greatest number of municipalities. It is bordered on the east by industrialized Jackson
10 County, on the west by Hancock County and the John C. Stennis Space Center and to the north by
11 primarily rural Stone County. The County consists of five municipalities: Biloxi, D'Iberville, Gulfport,
12 Long Beach, and Pass Christian. The Harrison County Federal Shore Protection Project shown in
13 Figure 3.2.2.1-1 extends approximately 26-miles from Biloxi on the east to Henderson Point on the
14 west.

15 As a result of the 1915 hurricane which destroyed half of U.S. 90, a seawall was constructed to
16 protect the roadway and beach front property. After the hurricane in 1947 and due to ongoing loss of
17 sediment, the Harrison County, Mississippi Federal Beach Erosion Control Project was constructed
18 in 1952 under the Section 2 authority of the River and Harbor Act .The project was constructed to
19 protect the seawall and US 90, which provides an evacuation route for residents. The non-federal
20 sponsor was Harrison County.



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Figure 3.2.2.1-1. Project Location, Harrison County Beaches

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The authorized Harrison County project provides for a beach profile consisting of a berm only feature which extends approximately 265 ft from the seawall to mean sea level (MSL). The berm elevation varies from an elevation of approximately 7.2 ft (NAVD 88) at the seawall to 3.5 ft at the slope break to the Mississippi Sound. Storm water culverts pass beneath US 90 to the shoreline to drain sections of Biloxi, Long Beach, and Pass Christian. The Harrison County beaches were last re-nourished in 2001, which placed approximately 1.1 million CY of beach quality sand obtained from borrows sites located about 1,500 ft offshore of the Harrison County shoreline. During Hurricane Katrina on 29 August 2005, the project experienced erosional damage due to wind driven waves, debris scour, storm surge and subsequent return flow after the hurricane.

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12 The project includes the evaluation of eleven options in Harrison County as listed in Table 3.2.2.1-1.

**Table 3.2.2.1-1.
Harrison County LOD2 Options**

Option	Description					
	Dune			Berm	Sand	
	Elevation (ft)	Width (ft)	Side Slope	Width (ft)	Plantings	Fencing
A*	15	35	1:3	160		
B*	13	45	1:3	160		
C*	15	25	1:3	170		
D*	13	15	1:3	160		
E*	15	35	1:3	160	X	X
F*	13	45	1:3	80	X	X
G*	15	25	1:3	170	X	X
H*	13	15	1:3	160	X	X
I**	15	55	1:3	Extend to accommodate		X
J**	15	55	1:3	Extend to accommodate	X	X
K**				Add 2ft, 60 ft width	X	X

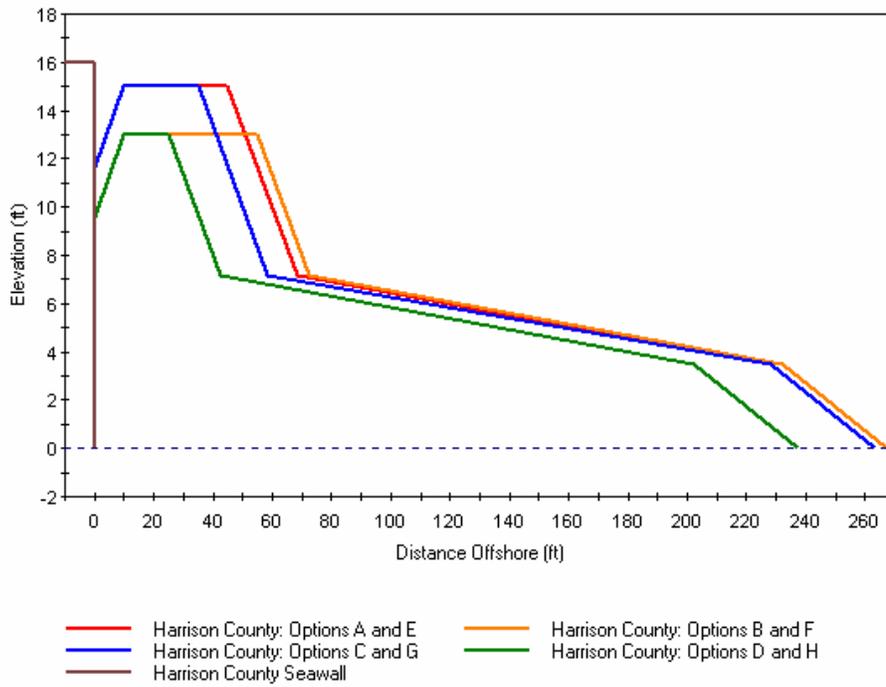
* Options are in conjunction with the LOD3 Seawall

** Options are without a seawall

The future with-project evaluations for Harrison County included 11 options which were evaluated for environmental restoration and enhancement of environmental habitat and for hurricane and storm damage reduction. Options A through D included four design cross-sections with varying dune and berm configurations. The berm and dune options would be constructed adjacent to the seawall along the length of the beach. For environmental and economic purposes, Options E through H further evaluated the four design cross-sections to include sand fencing and plantings on the dune to provide environmental habitat and to reduce sand transport due to the strong winds, which frequently occur during storms. The wider dune features would provide for a larger spatial extent with which to create environmental habitat. Options A through H were evaluated in conjunction with the Line of Defense 3 seawall. The dunes will be constructed to accommodate the approximately 10 ft wide boardwalk which extends along most of the Harrison County seawall. Typical cross sections for Options A through D are shown in Figure 3.2.2.1-2. The same cross sections were used for Options E through H. For Options E through H, sea oats would be planted on the seaward dune face in an 18 by 18 inch grid pattern, with a total of three rows of plants starting at the seaward toe of the dune.

Options I and J are comparative with-project options, for future evaluation, consisting of a design cross-section which includes a dune and berm constructed as a stand alone project which does not incorporate the Line of Defense 3 seawall. Option I consists of a dune feature constructed approximately 50 ft seaward of the seawall at an elevation of 15 ft (NAVD 88), with a crest width of 55 ft, and a dune slope of 1:3. The berm width would be extended to accommodate the placement of the dune feature. Sand fencing would be placed on the dunes to reduce sand transport due to the strong winds which frequently occur during storms. The cross section for Option J is the same as Option I; however the dune would be planted to provide for additional environmental habitat. For Option J, sea oats would be planted on both the landward and seaward dune face in an 18 by 18 inch grid pattern, with a total of three rows of plants starting at the landward and seaward toes of the dune. The dunes will require initial and continued maintenance of vegetation and sand fencing. A typical cross section for Options I and J is shown in Figure 3.2.2.1-3.

Typical Cross Section: Harrison County



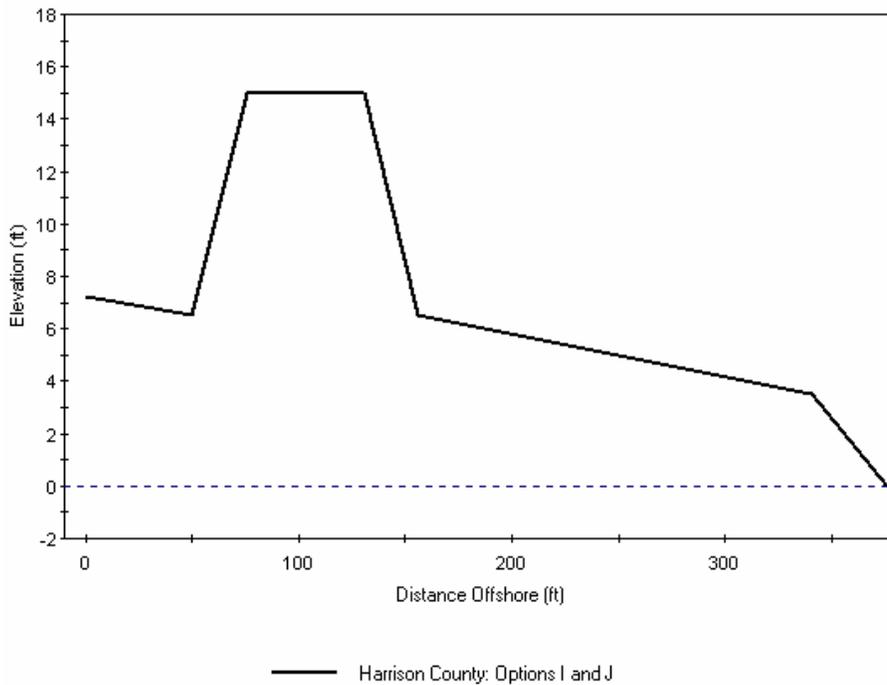
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Figure 3.2.2.1-2.
Typical Cross Sections, Harrison County Options A-D and E-H

Typical Cross Section: Harrison County



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Figure 3.2.3.1-3.
Typical Cross Section, Harrison County Comparative Dune Options I and J

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Option K is also an option for future evaluation which consists of an elevated berm section constructed primarily for the creation of environmental habitat. Option K would be constructed as a stand alone option which does not incorporate the Line of Defense 3 seawall. The elevated berm section would be constructed approximately 50 ft seaward of the existing seawall to an elevation 2 ft above the existing berm with a width of approximately 60 ft. The berm width would not be extended to accommodate the placement of the elevated berm feature. The new feature would be vegetated and sand fencing would be placed to create environmental habitat and to reduce sand transport due to the strong winds which frequently occur during storms. For Option K, sea oats would be planted in a 30 by 30 inch grid pattern over the entire elevated berm area. The new feature will require initial and continued maintenance of vegetation and sand fencing. A typical cross section for Option K is shown in Figure 3.2.2.1-4.

Typical Cross Section: Harrison County

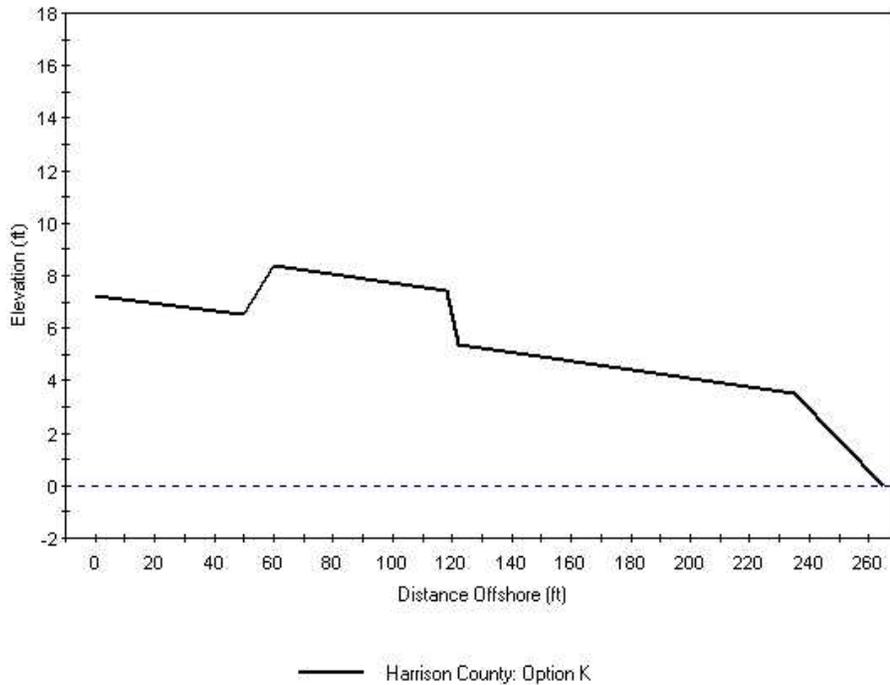


Figure 3.2.2.1-4.
Typical Cross Section, Harrison County Option K

3.2.2.2 Real Estate Requirements

Real Estate requirements for Line of Defense 2 for Harrison County include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), the right to construct a dune atop the existing beach along with a fence and dune vegetation. Harrison County Tax Maps show parcels under private ownership that are seaward of Beach Boulevard and the seawall. However, the State claims ownership of all lands seaward of the seawall, and an assumption is made that no further easements will be needed on those lands. An assumption is made that a real estate interest would have been obtained to allow for the original construction of the beaches and subsequent re-nourishment activity. This will be confirmed upon further analysis during PED. The sand used for project construction is expected to come from established off shore sources within one mile of the work area. Appropriate permitting will be required to borrow from the off shore sites.

Access to the project will be along public roadways and staging is expected to be on sponsor owned lands if required. Addendum C of the Economics Appendix discusses the availability of public parking and access for all three counties. No public access issues have been identified. However, if additional public beach access or parking is required, the sponsor will be responsible for acquiring those real estate interests. Acquisition of additional interests for access and parking are considered as requirements for participation in a Federal project and are not considered as creditable items toward project cost.

3.2.2.3 Utility/Facility Relocation

There are no known utility or facility relocations in any of the options for the berm and dune construction.

1 **3.2.2.4 Existing Projects/Studies**

2 The Harrison County Shore Protection Project was completed in June 1952 and provided for the
3 repair of the existing 24 mile long Harrison County seawall and its protection by the construction of a
4 beach from Biloxi Lighthouse to Henderson point near Pass Christian. The beach has been
5 maintained by Harrison County since then. During PED a determination will be made of what interest
6 was acquired for the project. Other relevant projects and studies are found in the main report at
7 Section 1.6, History of the Investigation and Section 1.7, Prior and On-Going Studies, Reports and
8 Programs.

9 **3.2.2.5 Environmental Impacts**

10 None of the options described for LOD2 are expected to cause negative impacts to the surrounding
11 environment. See the Main Report, Chapter 6. Environmental Effects of Plans and the
12 Environmental Appendix, for a full discussion on environmental effects.

13 **3.2.2.6 Project Sponsor Responsibilities and Capabilities**

14 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
15 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
16 all alterations and relocations of facilities, structures and improvements determined by the
17 government to be necessary for construction of the Project.

18 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
19 the United States Government. Prior to advertisement of any construction contract, the NFS shall
20 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
21 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
22 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
23 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
24 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
25 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
26 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
27 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
28 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
29 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

30 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
31 lands it provides and the value of the relocations that are required for the project. Generally, for the
32 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
33 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
34 non-federal sponsor provided for the project as required by the Government. The NFS cannot
35 receive credit for the value of any LER, including incidental costs, which were previously provided as
36 an item of cooperation for another Federal project, including projects that preceded enactment of
37 WRDA 1986.

38 **3.2.2.7 Government Owned Property**

39 There are no known Government owned lands within the proposed project.

40 **3.2.2.8 Historical Significance**

41 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
42 on cultural and archaeological resources.

1 **3.2.2.9 Mineral Rights**

2 There are no known mineral activities within the scope of the proposed project.

3 **3.2.2.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

4 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
5 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
6 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

7 **3.2.2.11 Public Law 91-646, Relocation Assistance Benefits**

8 Not Applicable

9 **3.2.2.12 Attitude of Property Owners**

10 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
11 However, numerous public meetings have been held at different locations throughout the study area
12 to inform stakeholders and property owners about the study and the protective measures under
13 consideration for the Mississippi coastal area. A number of local newspapers have published articles
14 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
15 may occur as a result of the project. Some of these articles can be found on web sites. While many
16 of the locals may welcome the benefits of the proposed project, there are some who oppose the
17 project.

18 **3.2.2.13 Acquisition Schedule**

19 An assumption is made that the sponsor holds an interest in all lands required for the project.
20 Certification of lands acquired/owned by the sponsor will be necessary prior to advertisement for
21 construction. This can be accomplished within 30 days. However, if temporary work area easements
22 become a requirement, 6-12 months should be allowed for an easement acquisition of the sites. An
23 acquisition schedule will be made during PED and will be a joint effort of the NFS, the project
24 manager and Real Estate.

25 **3.2.2.14 Estates for Proposed Project**

26 An assumption is made that no easements will be required on lands seaward of the seawall. The
27 standard estate Temporary Work Area Easement will be used for any staging or temporary work
28 areas if required.

29 **TEMPORARY WORK AREA EASEMENT.**

30 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
31 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
32 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
33 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
34 backfill, move, store and remove equipment and supplies, and erect and remove temporary
35 structures on the land and to perform any other work necessary and incident to the construction of
36 the _____ Project, together with the right to trim, cut, fell and remove there from
37 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
38 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
39 rights and privileges as may be used without interfering with or abridging the rights and easement

1 hereby acquired; subject, however, to existing easements for public roads and highways, public
 2 utilities, railroads and pipelines.

3 **3.2.2.15 Real Estate Estimate**

4 The real estate cost estimate at Table 3.2.2.15-1 includes a cost for Federal and non-Federal
 5 administrative costs. Administrative costs are those costs incurred for verifying ownership of lands,
 6 certification of those lands required for project purposes, legal opinions, analysis or other
 7 requirements that may be necessary, during PED. The State claims ownership of those lands
 8 seaward of the seawall, so no additional land costs are anticipated. If further real estate
 9 requirements are identified during PED or if there is a significant increase in cost, a supplement to
 10 the Real Estate Appendix will be prepared. A 25% contingency is applied to the current estimate.
 11 The same administrative cost is projected for any individual option or combinations of options.

12 **Table 3.2.2.15-1.**
 13 **LOD2 Harrison County Estimate**

a. Lands and Improvements/Permits				0
			Subtotal	0
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs				0
e. Administrative Cost				15,000
		Relocation	Acquisition	Total
	Federal	0	7,500	7,500
	Non-Federal	0	7,500	7,500
		0	15,000	15,000
Subtotal				15,000
Contingencies (25%)				3,750
		Totals		18,750
		Rounded		19,000

14

15 **3.2.2.16 Summary of Potential Real Estate Issues**

16 If further real estate requirements are identified during PED or if there is a significant increase in
 17 cost, a supplement to the Real Estate Appendix will be prepared.

18 Should temporary work areas become a necessary real estate acquisition requirement, valuation of
 19 lands will be performed. Land costs associated with these areas, and administrative costs will be
 20 added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED
 21 or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be
 22 prepared.

1 Specific requirements for long term O&M and any associated real estate interests will be identified
 2 during PED.

3 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
 4 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
 5 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 6 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

7 **3.2.2.17 Chart of Accounts**

8 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 9 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 10 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 11 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 12 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 13 Table 3.2.2.17-1 shows the CWBS for real estate activities.

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**Table 3.2.2.17-1.
 Chart of Accounts - LOD2 Harrison County**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages / Permits			
01B40	Acquisition/Review of NFS	7,500		7,500
01B20	Acquisition by NFS		7,500	7,500
01BX	Contingencies (25%)	<u>1,875</u>	<u>1,875</u>	<u>3,750</u>
	Subtotal	9,375	9,375	18,750
01F	PL 91-646 Assistance			
01F20	By NFS			
01FX	Contingencies (25%)			
	Subtotal			
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS			
01R2B	PL91-646 Relocation Payment by NFS			
01R2D	Review of NFS			
01RX	Contingencies (25%)			
	Subtotal			
	Totals	9,375	9,375	18,750
	Rounded			19,000

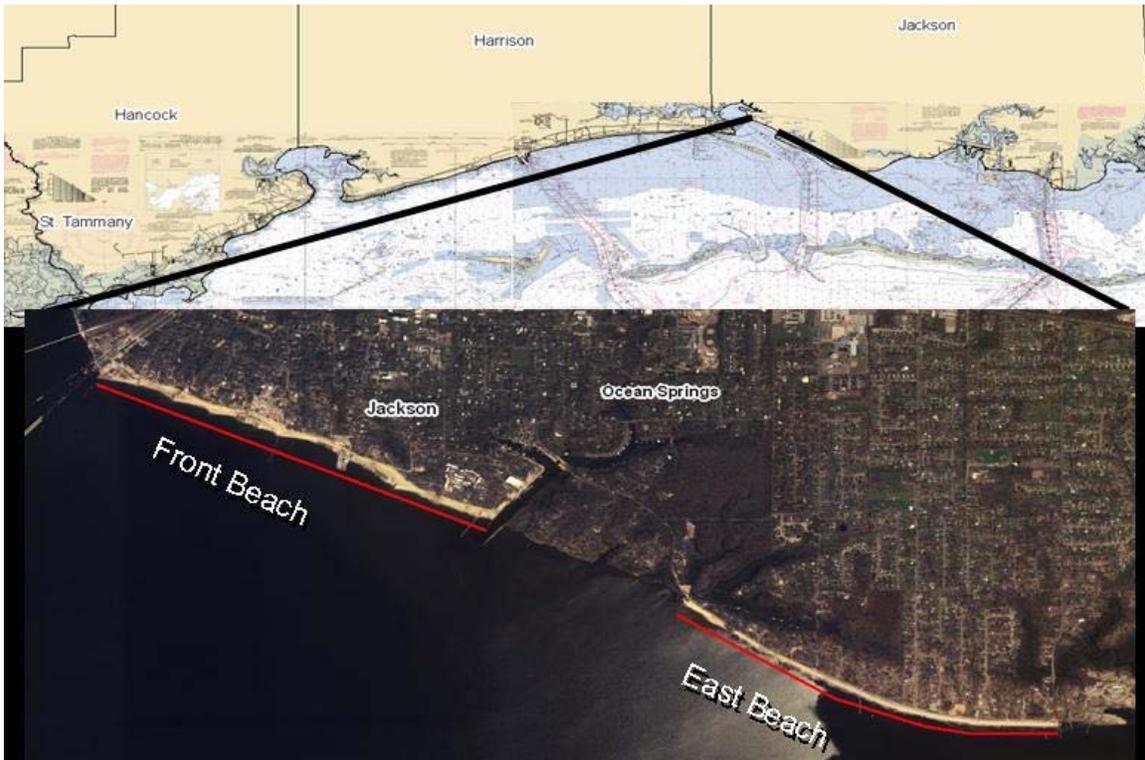
16 **3.2.3 Jackson County Beaches**

17 **3.2.3.1 Project Description**

18 The purpose of this project is to provide hurricane storm damage reduction and restoration of the
 19 shoreline to 7 miles of public beaches along the Jackson County, MS coastline which was impacted
 20 by tidal flooding during Hurricane Katrina in August 2005.

1 The Mississippi mainland shoreline is divided into three coastal counties: Jackson, Harrison, and
2 Hancock Counties. Jackson County is the eastern-most coastal county in Mississippi and is
3 bordered on the east by the Mississippi-Alabama state line and on the west by Harrison County.
4 Jackson County consists of four municipalities: Pascagoula, Moss Point, Gautier, and Ocean
5 Springs. The beaches along the Ocean Springs shoreline are divided into two reaches: Front Beach
6 extending approximately 1 mile southeastward from US 90 along Front Beach drive to the Ocean
7 Springs Harbor, and East Beach extending approximately 1 mile from the Ocean Springs Harbor to
8 Halstead Road, Figure 3.2.3.1-1.

9 Seawalls were constructed along the shoreline fronting the developed sections of Ocean Springs in
10 the late 1920s. Two decades later, beach nourishment projects created sand beaches in front of two
11 seawall segments, and the modern shoreline reaches of Front Beach and East Beach became
12 named. Front Beach, more exposed to wave and tidal forces, experienced greater levels of erosion,
13 and re-nourishment with dredged material was conducted in the 1970s. At wave-sheltered East
14 Beach, marsh vegetation colonized the beachfront intertidal zone and thus assisted in the
15 stabilization of the shoreline. Both Front Beach and East Beach systems only consist of a berm with
16 landward elevations ranging from approximately 2.5 to 5 ft and berm widths of about 100 ft.



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Figure 3.2.3.1-1.
Project Location, Jackson County Beaches

20 The project includes evaluation of eleven options in Jackson County as listed in Table 3.2.3.1-1.
21 Evaluation of the Jackson County beaches was based on the analysis of the Hancock County
22 beaches. The Jackson County beach options are the same design as the Hancock County beaches;
23 therefore the reader is referred to Section 3.2.1.1 for information regarding the Hancock County
24 future with project options.

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**Table 3.2.3.1-1.
Jackson County LOD2**

Option	Description						
	Dune			Berm		Sand	
	Elevation (ft)	Width (ft)	Side Slope	Width (ft)	Plantings	Fencing	
A*	10	40	1:3	80			
B*	8	50	1:3	80			
C*	10	20	1:3	100			
D*	8	30	1:3	80			
E*	10	40	1:3	80	X	X	
F*	8	50	1:3	80	X	X	
G*	10	20	1:3	100	X	X	
H*	8	30	1:3	100	X	X	
I**	10	55	1:3	Extend to accommodate		X	
J**	10	55	1:3	Extend to accommodate	X	X	
K**				Add 2ft, 60 ft width	X	X	

3 * Options are in conjunction with the LOD3 Seawall
4 ** Options are without a seawall
5

6 **3.2.3.2 Real Estate Requirements**

7 Real Estate requirements for Line of Defense 2 for Jackson County include lands, easements,
8 rights-of-way and relocations, and disposal/borrow areas (LERRD), the right to construct a dune
9 atop the existing beach along with a fence and dune vegetation. Jackson County Tax Maps show
10 parcels under private ownership that are seaward of the beach boulevards. However, the State
11 claims ownership of all lands seaward of the seawall, and an assumption is made that no further
12 easements will be needed on those lands. An assumption is made that a real estate interest would
13 have been obtained to allow for the original construction of the beaches and subsequent re-
14 nourishment activity. This will be confirmed upon further analysis during PED.

15 The recommended plan proposes to use material from an inventory of upland borrow sites to
16 construct the project. The sources are within ten miles of the work area. A specific site has not been
17 identified or confirmed for use at time of this report. Typically if borrow sites are required, this would
18 be considered a part of the LERRD requirement. Real Estate would provide an analysis during PED
19 to compare the cost of acquiring an upland borrow site with the cost of using a commercial borrow
20 site and make a determination which method is most cost effective. Access to the project will be
21 along public roadways and staging is expected to be on sponsor owned lands if required. Addendum
22 C of the Economics Appendix discusses the availability of public parking and access for all three
23 counties. No public access issues have been identified. However, if additional public beach access
24 or parking is required, the sponsor will be responsible for acquiring those real estate interests.
25 Acquisition of additional interests for access and parking are considered as requirements for
26 participation in a Federal project and are not considered as creditable items toward project cost.

27 **3.2.3.3 Utility/Facility Relocation**

28 There are no known utility or facility relocations in any of the options for the berm and dune
29 construction.

1 **3.2.3.4 Existing Projects/Studies**

2 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
3 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

4 **3.2.3.5 Environmental Impacts**

5 None of the options described for LOD2 are expected to cause negative impacts to the surrounding
6 environment. See the Main Report, Chapter 6. Environmental Effects of Plans and the
7 Environmental Appendix, for a full discussion on environmental effects.

8 **3.2.3.6 Project Sponsor Responsibilities and Capabilities**

9 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
10 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
11 all alterations and relocations of facilities, structures and improvements determined by the
12 government to be necessary for construction of the Project.

13 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
14 the United States Government. Prior to advertisement of any construction contract, the NFS shall
15 furnish to the government an Authorization for Entry for Construction (Exhibit “A” to the Real Estate
16 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
17 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
18 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
19 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
20 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
21 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
22 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
23 form for the Assessment of the Non-Federal Sponsor’s Capability to Acquire Real Estate is at Exhibit
24 “B” to the Real Estate Appendix. The assessment will be made during PED phase.

25 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
26 lands it provides and the value of the relocations that are required for the project. Generally, for the
27 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
28 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
29 non-federal sponsor provided for the project as required by the Government. The NFS cannot
30 receive credit for the value of any LER, including incidental costs, which were previously provided as
31 an item of cooperation for another Federal project, including projects that preceded enactment of
32 WRDA 1986.

33 **3.2.3.7 Government Owned Property**

34 There are no known Government owned lands within the proposed project.

35 **3.2.3.8 Historical Significance**

36 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
37 on cultural and archaeological resources.

38 **3.2.3.9 Mineral Rights**

39 There are no known mineral activities within the scope of the proposed project.

1 **3.2.3.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

2 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
3 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
4 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

5 **3.2.3.11 Public Law 91-646, Relocation Assistance Benefits**

6 Not Applicable.

7 **3.2.3.12 Attitude of Property Owners**

8 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
9 However, numerous public meetings have been held at different locations throughout the study area
10 to inform stakeholders and property owners about the study and the protective measures under
11 consideration for the Mississippi coastal area. A number of local newspapers have published articles
12 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
13 may occur as a result of the project. Some of these articles can be found on web sites. While many
14 of the locals may welcome the benefits of the proposed project, there are some who oppose the
15 project.

16 **3.2.3.13 Acquisition Schedule**

17 An assumption is made that the sponsor holds an interest in all lands required for the project.
18 Certification of lands acquired/owned by the sponsor will be necessary prior to advertisement for
19 construction. This can be accomplished within 30 days. However, if borrow or temporary work area
20 easements become a requirement, 6-12 months should be allowed for an easement acquisition of
21 the sites. An acquisition schedule will be made during PED and will be a joint effort of the NFS, the
22 project manager and Real Estate.

23 **3.2.3.14 Estates for Proposed Project**

24 An assumption is made that no easements will be required on lands seaward of the seawall. Should
25 a borrow site be required, the Borrow Easement should be used. The Temporary Work Area
26 Easement will be used for any staging or temporary work areas if required. The estates
27 recommended are standard estates.

28 **BORROW EASEMENT.**

29 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
30 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
31 _____ and _____); subject, however, to existing easements for public roads and highways, public
32 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
33 such rights and privileges in said land as may be used without interfering with or abridging the rights
34 and easement hereby acquired.

35 **TEMPORARY WORK AREA EASEMENT.**

36 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
37 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
38 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
39 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
40 backfill, move, store and remove equipment and supplies, and erect and remove temporary
41 structures on the land and to perform any other work necessary and incident to the construction of

1 the _____ Project, together with the right to trim, cut, fell and remove there from
 2 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 3 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 4 rights and privileges as may be used without interfering with or abridging the rights and easement
 5 hereby acquired; subject, however, to existing easements for public roads and highways, public
 6 utilities, railroads and pipelines.

7 **3.2.3.15 Real Estate Estimate**

8 The real estate cost estimate at Table 3.2.3.15-1 includes a cost for Federal and non-Federal
 9 administrative costs. Administrative costs are those costs incurred for verifying ownership of lands,
 10 certification of those lands required for project purposes, legal opinions, analysis or other
 11 requirements that may be necessary, during PED. The State claims ownership of those lands
 12 seaward of the seawall, so no additional land costs are anticipated. If further real estate
 13 requirements are identified during PED or if there is a significant increase in cost, a supplement to
 14 the Real Estate Appendix will be prepared. A 25% contingency is applied to the current estimate.
 15 The same administrative cost is projected for any individual option or combinations of options.

16 **Table 3.2.3.15-1.**
 17 **LOD2 Jackson County Estimate**

a. Lands and Improvements/Permits				0
			Subtotal	0
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs				0
e. Administrative Cost				15,000
		Relocation	Acquisition	Total
	Federal	0	7,500	7,500
	Non-Federal	0	7,500	7,500
		0	15,000	15,000
Subtotal				15,000
Contingencies (25%)				3,750
		Totals		18,750
		Rounded		19,000

18
 19 **3.2.3.16 Summary of Potential Real Estate Issues**

20 The requirement for borrow areas or temporary work areas has not been identified. Should these
 21 areas be required, these would be considered as part of the LERRD requirements. Typically if
 22 borrow sites are required, Real estate would provide an analysis during PED to compare the cost of

1 acquiring an upland borrow site with the cost of using a commercial borrow site and make a
2 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

3 Should borrow areas or temporary work areas become a necessary real estate acquisition
4 requirement, valuation of lands will be performed. Land costs associated with these areas, and
5 administrative costs will be added to the Real Estate Cost Estimate. If further real estate
6 requirements are identified during PED or if there is a significant increase in cost, a supplement to
7 the Real Estate Appendix will be prepared.

8 Specific requirements for long term O&M and any associated real estate interests will be identified
9 during PED.

10 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
11 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
12 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
13 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

14 **3.2.3.17 Chart of Accounts**

15 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
16 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
17 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
18 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
19 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
20 Table 3.2.3.17-1 shows the CWBS for real estate activities.

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**Table 3.2.3.17-1.
Chart of Accounts - LOD2 Jackson County**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages / Permits			
01B40	Acquisition/Review of NFS	7,500		7,500
01B20	Acquisition by NFS		7,500	7,500
01BX	Contingencies (25%)	<u>1,875</u>	<u>1,875</u>	<u>3,750</u>
	Subtotal	9,375	9,375	18,750
01F	PL 91-646 Assistance			
01F20	By NFS			
01FX	Contingencies (25%)			
	Subtotal			
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS			
01R2B	PL91-646 Relocation Payment by NFS			
01R2D	Review of NFS			
01RX	Contingencies (25%)			
	Subtotal			
	Totals	9,375	9,375	18,750
	Rounded			19,000

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3.3 Line of Defense 3 - Elevated Roadways, Seawall, and Ring Levees

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All of the beaches described in the LOD-2 alternative have a roadway landward of the beach. The roads vary from local or county roads to US Highway 90, a major, four-lane highway that extends across the entire Harrison County coast. The existing roadways vary in elevation from four to five feet in Jackson and Hancock County and up to about 15 feet above sea level in Harrison County. All of these roads are evacuation routes and all have been damaged in past hurricanes. In a damaged or destroyed condition, these roads make re-entry to the area difficult after a hurricane has passed. Raising and using these roadways as barriers with an associated seawall defines a portion of the 3rd line of defense, LOD-3. This would be the first hard engineered structure that will not be affected by erosion from a storm such as a dune system.

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Initial strategy was to study three elevations, 12.0, 18.0 and 24.0 feet. This coastal barrier will coincide with the beaches where they exist. Raising the beach-front road does present some engineering challenges due to the numerous intersections with other streets and roads. With any significant increase in elevation, the intersecting roads would require ramps that would be extremely long to have a reasonable grade. Each of these ramps would also create areas where rainfall would collect and have to be removed during a storm. It also became apparent that public opinion was against any structure that would block the view of the beaches and water from the adjoining properties immediately north of the roads. This was voiced in public meetings and also from agencies that were involved in the study. To maintain some level of support for this defense, it was

1 decided to raise the roadways an average of six feet. This allowed reasonable road intersection
2 construction while maintaining the aesthetic view of the water and would not be perceived as a high
3 seawall along the coast. A review of the typical roadway elevations allowed raising the roadways in
4 Jackson and Hancock County to Elevation 11.0 and Highway 90 in Harrison County to Elevation
5 16.0. It was decided to study these elevations without other options as the main part of LOD-3 with
6 the understanding that these structures would not provide protection from large storms. As described
7 above, the LOD-2 dunes could also be constructed against the elevated roadway to help protect the
8 toe of the structural wall associated with the road.

9 This line of defense would be connected to LOD-4, described below, at the mouth of Biloxi Bay and
10 St. Louis Bay. It would also extend northward to higher ground or to LOD- 4 in Jackson County and
11 Hancock County. The bays are an inlet for storm surge that would be controlled by surge gates as
12 part of LOD- 4. It was also recognized that if LOD-3 was constructed without LOD-4, surge gates
13 across the bays would have to be included as part of LOD-3.

14 As the first structural defense, LOD-3 will exclude some areas that may be considered potential
15 areas of retreat or have other non-structural solutions. This may be due to low population density,
16 ecological sensitivity, areas that contain numerous waterway crossings or areas that could not
17 function with a structural barrier in place. In Jackson County, LOD-3 will encompass the southern
18 portion of Ocean Springs, but due to extended marshes and streams, it will extend northeastward
19 from near the eastern end of East Beach Road to higher ground. Areas east of this location contain
20 numerous marshes, streams, and scattered development. Ring levees will be evaluated for housing
21 developments in some areas. Further east in Jackson County are the cities of Gautier, Pascagoula
22 and Moss Point. The presence of numerous streams and inlets will make a continuous barrier very
23 difficult and these areas are also envisioned to have individual ring levees. While alignments were
24 selected that provided the maximum protection for the most developed areas, some portions could
25 be excluded due to cost and technical issues with closing off drainages. Redrawing the alignments
26 would place some areas into a non-structural solution and could be considered as potential options
27 for further study. These alternate alignments were drawn for Pascagoula/Moss Point, Bell Fontaine,
28 and Gulf Park Estates.

29 At the western end of LOD-3, the barrier will extend down North Beach Boulevard for several miles
30 to near Bayou Caddy and then turn north to tie in with higher ground. By following this path, the
31 existing roadway will provide an alignment and it will encompass much of the developed waterfront
32 from Bay St. Louis to Waveland, MS. Further west, the town of Pearlinton will be evaluated for
33 construction of a ring levee.

34 As with the main portion of LOD-3, the ring levees were initially considered with the same three
35 elevations of 12.0, 18.0 and 24.0. Closer study revealed that in many cases, the elevation 12.0 was
36 too low based on existing ground surfaces and the elevation 24.0 may not be high enough to be
37 certified by FEMA for a 100-year storm event. The elevations to be studied for the ring levees then
38 was changed to 20.0 and 30.0 with the assumption that the 100-year event would fall between these
39 elevations and that the elevation 30.0 design would be sufficiently high for even a 500-year event. A
40 100-year minimum event is necessary for levee certification by FEMA.

41 While many options were reviewed for the type of structure to be used along the roadways, a simple
42 elevated roadway associated with an extension of the existing seawall was chosen for reliability
43 reasons. A structure that did not mainly rely on powered systems or with multiple moving systems
44 was deemed more suitable for the purposes of this line of defense. Numerous conceptual designs
45 were considered including inflatable barriers, concrete sidewalks or roadways that could be
46 hydraulically rotated upwards to form a seawall, sliding panel gates within a seawall, and structural
47 concrete seawalls. The ring levees were all designed as earthen structures. It should be understood
48 that all of these LOD-3 structures would provide less protection than would be required for a Camille

1 or Katrina-like storm. LOD-3 storm damage reduction levels are limited and will be determined based
2 on public and local government acceptance and the amount of risk that Mississippi is willing to accept.

3 As previously mentioned, this LOD-3 is dependent on having the ability of closure across the two
4 bays to prevent the storm surge from running inside the mouths of the bays. While the plan calls for
5 surge gates to be associated with LOD-4, surge gates would also have to be incorporated with
6 LOD-3 if LOD-4 is not selected as an alternative. The top elevation of surge gates used solely for
7 LOD-3 would be of an elevation that would be compatible with the rest of that barrier.

8 Interior drainage behind these barriers must be considered. Any large rainfall event would require
9 that the water trapped behind the barrier have a means to drain or even be mechanically pumped.
10 The amount of storage that a given watershed could provide behind a barrier during surge conditions
11 will vary. The means to block surge but allow drainage as the surge passes may include conduits
12 with flap valves or gated culverts up to surge gates across large bodies of water. The areas where
13 pumping is required are numerous, but necessary to prevent residual damages associated with this
14 blockage of normal drainage.

15 The pumping stations, where required, must survive any storm damage and continue to operate until
16 the storm event has passed. This will require hardened structures to house the pumps and power
17 systems, and be constructed to a height that corresponds to the risk associated with that line of
18 defense.

19 **3.3.1 Hancock County Ring Levees, Pearlington**

20 Pearlington is a small town located in the western part of Hancock County as shown in Figure 3.3.1-1.
21 The town lies on the bank of the Pearl River about 5 miles from the Mississippi Sound. Ground
22 elevations over most of the residential and business areas are very low between elevations 6-10 ft
23 NAVD88. Pearlington was an extremely hard hit area during the 2005 hurricane season. Water
24 reached a depth of 10-14 feet over the whole community. For purposes of providing protection for
25 future storm events, the construction of an earthen ring levee is evaluated. The options in this study
26 are identified as Option A and Option B.



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Figure 3.3.1-1.
Vicinity Map, Pearlington

4 **3.3.1.1 Option A - Elevation 20.0 ft NAVD88**

5 This option consists of an earthen dike around the most densely populated areas of Pearlington
6 along with the internal sub-basins and levee culvert/pump locations. The levee would have an
7 elevation of 20.0 ft NAVD88 with a top width of 15 ft and slopes of 1 vertical to 3 horizontal.

8 **3.3.1.2 Option B - elevation 30.0 ft NAVD88**

9 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 ft NAVD88.
10 The difference between the description of this option and the preceding description of Option A is the
11 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
12 of the levee culverts.

13 **3.3.1.3 Project Description**

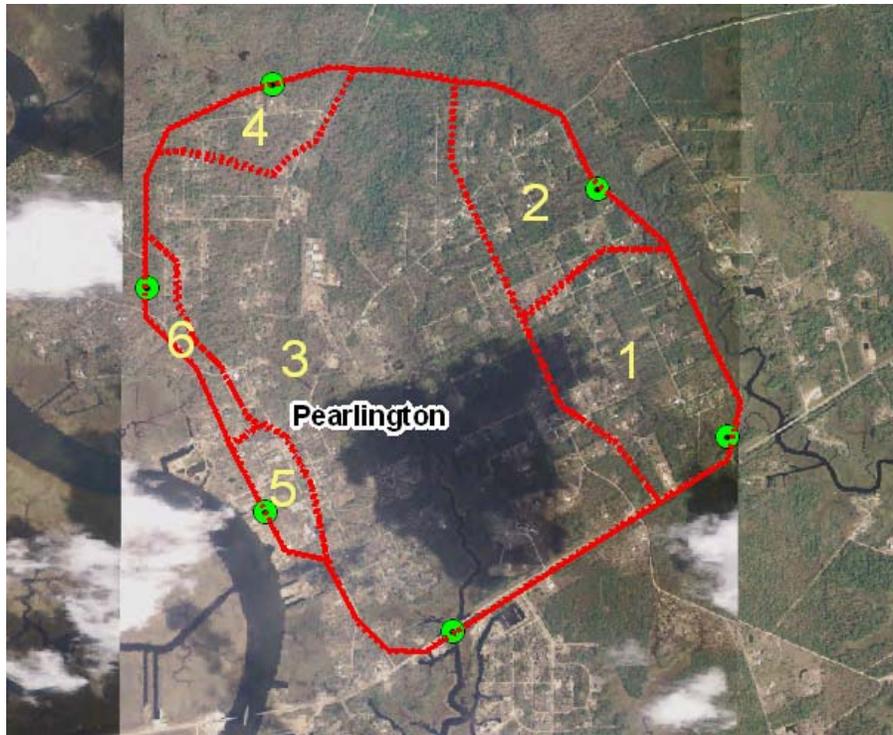
14 Figure 3.3.1.3-1 shows the location of the proposed project alternatives. As described above, the
15 levee will be an earthen berm constructed either at elevation 20.0 feet or 30.0 feet along with the
16 internal sub-basins and levee culvert/pump locations. Drainage on the interior of the ring levee would
17 be collected at the levee and channeled to culverts placed in the levee. The culverts would have flap
18 gates on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An
19 additional closure gate would also be provided at every culvert in the levee for control in the event
20 the flap gate malfunctions. In addition, pumps would be constructed near the outflow points to
21 remove water from the interior during storm events occurring when the culverts are closed because
22 of high water in the sound. Drainage ditches along the toe of the levee will be required to assure that
23 smaller basins can be drained to a culvert/pump site. Figure 3.3.1.3-2 shows the proposed location
24 of the pump/culvert sites. During some hurricane events, when the gates are shut, and rainfall

1 exceeds the average 10-yr intensity over the basin, some ponding from rainfall will occur. Further
2 studies will detail the requirement for the appropriate ponding areas, pump sizes, or buyouts in the
3 affected areas.



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**Figure 3.3.1.3-1.
Pearlington Ring Levee**



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**Figure 3.3.1.3-2.
Pump/Culvert/Sub-basin Site Locations**

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The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials obtained from off site borrow sources, and trucked to the work area. The final surface will be armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion protection during an event that overtops the levee. The armoring will be anchored on the front face by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front side of the levee and all non critical surface areas will be subsequently covered by grassing. In order to maintain the natural runoff patterns culverts would be inserted through the protection line at appropriate locations. For this study these were configured as cast-in-place reinforced concrete box structures fitted with flap gates to minimize normal backflows and sluice gates to provide storm closure when needed. Pump facilities will be required at 6 locations.

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Road crossings will incorporate small gate structures or ramping over the embankment where the surface elevation is near that of the crest elevation. The elevation relationship of the crest and the adjacent railroad will be a governing factor. At each point where a roadway crosses the protection line the decision must be made whether to maintain this artery and adapt the protection line to accommodate it, or to terminate the artery at the protection line and divert traffic to cross the protection line at another location. For this study it was assumed that all roadways and railways crossing the levee alignment would be retained except where it was very evident that traffic could be combined without undue congestion. Once the decision has been made to retain a particular roadway, it must then be determined how best to configure the artery to conduct traffic across the protection line. The simplest means of passing roadway traffic is to ramp the roadway over the protection line. This alternative is not always viable because of severe right-of-way restraints caused

1 by extreme levee height, urban congestion, etc. In such instances other methods can be used
2 including partial ramping in combination with low profile roller gates. In more restricted areas full
3 height gates which would leave the roadway virtually unaltered might be preferable, even though this
4 alternative would usually be more costly than ramping. In some extreme circumstances where high
5 levees are required to pass through very congested areas, installation of tunnels with closure gates
6 may be required.

7 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
8 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
9 alternatives would include gated pass through structures. Because of the vertical clearance
10 requirements of railroad traffic all railroad pass through structures for this study were configured
11 having vertical walls on either side of the railway with double swing gates extending to the full height
12 of the levee.

13 With the installation of a ring levee around the Pearlington area, 18 roadway intersections would
14 have to be accommodated. For this study it was estimated that all 18 would require swing gate
15 structures.

16 Operation and maintenance activities for this project will be required on an annual basis. All pumps
17 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
18 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
19 causing weak levee locations. Rills or rivulets will be filled and damaged revetment will be repaired.

20 **3.3.1.4 Real Estate Requirements**

21 Real Estate requirements for Line of Defense 3, Pearlington Ring Levee include lands, easements,
22 rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to construct an
23 earthen levee, drainage ditches, and 6 culvert/pump station facilities.

24 Based on the footprint of the Option A 20.0 foot elevation, it was determined that approximately
25 111 parcels and 28 structures would be impacted. The acreage to be acquired for the levee is
26 unknown. It is known that the 6 pump stations will require approximately 0.23 of an acre each for a
27 total of 1.38 acres. Lands required for construction of the levee will be acquired in fee simple
28 interest. Based on the number of structures being impacted, the assumption is that there will be
29 28 relocations. For cost purposes, the relocations are assumed to be residential.

30 Based on the footprint of the Option B 30.0 foot elevation, it was determined that 120 parcels and
31 30 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
32 that the 6 pump stations will require approximately 0.23 of an acre each for a total of 1.38 acres.
33 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
34 number of structures being impacted, the assumption is that there will be 30 relocations. For cost
35 purposes, the relocations are assumed to be residential.

36 Ditches that will be constructed to provide drainage for the interior of the ring levee are expected to
37 be located within the footprint of the levee. Until final plans and specifications are completed, an
38 assumption is made that the ditches will be constructed on the same lands acquired for construction
39 of the levee. If any additional lands are required, this will be determined during PED.

40 Any modifications to the roadways will most probably need to be accomplished under a relocation
41 contract. This will be further investigated and confirmed during PED.

42 An assumption is made that excavated materials from clearing, snagging, and construction of
43 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
44 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if

1 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
2 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
3 the cost of using a commercial landfill and make a determination which method is most cost
4 effective.

5 The recommended plan proposes to use material from an inventory of upland borrow sites to
6 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
7 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
8 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
9 borrow site with the cost of using a commercial borrow site and make a determination which method
10 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
11 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
12 further defined during PED.

13 **3.3.1.5 Utility/Facility Relocation**

14 The plan calls for roads to be ramped over the proposed levee. An assumption is made that this
15 work will be accomplished through a relocation contract. This will be further investigated and
16 confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

17 **3.3.1.6 Existing Projects/Studies**

18 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
19 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

20 **3.3.1.7 Environmental Impacts**

21 See the Main Report, Chapter 6, Environmental Effects of Plans and the Environmental Appendix,
22 for a full discussion on environmental effects.

23 **3.3.1.8 Project Sponsor Responsibilities and Capabilities**

24 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
25 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
26 all alterations and relocations of facilities, structures and improvements determined by the
27 government to be necessary for construction of the Project. Title to any acquired real estate will be
28 retained by the Project Sponsor and will not be conveyed to the United States Government. Prior to
29 advertisement of any construction contract, the NFS shall furnish to the government an Authorization
30 for Entry for Construction (Exhibit "A" to the Real Estate Appendix) to all lands, easements and
31 rights-of-way, as necessary. The NFS will also furnish to the government evidence supporting their
32 legal authority to grant rights-of-way to such lands. The NFS shall comply with applicable provisions
33 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law
34 91-646, approved 2 January 1971, and amended by Title IV of the Surface Transportation Uniform
35 Relocation Assistance Act of 1987, Public Law 100-17, effective 2 April 1989, in acquiring real estate
36 interests for the Project, and inform all affected persons of applicable benefits, policies, and
37 procedures in connection with said Act(s). A form for the Assessment of the Non-Federal Sponsor's
38 Capability to Acquire Real Estate is at Exhibit "B" to the Real Estate Appendix. The assessment will
39 be made during PED phase.

40 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
41 lands it provides and the value of the relocations that are required for the project. Generally, for the
42 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
43 value of the real property interest, plus certain incidental costs of acquiring those interests, that the

1 non-federal sponsor provided for the project as required by the Government. The NFS cannot
2 receive credit for the value of any LER, including incidental costs, which were previously provided as
3 an item of cooperation for another Federal project, including projects that preceded enactment of
4 WRDA 1986.

5 **3.3.1.9 Government Owned Property**

6 There are no known Government owned lands in the proposed project.

7 **3.3.1.10 Historical Significance**

8 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
9 on cultural and archaeological resources.

10 **3.3.1.11 Mineral Rights**

11 There are no known mineral activities within the scope of the proposed project.

12 **3.3.1.12 Hazardous, Toxic, and Radioactive Waste (HTRW)**

13 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
14 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
15 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

16 **3.3.1.13 Public Law 91-646, Relocation Assistance Benefits**

17 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
18 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
19 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
20 result of programs designed for the benefits of the public as a whole. A qualified displaced person
21 may be entitled to certain relocation assistance benefits which include reimbursement of moving
22 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
23 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
24 types - purchase supplement, rental assistance and down payment. All replacement housing must
25 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

26 It is estimated that there are approximately 28 relocations in Option A and approximately
27 30 relocations in Option B. No relocation plan has been completed nor has a relocation survey been
28 done. All estimates are based on information from county public records. The number of business
29 relocations as compared to residential relocations is unknown. In order to accomplish the relocation
30 activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

31 **3.3.1.14 Attitude of Property Owners**

32 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
33 However, numerous public meetings have been held at different locations throughout the study area
34 to inform stakeholders and property owners about the study and the protective measures under
35 consideration for the Mississippi coastal area. A number of local newspapers have published articles
36 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
37 may occur as a result of the project. Some of these articles can be found on web sites. While many
38 of the locals may welcome the benefits of the proposed project, there are some who oppose the
39 project.

1 **3.3.1.15 Acquisition Schedule**

2 An acquisition schedule will be developed when plans and specifications become available and
3 more definite information is available pertaining to the specific areas and number of parcels for
4 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
5 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
6 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
7 completed certification of lands acquired/owned by the sponsor will be necessary prior to
8 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
9 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
10 implementation/management plan.

11 **3.3.1.16 Estates for Proposed Project**

12 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
13 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
14 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
15 recommended are standard estates.

16 **FEE.**

17 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
18 subject, however, to existing easements for public roads and highways, public utilities, railroads and
19 pipelines.

20 **BORROW EASEMENT.**

21 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
22 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
23 _____ and _____); subject, however, to existing easements for public roads and highways, public
24 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
25 such rights and privileges in said land as may be used without interfering with or abridging the rights
26 and easement hereby acquired.

27 **TEMPORARY WORK AREA EASEMENT.**

28 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
29 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
30 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
31 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
32 backfill, move, store and remove equipment and supplies, and erect and remove temporary
33 structures on the land and to perform any other work necessary and incident to the construction of
34 the _____ Project, together with the right to trim, cut, fell and remove there from
35 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
36 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
37 rights and privileges as may be used without interfering with or abridging the rights and easement
38 hereby acquired; subject, however, to existing easements for public roads and highways, public
39 utilities, railroads and pipelines.

40 **DRAINAGE DITCH EASEMENT.**

41 A perpetual and assignable easement and right-of-way in, over and across (the land described in
42 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
43 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
44 and privileges in the land as may be used without interfering with or abridging the rights and

1 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 2 public utilities, railroads and pipelines.

3 **3.3.1.17 Real Estate Estimate**

4 A summary of the cost for each option is at Table 3.3.1.17-1. The real estate cost estimates at Table
 5 3.3.1.17-2 and Table 3.3.1.17-3 include the land cost for acquisition of land, relocation benefits to
 6 include a replacement housing payment and fixed rate move expenses, and Federal and non-
 7 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
 8 lands, certification of those lands required for project purposes, legal opinions, analysis or other
 9 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
 10 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 11 PED. If further real estate requirements are identified during PED or if there is a significant increase
 12 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 13 the current estimate.

14 **Table 3.3.1.17-1.**
 15 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocatio ns	Total Cost
Option A - 20.0	111	28	8,883,000
Option B - 30.0	120	30	9,340,000

16 **Table 3.3.1.17-2.**
 17 **LOD3 Hancock County Ring Levee, Pearlington - Option A 20.0 Estimate**

a. Lands and Improvements/Permits			
111 Ownerships, 28			
Improvements			3,527,608
(6 Pump Stations)			87,399
		Subtotal	3,615,007
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 28 relocations			
			784,000
e. Administrative Cost			
			2,707,500
	Relocation	Acquisition	Total
Federal	42,000	277,500	319,500
Non-Federal	168,000	2,220,000	2,388,000
	210,000	2,497,500	2,707,500
Subtotal			
			7,106,507
Contingencies (25%)			
			1,776,627
Totals			8,883,134
Rounded			8,883,000

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**Table 3.3.1.17-3.
LOD3 Hancock County Ring Levee, Pearlington - Option B 30.0 Estimate**

a. Lands and Improvements/Permits 120 Ownerships, 30 Improvements (6 Pump Stations)				3,630,995 87,399 3,718,394
	Subtotal			
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 30 relocations				828,800
e. Administrative Cost				2,925,000
		Relocation	Acquisition	Total
Federal		45,000	300,000	345,000
Non-Federal		180,000	2,400,000	2,580,000
		225,000	2,700,000	2,925,000
Subtotal				7,472,194
Contingencies (25%)				1,868,049
Totals Rounded				9,340,243 9,340,000

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4 **3.3.1.18 Summary of Potential Real Estate Issues**

5 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
6 these areas be required, these would be considered as part of the LERRD requirements. Typically if
7 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
8 the cost of acquiring an these sites with the cost of using a commercial sites and make a
9 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

10 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
11 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
12 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
13 estate requirements are identified during PED or if there is a significant increase in cost, a
14 supplement to the Real Estate Appendix will be prepared.

15 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
16 completed during PED.

17 Any requirement for mitigation lands will be identified during PED.

18 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
19 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate

1 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 2 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

3 A Real Estate Relocation Plan should be prepared during PED to address potential relocation
 4 activity under PL.91-646. There are a number of factors pertaining to relocations that can impact the
 5 project both in cost and in schedule. Payments for Housing of Last Resort, which would exceed the
 6 standard housing replacement payments, are very likely due to the size of the project and the lack of
 7 available decent, safe and sanitary housing in the area. Another factor that could increase cost and
 8 impact schedule is the cost of business relocations. Depending on the type of business and the
 9 operation, this could involve moving equipment and machinery to new locations. It is necessary to
 10 interview each impacted individual and business during Pre-Construction, Engineering and Design
 11 Phase to determine the requirements for relocation and to estimate a cost for the relocation.

12 **3.3.1.19 Chart of Accounts**

13 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 14 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 15 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 16 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 17 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 18 Tables 3.3.1.19-1 and 3.3.1.19-2 shows the CWBS for real estate activities.

19 **Table 3.3.1.19-1.**
 20 **Chart of Accounts - LOD3 Hancock County Ring Levee, Pearlinton - Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	277,500		277,500
01B20	Acquisition by NFS		2,220,000	2,220,000
01BX	Contingencies (25%)	<u>69,375</u>	<u>555,000</u>	<u>624,375</u>
	Subtotal	346,875	2,775,000	3,121,875
01F	PL 91-646 Assistance			
01F20	By NFS		168,000	168,000
01FX	Contingencies (25%)		<u>42,000</u>	<u>42,000</u>
	Subtotal		210,000	210,000
01R	Real Estate Land Payments			
01R1	Land Payments by NFS		3,615,007	3,615,007
B				
01R2	PL91-646 Relocation Payment by		784,000	784,000
B	NFS			
01R2	Review of NFS	42,000		42,000
D				
01RX	Contingencies (25%)	<u>10,500</u>	<u>1,099,752</u>	<u>1,110,252</u>
	Subtotal	52,500	5,498,759	5,551,259
	Totals	399,375	8,483,759	8,883,134
	Rounded			8,883,000

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Table 3.3.1.19-2.
Chart of Accounts - LOD3 Hancock County Ring Levee, Pearlinton - Option B

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	300,000		300,000
01B20	Acquisition by NFS		2,400,000	2,400,000
01BX	Contingencies (25%)	<u>75,000</u>	<u>600,000</u>	<u>675,000</u>
	Subtotal	375,000	3,000,000	3,375,000
01F	PL 91-646 Assistance			
01F20	By NFS		180,000	180,000
01FX	Contingencies (25%)		<u>45,000</u>	<u>45,000</u>
	Subtotal		225,000	225,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		3,718,394	3,718,394
01R2B	PL91-646 Relocation Payment by NFS		828,800	828,800
01R2D	Review of NFS	45,000		45,000
01RX	Contingencies (25%)	<u>11,250</u>	<u>1,136,799</u>	<u>1,148,049</u>
	Subtotal	56,250	5,683,993	5,740,243
	Totals	431,250	8,908,993	9,340,243
	Rounded			9,340,000

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4 **3.3.2 Hancock County Ring Levees, Bay St. Louis**

5 The City of Bay St. Louis is located in the eastern part of Hancock County as shown in Figure 3.3.2-1.
6 The town is bordered by the Mississippi Sound. The Shoreline Park subdivision area to the north of
7 Bay St. Louis is very low at elevations 4-6 ft NAVD88 and subject to frequent flooding from storm
8 surge. During the 2005 hurricane season, water reached a depth of 10-20 ft over the coastal
9 community. For purposes of providing protection to residential and commercial structures for future
10 storm events, the construction of an earthen ring levee is evaluated. The options in this study are
11 identified as Option A and Option B.



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Figure 3.3.2-1.
Vicinity Map, Bay St. Louis

4 **3.3.2.1 Option A - Elevation 20.0 NAVD88**

5 This option consists of an earthen dike around the most densely populated areas of Bay St. Louis
6 along with the internal sub-basins and levee culvert/pump locations. The levee would have an
7 elevation of 20.0 feet with a top width of 15 ft and slopes of 1 vertical to 3 horizontal.

8 **3.3.2.2 Option B - Elevation 30.0 NAVD88**

9 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
10 only difference between the description of this option and preceding description of Option A is the
11 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
12 of the levee culverts.

13 **3.3.2.3 Project Description**

14 Figure 3.3.2.3-1 below shows the location of the proposed project alternatives. As described above,
15 the levee will be an earthen berm constructed either at elevation 20.0 feet or 30.0 feet along with the
16 internal sub-basins and levee culvert/pump locations. Drainage on the interior of the ring levee would
17 be collected at the levee and channeled to culverts placed in the levee. The culverts would have flap
18 gates on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An
19 additional closure gate would also be provided at every culvert in the levee for control in the event
20 the flap gate malfunctions. In addition, pumps would be constructed near the outflow points to
21 remove water from the interior during storm events occurring when the culverts are closed because
22 of high water in the sound. Drainage ditches along the toe of the levee will be required to assure that
23 smaller basins can be drained to a culvert/pump site. Figure 3.3.2.3-2 shows the proposed location
24 of the pump/culvert sites. During some hurricane events, when the gates are shut, and rainfall

1 exceeds the average 10-yr intensity over the basin, some ponding from rainfall will occur. Further
2 studies will detail the requirement for the appropriate ponding areas, pump sizes, or buyouts in the
3 affected areas.



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Figure 3.3.2.3-1.
Bay St. Louis Ring Levee



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**Figure 3.3.2.3-2.
Pump/Culvert/Sub-basin Site Locations**

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The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials obtained from off site commercial sources, and trucked to the work area. The final surface will be armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion protection during an event that overtops the levee. The armoring will be anchored on the front face by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front side of the levee and all non critical surface areas will be subsequently covered by grassing. In order to maintain the natural runoff patterns culverts would be inserted through the protection line at appropriate locations. For this study these were configured as cast-in-place reinforced concrete box structures fitted with flap gates to minimize normal backflows and sluice gates to provide storm closure when needed. Pump facilities are required at 12 locations.

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Road crossings will incorporate small gate structures or ramping over the embankment where the surface elevation is near that of the crest elevation. The elevation relationship of the crest and the adjacent railroad will be a governing factor. At each point where a roadway crosses the protection line the decision must be made whether to maintain this artery and adapt the protection line to accommodate it, or to terminate the artery at the protection line and divert traffic to cross the protection line at another location. For this study it was assumed that all roadways and railways crossing the levee alignment would be retained except where it was very evident that traffic could be combined without undue congestion. Once the decision has been made to retain a particular roadway, it must then be determined how best to configure the artery to conduct traffic across the protection line. The simplest means of passing roadway traffic is to ramp the roadway over the protection line. This alternative is not always viable because of severe right-of-way restraints caused by extreme levee height, urban congestion, etc. In such instances other methods can be used

1 including partial ramping in combination with low profile roller gates. In more restricted areas full
2 height gates which would leave the roadway virtually unaltered might be preferable, even though this
3 alternative would usually be more costly than ramping. In some extreme circumstances where high
4 levees are required to pass through very congested areas, installation of tunnels with closure gates
5 may be required.

6 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
7 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
8 alternatives would include gated pass through structures. Because of the vertical clearance
9 requirements of railroad traffic all railroad pass through structures for this study were configured
10 having vertical walls on either side of the railway with double swing gates extending to the full height
11 of the levee.

12 With the installation of a ring levee around the Bay St. Louis area to elevation 20.0, 21 roadway
13 intersections would have to be accommodated. For this study it was estimated that of this number,
14 4 would require swing gate structures, with the rest requiring roller gates of various heights. With the
15 installation of a ring levee around the Bay St. Louis area to elevation 30, 69 roadway intersections
16 would have to be accommodated, and it was estimated that of this number, 62 would require swing
17 gate structures, with the remaining 7 requiring roller gates of various heights.

18 Operation and maintenance activities for this project will be required on an annual basis. All pumps
19 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
20 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
21 causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

22 **3.3.2.4 Real Estate Requirements**

23 Real Estate requirements for Line of Defense 3, Bay St. Louis Ring Levees include lands,
24 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
25 construct an earthen levee, drainage ditches and 12 culvert/pump station facilities.

26 Based on the footprint of the Option A 20.0 foot elevation, it was determined that approximately
27 442 parcels and 149 structures would be impacted. The acreage to be acquired for the levee is
28 unknown. It is known that the 11 pump stations will require approximately 0.23 of an acre each for a
29 total of 2.53 acres. Lands required for construction of the levee will be acquired in fee simple
30 interest, and lands for the drainage ditches that will be constructed outside the levee footprint will be
31 acquired either in easement or fee as necessary. Based on the number of structures being
32 impacted, the assumption is that there will be 149 relocations.

33 Based on the footprint of the Option B 30.0 foot elevation, it was determined that 576 parcels and
34 212 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
35 that the 12 pump stations will require approximately 0.23 of an acre each for a total of 2.76 acres.
36 Lands required for construction of the levee will be acquired in fee simple interest, and lands for the
37 drainage ditches that will be constructed outside the levee footprint will be acquired either in
38 easement or fee as necessary. Based on the number of structures being impacted, the assumption
39 is that there will be 212 relocations.

40 Any modifications to the roadways will most probably need to be accomplished under a relocation
41 contract. This will be further investigated and confirmed during PED.

42 An assumption is made that excavated materials from clearing, snagging, and construction of
43 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
44 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
45 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate

1 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
2 the cost of using a commercial landfill and make a determination which method is most cost
3 effective.

4 The recommended plan proposes to use material from an inventory of upland borrow sites to
5 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
6 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
7 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
8 borrow site with the cost of using a commercial borrow site and make a determination which method
9 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
10 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
11 further defined during PED.

12 **3.3.2.5 Utility/Facility Relocation**

13 The plan calls for roads to be ramped over the proposed levee. An assumption is made that this
14 work will be accomplished under a relocation contract. This will be further investigated and
15 confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

16 **3.3.2.6 Existing Projects/Studies**

17 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
18 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

19 **3.3.2.7 Environmental Impacts**

20 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
21 for a full discussion on environmental effects.

22 **3.3.2.8 Project Sponsor Responsibilities and Capabilities**

23 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
24 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
25 all alterations and relocations of facilities, structures and improvements determined by the
26 government to be necessary for construction of the Project.

27 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
28 the United States Government. Prior to advertisement of any construction contract, the NFS shall
29 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
30 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
31 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
32 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
33 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
34 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
35 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
36 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
37 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
38 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

39 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
40 lands it provides and the value of the relocations that are required for the project. Generally, for the
41 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
42 value of the real property interest, plus certain incidental costs of acquiring those interests, that the

1 non-federal sponsor provided for the project as required by the Government. The NFS cannot
2 receive credit for the value of any LER, including incidental costs, which were previously provided as
3 an item of cooperation for another Federal project, including projects that preceded enactment of
4 WRDA 1986.

5 **3.3.2.9 Government Owned Property**

6 There are no known Government owned lands within the proposed project.

7 **3.3.2.10 Historical Significance**

8 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
9 on cultural and archaeological resources.

10 **3.3.2.11 Mineral Rights**

11 There are no known mineral activities within the scope of the proposed project.

12 **3.3.2.12 Hazardous, Toxic, and Radioactive Waste (HTRW)**

13 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
14 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
15 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

16 **3.3.2.13 Public Law 91-646, Relocation Assistance Benefits**

17 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
18 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
19 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
20 result of programs designed for the benefits of the public as a whole. A qualified displaced person
21 may be entitled to certain relocation assistance benefits which include reimbursement of moving
22 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
23 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
24 types - purchase supplement, rental assistance and down payment. All replacement housing must
25 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

26 It is estimated that there are approximately 149 relocations in Option A and approximately
27 212 relocations in Option B. No relocation plan has been completed nor has a relocation survey
28 been done. All estimates are based on information from county public records. The number of
29 business relocations as compared to residential relocations is unknown. In order to accomplish the
30 relocation activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

31 **3.3.2.14 Attitude of Property Owners**

32 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
33 However, numerous public meetings have been held at different locations throughout the study area
34 to inform stakeholders and property owners about the study and the protective measures under
35 consideration for the Mississippi coastal area. A number of local newspapers have published articles
36 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
37 may occur as a result of the project. Some of these articles can be found on web sites. While many
38 of the locals may welcome the benefits of the proposed project, there are some who oppose the
39 project.

1 **3.3.2.15 Acquisition Schedule**

2 An acquisition schedule will be developed when plans and specifications become available and
3 more definite information is available pertaining to the specific areas and number of parcels for
4 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
5 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
6 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
7 completed certification of lands acquired/owned by the sponsor will be necessary prior to
8 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
9 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
10 implementation/management plan.

11 **3.3.2.16 Estates for Proposed Project**

12 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
13 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
14 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
15 recommended are standard estates.

16 **FEE.**

17 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
18 subject, however, to existing easements for public roads and highways, public utilities, railroads and
19 pipelines.

20 **BORROW EASEMENT.**

21 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
22 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
23 _____ and _____); subject, however, to existing easements for public roads and highways, public
24 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
25 such rights and privileges in said land as may be used without interfering with or abridging the rights
26 and easement hereby acquired.

27 **TEMPORARY WORK AREA EASEMENT.**

28 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
29 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
30 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
31 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
32 backfill, move, store and remove equipment and supplies, and erect and remove temporary
33 structures on the land and to perform any other work necessary and incident to the construction of
34 the _____ Project, together with the right to trim, cut, fell and remove there from
35 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
36 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
37 rights and privileges as may be used without interfering with or abridging the rights and easement
38 hereby acquired; subject, however, to existing easements for public roads and highways, public
39 utilities, railroads and pipelines.

40 **DRAINAGE DITCH EASEMENT.**

41 A perpetual and assignable easement and right-of-way in, over and across (the land described in
42 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
43 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
44 and privileges in the land as may be used without interfering with or abridging the rights and

1 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 2 public utilities, railroads and pipelines.

3 **3.3.2.17 Real Estate Estimate**

4 A summary of the cost for each option is at Table 3.3.2.17-1. The real estate cost estimates at Table
 5 3.3.2.17-2 and Table 3.3.2.17-3 include the land cost for acquisition of land, relocation benefits to
 6 include a replacement housing payment and fixed rate move expenses, and Federal and non-
 7 Federal administrative costs. Administrative costs are costs incurred for verifying ownership of lands,
 8 certification of those lands required for project purposes, legal opinions, analysis or other
 9 requirements that may be necessary during PED. No cost is included for a borrow site or temporary
 10 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 11 PED. If further real estate requirements are identified during PED or if there is a significant increase
 12 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 13 the current estimate.

14 **Table 3.3.2.17-1.**
 15 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocatio ns	Total Cost
Option A - 20.0	442	149	120,246,000
Option B - 30.0	576	212	156,364,000

16 **Table 3.3.2.17-2.**
 17 **LOD3 Hancock County Ring Levee, Bay St. Louis - Option A 20.0 Estimate**

a. Lands and Improvements/Permits			
300 Ownerships for Levee, 123 Improvements			71,036,318
131 Ownerships for Ditches, 26 Improvements			9,805,320
<u>11 Pump Stations</u>			160,231
		Subtotal	81,001,869
442 Ownerships			
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 149 relocations			
			4,132,800
e. Administrative Cost			
			11,062,500
	Relocation	Acquisition	Total
Federal	223,500	1,105,000	1,328,500
Non-Federal	894,000	8,840,000	9,734,000
	<u>1,117,500</u>	<u>9,945,000</u>	<u>11,062,500</u>
			0
Sub-Total			96,197,169
Contingencies (25%)			24,049,292
Totals			120,246,461
Rounded			120,246,000

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**Table 3.3.2.17-3.
LOD3 Hancock County Ring Levee, Bay St. Louis - Option B 30.0 Estimate**

a. Lands and Improvements/Permits			
	433 Ownerships for Levee, 186 Improvements		94,636,388
	131 Ownerships for Ditches, 26 Improvements		9,805,320
	<u>12 Pump Stations</u>		174,798
	576 Ownerships	Subtotal	104,616,506
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 212 relocations			
			5,924,800
e. Administrative Cost			
			14,550,000
		Relocation	Acquisition
Federal		318,000	1,440,000
Non-Federal		1,272,000	11,520,000
		1,590,000	12,960,000
			Total
			1,758,000
			12,792,000
			14,550,000
Sub-Total			125,091,306
Contingencies (25%)			31,272,827
Totals			156,364,133
Rounded			156,364,000

3.3.2.18 Summary of Potential Real Estate Issues

The requirement for temporary work areas, disposal or borrow areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements. Typically if disposal or borrow sites are required, Real estate would provide an analysis during PED to compare the cost of acquiring an these sites with the cost of using a commercial sites and make a determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real estate acquisition requirement, valuation of lands will be performed. Land costs associated with these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared.

Any requirements for relocation contracts pertaining to facilities/utilities will be identified and completed during PED.

Any requirement for mitigation lands will be identified during PED.

Should condemnation of any required real estate interest be necessary, it is the responsibility of the NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate

1 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 2 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

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4 A Real Estate Relocation Plan should be completed during PED to address potential relocation
 5 activity under P.L. 91-646. There are a number of factors pertaining to relocations that can impact
 6 the project both in cost and in schedule. Payments for Housing of Last Resort, which would exceed
 7 the standard housing replacement payments, are very likely due to the size of the project and the
 8 lack of available decent, safe and sanitary housing in the area. Another factor that could increase
 9 cost and impact schedule is the cost of business relocations. Depending on the type of business
 10 and the operation, this could involve moving equipment and machinery to new locations. It is
 11 necessary to interview each impacted individual and business during Pre-Construction, Engineering
 12 and Design Phase to determine the requirements for relocation and to estimate a cost for the
 13 relocation.

14 **3.3.2.19 Chart of Accounts**

15 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 16 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 17 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 18 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 19 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 20 Tables 3.3.2.19-1 and 3.3.2.19-2 shows the CWBS for real estate activities.

21 **Table 3.3.2.19-1.**
 22 **Chart of Accounts - LOD3 Hancock County Ring Levee, Bay St. Louis - Option A**

01A	Project Planning	Federal	Non-federal	Totals
	Other			
01AX	Project Cooperation Agreement			
	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acq/Review of NFS	1,105,000		1,105,000
01B20	Acquisition by NFS		8,840,000	8,840,000
01BX	Contingencies (25%)	<u>276,250</u>	<u>2,210,000</u>	<u>2,486,250</u>
	Subtotal	1,381,250	11,050,000	12,431,250
01F	PL 91-646 Assistance			
01F20	By NFS		894,000	894,000
01FX	Contingencies (25%)		<u>223,500</u>	<u>223,500</u>
	Subtotal		1,117,500	1,117,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		81,001,869	81,001,869
	PL91-646 Relocation Payment by			
01R2B	NFS		4,132,800	4,132,800
01R2D	Review of NFS	223,500		223,500
01RX	Contingencies (25%)	<u>55,875</u>	<u>21,283,667</u>	<u>21,339,542</u>
	Subtotal	279,375	106,418,336	106,697,711
	Totals	1,660,625	118,585,836	120,246,461
	Rounded			120,246,000

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Table 3.3.2.19-2.
Chart of Accounts - LOD3 Hancock County Ring Levee, Bay St. Louis - Option B

01A	Project Planning	Federal	Non-federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acq/Review of NFS	1,440,000		1,440,000
01B20	Acquisition by NFS		11,520,000	11,520,000
01BX	Contingencies (25%)	<u>360,000</u>	<u>2,880,000</u>	<u>3,240,000</u>
	Subtotal	1,800,000	14,400,000	16,200,000
01F	PL 91-646 Assistance			
01F20	By NFS		1,272,000	1,272,000
01FX	Contingencies (25%)		<u>318,000</u>	<u>318,000</u>
	Subtotal		1,590,000	1,590,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		104,616,506	104,616,506
	PL91-646 Relocation Payment by			
01R2B	NFS		5,924,800	5,924,800
01R2D	Review of NFS	318,000		318,000
01RX	Contingencies (25%)	<u>79,500</u>	<u>27,635,327</u>	<u>27,714,827</u>
	Subtotal	397,500	138,176,633	138,574,133
	Totals	2,197,500	154,166,633	156,364,133
	Rounded			156,364,000

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4 **3.3.3 Hancock County, Elevated Roadway**

5 Residential and business areas along the coast in Hancock County are susceptible to storm surge
6 damage. The beach front road in Hancock County joins the communities of Bay St. Louis and
7 Waveland at the mouth of St. Louis Bay. Drainage at Bay St. Louis and Waveland is to the
8 Mississippi Sound to the south and to tributaries of St. Louis Bay to the north. The Shoreline Park
9 subdivision area to the north of Bay St. Louis is very low at elevations and subject to frequent
10 flooding from storm surge. Impacts from the 2005 hurricanes were devastating to the area. A
11 damage reduction option to raise the beach front road in Hancock County to elevation 11ft NAVD88
12 was evaluated. The location of the project is shown in Figure 3.3.3-1.



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Figure 3.3.3-1.
Vicinity Map near Waveland

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3.3.3.1 Project Description

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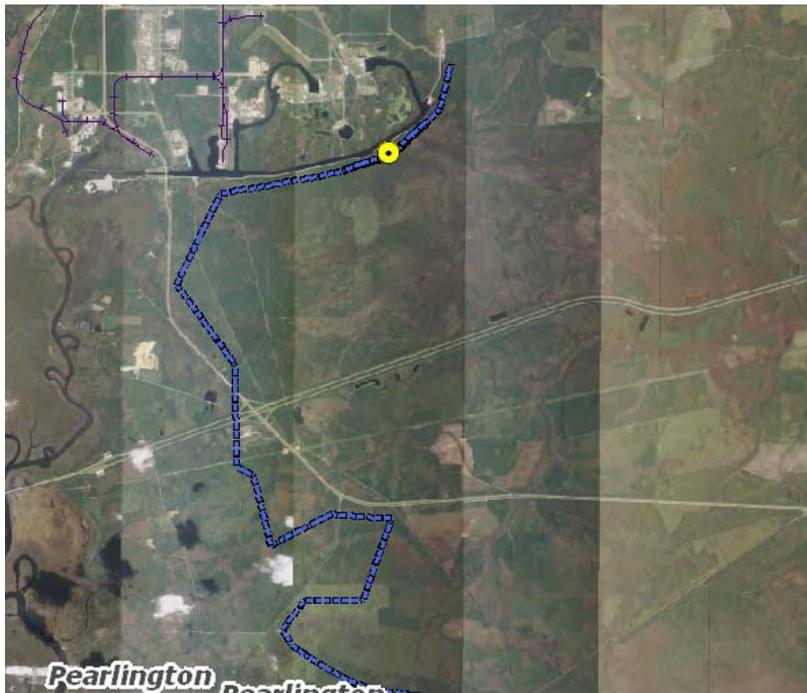
15

The proposed road alignment is shown in red in Figure 3.3.3-1. The option consists of more than one element and function. This option also contains a provision for a levee at elevation 16 ft NAVD88, shown in blue in the above Figure 3.3.3-1. The elevation 16 ft NAVD88 levee functions in coordination with the Harrison County Elevated Hwy 90 Roadway also at elevation 16 ft NAVD and the St. Louis Bay closure structure. This option consists of raising the beach front road to elevation 11 ft NAVD88 in the Bay St. Louis/Waveland area as shown on the following Figure 3.3.3.1-1, along with the internal sub-basins and levee culvert/pump locations. There is one culvert but no pumps associated with the Elevation 16 ft NAVD88 levee as shown on Figure 3.3.3.1-2. This levee runs mostly along the ridge line so the drainage is away from the levee. A small boat access structure is also shown at the mouth of one basin. Rising sector gates will be provided at this gate allowing shallow draft traffic most of the time. The gate will be closed prior to hurricane storm surge.



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**Figure 3.3.3.1-1.
Pump/Culvert/Boat Access Site Locations and Sub-basins**



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**Figure 3.3.3.1-2.
Culvert Site Location**

7 The Line 3 defense elevates the roadway and accompanying seawall by extending the seawall at its
8 present slope to grade, creating the roadway sub grade then, sloping the backside to one vertical to
9 three horizontal side slopes with a twenty five foot toe width for access and drainage. All work areas

1 to receive fill shall be cleared and grubbed of all trees and surface organics and all existing
2 foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and
3 compacted. The embankment will be constructed of sand clay materials obtained from off site
4 commercial sources, trucked to the work area. The final surface on the back side will be armored by
5 the placement of 12 inch thick gabion mattress filled with small stone for erosion protection during an
6 event that overtops the road. All non critical surface areas will be subsequently covered by grassing.
7 Road crossings will incorporate ramping over the embankment where the surface elevation is near
8 that of the crest elevation. Drainage on the interior of the raised roadway would be collected at the
9 highway and channeled to culverts. Drainage ditches along the toe of the highway will be required to
10 assure that smaller basins can be drained to a culvert/pump site. The culverts would have flap gates
11 on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An additional
12 closure gate would also be provided at every culvert for control in the event the flap gate
13 malfunctions. In addition, pumps would be constructed near the outflow points to remove water from
14 the interior during storm events occurring when the culverts were closed because of high water in
15 the sound.

16 The features that require periodic operations will be the raising and lowering of sluice gates and the
17 functioning flap gates, grass cutting of the embankment slopes and toe areas and the filling of rilled
18 areas within the embankment due to surface erosion.

19 **3.3.3.2 Real Estate Requirements**

20 Real Estate requirements for Line of Defense 3, Hancock County Elevated Road measure include
21 lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right
22 to raise a road and construct an earthen levee and 10 culvert/pump station facilities. Based on the
23 project footprint, it was determined that approximately 427 parcels and 66 structures would be
24 impacted. The acreage to be acquired for the levee is unknown. It is known that the 10 pump
25 stations will require approximately 0.23 of an acre each for a total of 2.3 acres. Lands required for
26 construction of the levee will be acquired in fee simple interest. Based on the number of structures
27 being impacted, the assumption is that there will be 66 relocations.

28 Ditches that will be constructed to provide drainage for the levee are expected to be located within
29 the footprint of the levee. Until final plans and specifications are completed, an assumption is made
30 that the ditches will be constructed on the same lands acquired for construction of the levee. If any
31 additional lands are required, this will be determined during PED.

32 Raising of the roadway will most probably need to be accomplished through a relocation contract.
33 This will be further investigated and confirmed during PED.

34 In some areas the levee alignment would cross a moderately sized water course where it is apparent
35 that boats currently traverse the area. To allow continued free boat access to areas behind the levee
36 these water courses will be fitted with a scaled down adaptation of the larger rising sector gate
37 structure used for the bay barriers at Biloxi and Bay St. Louis. A small boat access structure is
38 shown at the mouth of one basin in the project footprint. Rising sector gates will be provided at this
39 gate allowing shallow draft traffic most of the time. The gate will be closed prior to hurricane storm
40 surge. No additional real estate interest is identified for boat access points as they fall within the
41 footprint of the project and impacted parcels are included in the total that is projected. For those
42 lands required for construction that lay below the mean high water mark, navigation servitude will
43 apply.

44 An assumption is made that excavated materials from clearing, snagging, and construction of
45 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
46 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if

1 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
2 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
3 the cost of using a commercial landfill and make a determination which method is most cost
4 effective.

5 The recommended plan proposes to use material from an inventory of upland borrow sites to
6 construct the project. A specific site has not been identified or confirmed for use at time of this
7 report. Typically if borrow sites are required, this would be considered a part of the LERRD
8 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
9 upland borrow site with the cost of using a commercial borrow site and make a determination which
10 method is most cost effective. The requirement for temporary work areas is unknown. Sponsor
11 owned lands will be used if available. Otherwise, this may be an additional real estate requirement,
12 and will be further defined during PED.

13 **3.3.3.3 Utility/Facility Relocation**

14 The plan calls for elevation of the beachfront road. An assumption is made that this work will be
15 accomplished through a relocation contract. This will be further investigated and confirmed during
16 PED. See Chapter 2 Section 2.10 for more detailed discussion.

17 **3.3.3.4 Existing Projects/Studies**

18 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
19 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

20 **3.3.3.5 Environmental Impacts**

21 See the Main Report, Chapter 6, Environmental Effects of Plans and the Environmental Appendix,
22 for a full discussion on environmental effects.

23 **3.3.3.6 Project Sponsor Responsibilities and Capabilities**

24 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
25 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
26 all alterations and relocations of facilities, structures and improvements determined by the
27 government to be necessary for construction of the Project.

28 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
29 the United States Government. Prior to advertisement of any construction contract, the NFS shall
30 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
31 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
32 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
33 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
34 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
35 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
36 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
37 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
38 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
39 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

40 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
41 lands it provides and the value of the relocations that are required for the project. Generally, for the
42 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market

1 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
2 non-federal sponsor provided for the project as required by the Government. The NFS cannot
3 receive credit for the value of any LER, including incidental costs, which were previously provided as
4 an item of cooperation for another Federal project, including projects that preceded enactment of
5 WRDA 1986.

6 **3.3.3.7 Government Owned Property**

7 There are no known Government owned lands within the proposed project.

8 **3.3.3.8 Historical Significance**

9 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
10 on cultural and archaeological resources.

11 **3.3.3.9 Mineral Rights**

12 There are no known mineral activities within the scope of the proposed project.

13 **3.3.3.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

14 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
15 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
16 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

17 **3.3.3.11 Public Law 91-646, Relocation Assistance Benefits**

18 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
19 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
20 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
21 result of programs designed for the benefits of the public as a whole. A qualified displaced person
22 may be entitled to certain relocation assistance benefits which include reimbursement of moving
23 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
24 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
25 types - purchase supplement, rental assistance and down payment. All replacement housing must
26 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

27 It is estimated that there are approximately 66 relocations in this alternative. No relocation plan has
28 been completed nor has a relocation survey been done. All estimates are based on information from
29 county public records. The number of business relocations as compared to residential relocations is
30 unknown. In order to accomplish the relocation activity in a timely manner, the plan set forth in
31 Chapter 2. Section 2.5 can be used.

32 **3.3.3.12 Attitude of Property Owners**

33 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
34 However, numerous public meetings have been held at different locations throughout the study area
35 to inform stakeholders and property owners about the study and the protective measures under
36 consideration for the Mississippi coastal area. A number of local newspapers have published articles
37 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
38 may occur as a result of the project. Some of these articles can be found on web sites. While many
39 of the locals may welcome the benefits of the proposed project, there are some who oppose the
40 project.

1 **3.3.3.13 Acquisition Schedule**

2 An acquisition schedule will be developed when plans and specifications become available and
3 more definite information is available pertaining to the specific areas and number of parcels for
4 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
5 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
6 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
7 completed certification of lands acquired/owned by the sponsor will be necessary prior to
8 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
9 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
10 implementation/management plan.

11 **3.3.3.14 Estates for Proposed Project**

12 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
13 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
14 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
15 recommended are standard estates.

16 **FEE.**

17 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____), subject,
18 however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

19 **BORROW EASEMENT.**

20 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
21 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
22 _____ and _____); subject, however, to existing easements for public roads and highways, public
23 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
24 such rights and privileges in said land as may be used without interfering with or abridging the rights
25 and easement hereby acquired.

26 **TEMPORARY WORK AREA EASEMENT.**

27 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
28 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
29 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
30 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
31 backfill, move, store and remove equipment and supplies, and erect and remove temporary
32 structures on the land and to perform any other work necessary and incident to the construction of
33 the _____ Project, together with the right to trim, cut, fell and remove there from
34 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
35 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
36 rights and privileges as may be used without interfering with or abridging the rights and easement
37 hereby acquired; subject, however, to existing easements for public roads and highways, public
38 utilities, railroads and pipelines.

39 **3.3.3.15 Real Estate Estimate**

40 The real estate cost estimate at Table 3.3.3.15-1 includes the land cost for acquisition of land,
41 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
42 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
43 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,

1 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
 2 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
 3 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 4 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

5

6 A relocation plan will need to be completed during PED to address potential relocation activity under
 7 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
 8 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 9 housing replacement payments, are very likely due to the size of the project and the lack of available
 10 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 11 schedule is the cost of business relocations. Depending on the type of business and the operation,
 12 this could involve moving equipment and machinery to new locations. It is necessary to interview
 13 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 14 determine the requirements for relocation and to estimate a cost for the relocation.

15 **3.3.3.17 Chart of Accounts**

16 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 17 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 18 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 19 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 20 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 21 Table 3.3.3.17-1 shows the CWBS for real estate activities.

22
 23

**Table 3.3.3.17-1.
 Chart of Accounts - LOD3 Hancock County Elevated Road**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
01AX	Project Cooperation Agreement			
	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	1,067,500		1,067,500
01B20	Acquisition by NFS		8,540,000	8,540,000
01BX	Contingencies (25%)	<u>266,875</u>	<u>2,135,000</u>	<u>2,401,875</u>
	Subtotal	1,334,375	10,675,000	12,009,375
01F	PL 91-646 Assistance			
01F20	By NFS		396,000	396,000
01FX	Contingencies (25%)		<u>99,000</u>	<u>99,000</u>
	Subtotal		495,000	495,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		23,989,345	23,989,345
01R2B	PL91-646 Relocation Payment by NFS		1,859,200	1,859,200
01R2D	Review of NFS	99,000		99,000
01RX	Contingencies (25%)	<u>24,750</u>	<u>6,462,136</u>	<u>6,486,886</u>
	Subtotal	123,750	32,310,681	32,434,431
	Totals	1,458,125	43,480,681	44,938,806
	Rounded			44,939,000

1 **3.3.4 Harrison County, Elevated Roadway**

2 Residential and business areas along the coast in Harrison County are susceptible to storm surge
3 damage. In Harrison County, ground elevations over most of the residential and business areas vary
4 between elevation 8-12 feet NAVD88 on the coast and rising within 1000 feet to elevation 30-36
5 along a ridge parallel to the coastline, then decreasing to the north. A damage reduction option to
6 raise Highway 90 to elevation 16 feet NAVD88 was evaluated. The location of the project is shown in
7 Figure 3.3.4-1.



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**Figure 3.3.4-1.
Vicinity Map, Harrison County**

11 **3.3.4.1 Project Description**

12 The proposed project is shown in red in Figures 3.3.4.1-1 through Figure 3.3.4.1-4. Highway 90 in
13 Harrison County extends from Biloxi Bay to pass Christian.



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Figure 3.3.4.1-1.
Pump/Culvert/Sub-basin Site Locations, Harrison County



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Figure 3.3.4.1-2.
Pump/Culvert/Sub-basin Site Locations, Harrison County

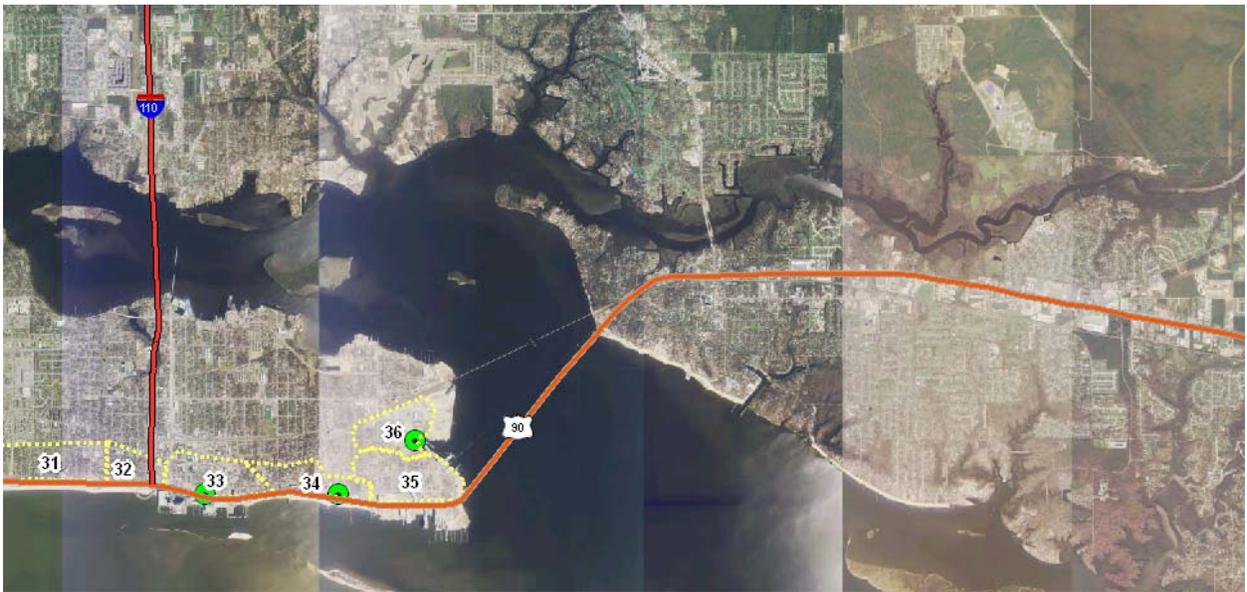


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Figure 3.3.4.1-3.
Pump/Culvert/Sub-basin Site Locations, Harrison County



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Figure 3.3.4.1-4.
Pump/Culvert/Sub-basin Site Locations, Harrison County

7 This option consists of raising US Highway 90 along the coast of Harrison County to elevation
 8 16 feet NAVD88 along with the internal sub-basins and levee culvert/pump locations as shown
 9 above. The Line 3 defense elevates the roadway and accompanying seawall by extending the
 10 seawall at its present slope to grade, creating the roadway sub grade then, sloping the backside to
 11 one vertical to three horizontal side slopes with a twenty five foot toe width for access and drainage.
 12 All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all
 13 existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and

1 compacted. The embankment will be constructed of sand clay materials obtained from off site
2 commercial sources, trucked to the work area. The final surface on the back side will be armored by
3 the placement of 12 inch thick gabion mattress filled with small stone for erosion protection during an
4 event that overtops the road. All non critical surface areas will be subsequently covered by grassing.
5 Road crossings will incorporate ramping over the embankment where the surface elevation is near
6 that of the crest elevation. Drainage on the interior of the raised roadway would be collected at the
7 highway and channeled to culverts Drainage ditches along the toe of the highway, will be required to
8 assure that smaller basins can be drained to a culvert/pump site. The culverts would have flap gates
9 on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An additional
10 closure gate would also be provided at every culvert for control in the event the flap gate
11 malfunctions. In addition, pumps would be constructed near the outflow points to remove water from
12 the interior during storm events occurring when the culverts were closed because of high water in
13 the sound.

14 Operation and maintenance activities for this project will be required on an annual basis. All pumps
15 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
16 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
17 causing weak levee locations.

18 **3.3.4.2 Real Estate Requirements**

19 Real Estate requirements for Line of Defense 3, Harrison County Elevated Road measure include
20 lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right
21 to raise a road and construct an earthen levee, drainage ditches and 15 culvert/pump station
22 facilities. Based on the project footprint, it was determined that approximately 1031 parcels and
23 80 structures would be impacted. The acreage to be acquired is unknown. It is known that the
24 15 pump stations will require approximately 0.23 of an acre each for a total of 3.45 acres. Lands
25 required for construction of the levee will be acquired in fee simple interest. Based on the number of
26 structures being impacted, the assumption is that there will be 80 relocations.

27 Ditches that will be constructed to provide drainage for the levee are expected to be located within
28 the footprint of the levee. Until final plans and specifications are completed, an assumption is made
29 that the ditches will be constructed on the same lands acquired for construction of the levee. If any
30 additional lands are required, this will be determined during PED.

31 Raising of the roadway and relocation of any utilities will most probably need to be accomplished
32 through a relocation contract. This will be further investigated and confirmed during PED.

33 An assumption is made that excavated materials from clearing, snagging, and construction of
34 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
35 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
36 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
37 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
38 the cost of using a commercial landfill and make a determination which method is most cost
39 effective.

40 The recommended plan proposes to use material from an inventory of upland borrow sites to
41 construct the project. A specific site has not been identified or confirmed for use at time of this
42 report. Typically if borrow sites are required, this would be considered a part of the LERRD
43 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
44 upland borrow site with the cost of using a commercial borrow site and make a determination which
45 method is most cost effective. The requirement for temporary work areas is unknown. Sponsor

1 owned lands will be used if available. Otherwise, this may be an additional real estate requirement,
2 and will be further defined during PED.

3 **3.3.4.3 Utility/Facility Relocation**

4 The plan calls for elevation of Highway 90. Some removal/relocation of utilities may be required. An
5 assumption is made that this work will be accomplished through a relocation contract. This will be
6 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
7 discussion.

8 **3.3.4.4 Existing Projects/Studies**

9 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
10 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

11 **3.3.4.5 Environmental Impacts**

12 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
13 for a full discussion on environmental effects.

14 **3.3.4.6 Project Sponsor Responsibilities and Capabilities**

15 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
16 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
17 all alterations and relocations of facilities, structures and improvements determined by the
18 government to be necessary for construction of the Project.

19 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
20 the United States Government. Prior to advertisement of any construction contract, the NFS shall
21 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
22 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
23 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
24 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
25 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
26 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
27 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
28 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
29 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
30 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

31 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
32 lands it provides and the value of the relocations that are required for the project. Generally, for the
33 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
34 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
35 non-federal sponsor provided for the project as required by the Government. The NFS cannot
36 receive credit for the value of any LER, including incidental costs, which were previously provided as
37 an item of cooperation for another Federal project, including projects that preceded enactment of
38 WRDA 1986.

39 **3.3.4.7 Government Owned Property**

40 There 4 Government owned parcels within the footprint of the project. In viewing the footprint, it
41 appears that these parcels will be minimally impacted where they abut Highway 90. Land and

1 structure values are not listed in the public records. Ownership is listed in public records as US Govt,
2 US Veterans Hospital, and United States of America. Specific impacts to Government owned lands
3 will be determined during PED.

4 **3.3.4.8 Historical Significance**

5 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
6 on cultural and archaeological resources.

7 **3.3.4.9 Mineral Rights**

8 There are no known mineral activities within the scope of the proposed project.

9 **3.3.4.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

10 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
11 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
12 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

13 **3.3.4.11 Public Law 91-646, Relocation Assistance Benefits**

14 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
15 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
16 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
17 result of programs designed for the benefits of the public as a whole. A qualified displaced person
18 may be entitled to certain relocation assistance benefits which include reimbursement of moving
19 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
20 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
21 types - purchase supplement, rental assistance and down payment. All replacement housing must
22 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

23 It is estimated that there are approximately 80 relocations in this alternative. All estimates are based
24 on information from county public records. The number of business relocations as compared to
25 residential relocations is unknown. In order to accomplish the relocation activity in a timely manner,
26 the plan set forth in Chapter 2. Section 2.5 can be used.

27 **3.3.4.12 Attitude of Property Owners**

28 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
29 However, numerous public meetings have been held at different locations throughout the study area
30 to inform stakeholders and property owners about the study and the protective measures under
31 consideration for the Mississippi coastal area. A number of local newspapers have published articles
32 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
33 may occur as a result of the project. Some of these articles can be found on web sites. While many
34 of the locals may welcome the benefits of the proposed project, there are some who oppose the
35 project.

36 **3.3.4.13 Acquisition Schedule**

37 An acquisition schedule will be developed when plans and specifications become available and
38 more definite information is available pertaining to the specific areas and number of parcels for
39 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
40 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,

1 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
2 completed certification of lands acquired/owned by the sponsor will be necessary prior to
3 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
4 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
5 implementation/management plan.

6 **3.3.4.14 Estates for Proposed Project**

7 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
8 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
9 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
10 recommended are standard estates.

11 **FEE.**

12 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
13 subject, however, to existing easements for public roads and highways, public utilities, railroads and
14 pipelines.

15 **BORROW EASEMENT.**

16 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
17 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
18 _____ and _____); subject, however, to existing easements for public roads and highways, public
19 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
20 such rights and privileges in said land as may be used without interfering with or abridging the rights
21 and easement hereby acquired.

22 **TEMPORARY WORK AREA EASEMENT.**

23 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
24 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
25 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
26 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
27 backfill, move, store and remove equipment and supplies, and erect and remove temporary
28 structures on the land and to perform any other work necessary and incident to the construction of
29 the _____ Project, together with the right to trim, cut, fell and remove there from
30 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
31 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
32 rights and privileges as may be used without interfering with or abridging the rights and easement
33 hereby acquired; subject, however, to existing easements for public roads and highways, public
34 utilities, railroads and pipelines.

35 **DRAINAGE DITCH EASEMENT.**

36 A perpetual and assignable easement and right-of-way in, over and across (the land described in
37 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
38 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
39 and privileges in the land as may be used without interfering with or abridging the rights and
40 easement hereby acquired; subject, however, to existing easements for public roads and highways,
41 public utilities, railroads and pipelines.

1 **3.3.4.15 Real Estate Estimate**

2 The real estate cost estimate at Table 3.3.4.15-1 includes the land cost for acquisition of land,
 3 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
 4 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
 5 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
 6 analysis or other requirements that may be necessary, during PED. No cost is included for a borrow
 7 site or temporary work area. The requirement, if any, for a borrow site or temporary work area will be
 8 identified during PED. If further real estate requirements are identified during PED or if there is a
 9 significant increase in cost, a supplement to the Real Estate Appendix will be prepared. A 25%
 10 contingency is applied to the current estimate.

11 **Table 3.3.4.15-1.**
 12 **LOD3 Harrison County Elevated Road Estimate**

<hr/>				
a. Lands and Improvements/Permits				
	1016 Ownerships for Levee, 80 Improvements			375,464,802
	<u>15 Pump Stations</u>			270,004
	1031 Ownerships		Subtotal	375,734,806
b. Mineral Rights				
				0
c. Damages				
				0
d. P.L. 91-646 Relocation costs – 80 relocations				
				2,240,000
e. Administrative Cost				
				0
		Relocation	Acquisition	Total
	Federal	120,000	2,577,500	2,697,500
	Non-Federal	480,000	20,620,000	21,100,000
		<hr/>	<hr/>	<hr/>
		600,000	23,197,500	23,797,500
Subtotal				
				401,772,306
Contingencies (25%)				
				100,443,077
<hr/>				
		Totals		502,215,383
		Rounded		502,215,000
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13
 14 **3.3.4.16 Summary of Potential Real Estate Issues**

15 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
 16 these areas be required, these would be considered as part of the LERRD requirements. Typically if
 17 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
 18 the cost of acquiring an these sites with the cost of using a commercial sites and make a
 19 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

20 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
 21 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
 22 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real

1 estate requirements are identified during PED or if there is a significant increase in cost, a
2 supplement to the Real Estate Appendix will be prepared.

3 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
4 completed during PED.

5 Any requirement for mitigation lands will be identified during PED.

6 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
7 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
8 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
9 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

10

11 A relocation plan will need to be completed during PED to address potential relocation activity under
12 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
13 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
14 housing replacement payments, are very likely due to the size of the project and the lack of available
15 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
16 schedule is the cost of business relocations. Depending on the type of business and the operation,
17 this could involve moving equipment and machinery to new locations. It is necessary to interview
18 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
19 determine the requirements for relocation and to estimate a cost for the relocation.

20 **3.3.4.17 Chart of Accounts**

21 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
22 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
23 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
24 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
25 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
26 Table 3.3.4.17-1 shows the CWBS for real estate activities.

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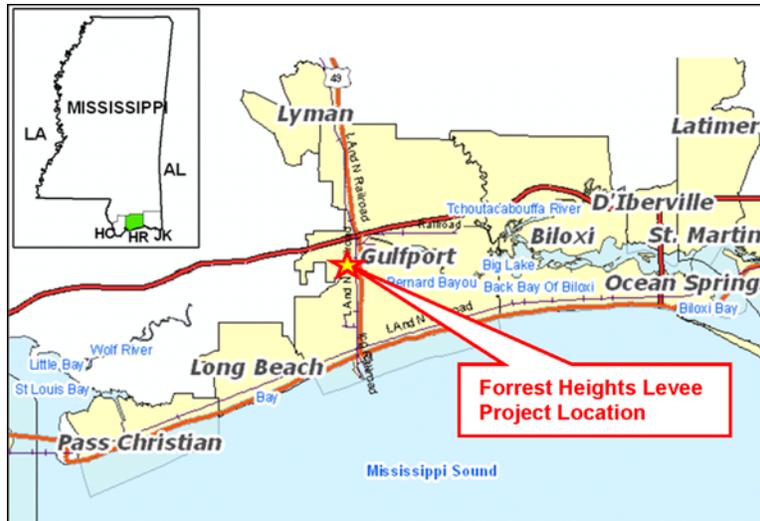
**Table 3.3.4.17-1.
Chart of Accounts - LOD3 Harrison County Elevated Road**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	2,577,500		2,577,500
01B20	Acquisition by NFS		20,620,000	20,620,000
01BX	Contingencies (25%)	644,375	5,155,000	5,799,375
	Subtotal	3,221,875	25,775,000	28,996,875
01F	PL 91-646 Assistance			
01F20	By NFS		480,000	480,000
01FX	Contingencies (25%)		120,000	120,000
	Subtotal		600,000	600,000
01R	Real Estate Land Payments			
01R1	Land Payments by NFS		375,734,806	375,734,806
B				
01R2	PL91-646 Relocation Payment by NFS		2,240,000	2,240,000
B				
01R2	Review of NFS	120,000		120,000
D				
01RX	Contingencies (25%)	30,000	94,493,702	94,523,702
	Subtotal	150,000	472,468,508	472,618,508
	Totals	3,371,875	498,843,508	502,215,383
	Rounded			502,215,000

3

4 **3.3.5 Harrison County Forrest Heights Levee, City of Gulfport**

5 The Forrest Heights community is located in an area known as North Gulfport within the city of
6 Gulfport on the Mississippi Gulf Coast. The residential community lies on the bank of Turkey Creek
7 about 2.6 miles from the mouth at Bernard Bayou, and has frequently been inundated by flood
8 waters due to storm surges from the Mississippi Sound and from inland flooding along the lower
9 Turkey Creek floodplain. Turkey Creek has a tendency to frequently exceed its stream channel
10 capacity and flood adjacent low-lying areas. Water reached a depth of 2-8 feet over the entire
11 community during Hurricane Katrina inundation. Ground elevations over most of the residential area
12 are between elevations 10-14 feet NAVD88. Drainage is mostly along streets and through natural
13 drainage ways to the Turkey Creek. A previous evaluation recommended the construction of an
14 earthen levee to protect this area from storm surge flooding. The Forrest Heights levee is proposed
15 to be constructed as a pilot project for the MsCIP comprehensive plan. The levee will address the
16 combination of storm surge protection and inland surge protection. The levee is intended to be
17 constructed to a height such that the levee might be certified under the National Flood Insurance
18 Program. A preliminary engineering analysis suggests a levee built to approximately elevation 21 ft
19 NAVD88 would satisfy or exceed certification elevation criteria. The location of the levee is shown in
20 Figure 3.3.5-1. The options in this study are identified as Option A and Option B. The levees were
21 evaluated at elevations 17 ft NAVD88 and 21 ft NAVD88. The top width was assumed 12 ft with side
22 slopes of 1 vertical to 3 horizontal.



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Figure 3.3.5-1.
Forrest Heights Levee Vicinity Map

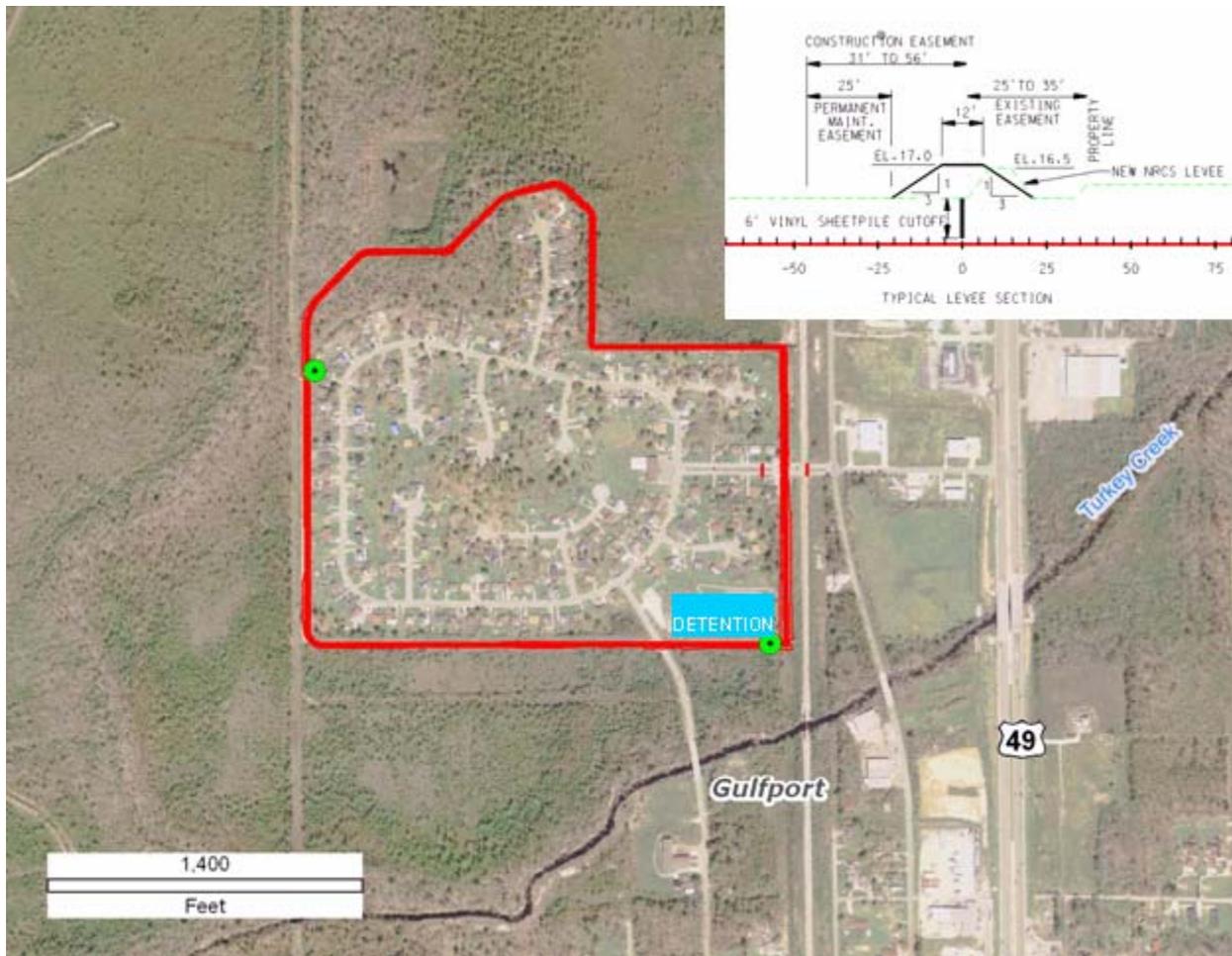
3.3.5.1 Option A - Elevation 17.0 ft NAVD88

This option consists of an earthen dike around the Forrest Heights community along with the levee culvert/interior detention location. It generally will be trapezoidal in shape with an elevation of 17.0 feet and a top width of 12 ft and slopes of 1 vertical to 3 horizontal on both sides. The total length of the levee will be approximately 7,900 feet. The recommended plan includes selective clearing and snagging as a measure to prevent increases in water surface elevations upstream that would occur due to the placement of the levees in the floodplain.

3.3.5.2 Option B - Elevation 21.0 ft NAVD88

This option consists of an earthen levee around northern, western, and southern sides of the Forrest Heights community. Because of the height of the levee, the eastern side will be constructed with a concrete "T"-wall structure. The "T" wall will take less space than an earthen levee and encroach less into property along the alignment. Closure gates across the two access roads to the subdivision will be required. The lengths of the levee culverts will be slightly longer than those used in Option A. Other features and methods of analysis are the same.

The levee alignment for both Option A and B is generally the same and is shown in Figure 3.3.5.2-1.



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3 **Figure 3.3.5.2-1.**
Forrest Heights Levee Alignment with Detention Site Location

4 **3.3.5.3 Project Description**

5 As described above, the levee will be an earthen berm constructed either at elevation 17.0 feet or
6 21.0 feet along with culvert/interior detention locations. Interior flooding on the landward side of the
7 levee will be improved by adding a storm water detention basin and pumping facility. The detention
8 area will hold storm water until the creek water level recedes and water can drain through the
9 culvert. The culverts would have flap gates on the seaward ends to prevent backflow when the water
10 in Mississippi Sound is high. An additional closure gate would also be provided in the levee for
11 control in the event the flap gate malfunctions.

12 The detention basin would have an area of approximately 3 acres but would not be excavated. The
13 area is the lowest site in the subdivision and is presently used for recreation facilities such as
14 baseball and tennis.

15 The Recommended Plan includes selective clearing and snagging for approximately 4.5 miles from
16 the mouth of Turkey Creek at Bernard Bayou to the upstream limits as shown in Figure 3.3.5.3-1.
17 Selective clearing and snagging would remove obstructions such as debris dams and excessive
18 sedimentation that hinders the flow through the Turkey Creek channel. While the selective clearing
19 and snagging component of the plan does not eliminate flooding along Turkey Creek, the plan does

1 reduce flood damages along the creek and at the upper end of the canals at 28th Street. The main
2 purpose of the selective clearing and snagging is to make sure that induced damages do not occur
3 due to the construction of the recommended levees. Only debris, snags and sediment that obstruct
4 the flow will be removed. Material to be removed includes: 1) fine sediment accumulations that
5 obstruct flows and alter flow patterns; 2) Debris blockages that currently or in the near future cause
6 obstructed flow and altered flow patterns; and 3) Rooted trees that obstruct flow or need to be
7 cleared for equipment access. Access areas that are cleared will be reestablished at the conclusion
8 of the selective clearing and snagging activities. Some access points, however, may remain for the
9 non-Federal sponsor to use for maintenance activity of the completed project. The existing bank
10 alignment along the entire reach will not be changed, including the downstream reaches of Turkey
11 Creek along the meander bends. Specific reaches to be cleared and snagged will be identified by an
12 interdisciplinary team prior to construction.



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**Figure 3.3.5.3-1.
Turkey Creek Channel Clearing and Snagging Limits**

16 The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a
17 twelve foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and
18 surface organics and all existing foundations, streets, utilities, etc. will be removed and the
19 subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials
20 obtained from off site commercial sources, and trucked to the work area. The final surface will be
21 armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion
22 protection during an event that overtops the levee. The armoring will be anchored on the front face

1 by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front
2 side of the levee and all non critical surface areas will be subsequently covered by grassing. In order
3 to maintain the natural runoff patterns culverts would be inserted through the protection line at
4 appropriate locations. For this study these were configured as cast-in-place reinforced concrete box
5 structures fitted with flap gates and sluice gates to provide protection from high water outside the
6 levee.

7 With the installation of a ring levee around the Forrest Heights community at Option A, elevation
8 17.0 or Option B, elevation 21.0, 2 roadway intersections would have to be accommodated. For this
9 study it was estimated that for Option A both roadway entrances could use ramps for crossing the
10 restored levee. For Option B both roadway entrances would use sliding flood gates.

11 Operation and maintenance activities for this project will be required on an annual basis. All gates
12 will be operated to assure proper working order. Debris and shoaled sediment will be removed from
13 the interior ponding area. Vegetation on the levees will be cut to facilitate inspection and to prevent
14 roots from causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

15 **3.3.5.4 Real Estate Requirements**

16 Real Estate requirements for Line of Defense 3, Forrest Heights Levees include lands, easements,
17 rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to construct an
18 earthen levee, drainage ditches and detention ponding area. Based on the footprint of the Option A
19 17.0 foot elevation, it was determined that approximately 18 parcels and 2 structures will be
20 impacted. The acreage to be acquired for the levee is unknown. It is known that the detention
21 ponding area would require approximately 3.0 acres. Lands required for construction of the levee
22 and the detention pond will be acquired in fee simple interest. Based on the number of structures
23 being impacted, the assumption is that there will be 2 relocations. Approximately 55 acres will be
24 acquired in Channel Improvement Easements from approximately 48 landowners.

25 Based on the footprint of the Option B 30.0 foot elevation, it was determined that the same number
26 of parcels and structures will be impacted as for Option A, but the easement area required for the
27 levee will be extended to permit construction of the higher levee.

28 Ditches that will be constructed to provide drainage for the interior of the ring levee are expected to
29 be located within the footprint of the levee. Until final plans and specifications are completed, an
30 assumption is made that the ditches will be constructed on the same lands acquired for construction
31 of the levee. If any additional lands are required, this will be determined during PED.

32 Any modifications to the roadways and utilities will most probably need to be accomplished through
33 a relocation contract. This will be further investigated and confirmed during PED.

34 An assumption is made that excavated materials from clearing, snagging, and construction of
35 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
36 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
37 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
38 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
39 the cost of using a commercial landfill and make a determination which method is most cost
40 effective.

41 The recommended plan proposes to use material from an inventory of upland borrow sites to
42 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
43 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
44 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
45 borrow site with the cost of using a commercial borrow site and make a determination which method

1 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
2 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
3 further defined during PED.

4 **3.3.5.5 Utility/Facility Relocation**

5 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
6 assumption is made that this work will be accomplished through a relocation contract. This will be
7 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
8 discussion.

9 **3.3.5.6 Existing Projects/Studies**

10 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
11 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

12 **3.3.5.7 Environmental Impacts**

13 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
14 for a full discussion on environmental effects.

15 **3.3.5.8 Project Sponsor Responsibilities and Capabilities**

16 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
17 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
18 all alterations and relocations of facilities, structures and improvements determined by the
19 government to be necessary for construction of the Project.

20 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
21 the United States Government. Prior to advertisement of any construction contract, the NFS shall
22 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
23 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
24 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
25 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
26 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
27 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
28 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
29 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
30 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
31 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

32 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
33 lands it provides and the value of the relocations that are required for the project. Generally, for the
34 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
35 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
36 non-federal sponsor provided for the project as required by the Government. The NFS cannot
37 receive credit for the value of any LER, including incidental costs, which were previously provided as
38 an item of cooperation for another Federal project, including projects that preceded enactment of
39 WRDA 1986.

40 **3.3.5.9 Government Owned Property**

41 There are no known Government owned lands within the proposed project.

1 **3.3.5.10 Historical Significance**

2 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
3 on cultural and archaeological resources.

4 **3.3.5.11 Mineral Rights**

5 There are no known mineral activities within the scope of the proposed project.

6 **3.3.5.12 Hazardous, Toxic, and Radioactive Waste (HTRW)**

7 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
8 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
9 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

10 **3.3.5.13 Public Law 91-646, Relocation Assistance Benefits**

11 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
12 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
13 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
14 result of programs designed for the benefits of the public as a whole. A qualified displaced person
15 may be entitled to certain relocation assistance benefits which include reimbursement of moving
16 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
17 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
18 types - purchase supplement, rental assistance and down payment. All replacement housing must
19 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

20 It is estimated that there are approximately 2 relocations in Option A and approximately 2 relocations
21 in Option B. No relocation plan has been completed nor has a relocation survey been done. All
22 estimates are based on information from county public records. In order to accomplish the relocation
23 activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

24 **3.3.5.14 Attitude of Property Owners**

25 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
26 However, numerous public meetings have been held at different locations throughout the study area
27 to inform stakeholders and property owners about the study and the protective measures under
28 consideration for the Mississippi coastal area. A number of local newspapers have published articles
29 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
30 may occur as a result of the project. Some of these articles can be found on web sites. While many
31 of the locals may welcome the benefits of the proposed project, there are some who oppose the
32 project.

33 **3.3.5.15 Acquisition Schedule**

34 An acquisition schedule will be developed when plans and specifications become available and
35 more definite information is available pertaining to the specific areas and number of parcels for
36 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
37 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
38 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
39 completed certification of lands acquired/owned by the sponsor will be necessary prior to
40 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60

1 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
2 implementation/management plan.

3 **3.3.5.16 Estates for Proposed Project**

4 All lands required for the levee will be acquired in Fee Simple. The Channel Improvements
5 Easement will be used for clearing and snagging work. Should a borrow site be required, the Borrow
6 Easement will be used. The Temporary Work Area Easement will be used for staging or temporary
7 work areas, and the Drainage Ditch Easement will be used as required. The estates recommended
8 are standard estates.

9 **FEE.**

10 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
11 subject, however, to existing easements for public roads and highways, public utilities, railroads and
12 pipelines.

13 **BORROW EASEMENT.**

14 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
15 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
16 _____ and _____); subject, however, to existing easements for public roads and highways, public
17 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
18 such rights and privileges in said land as may be used without interfering with or abridging the rights
19 and easement hereby acquired.

20 **TEMPORARY WORK AREA EASEMENT.**

21 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
22 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
23 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
24 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
25 backfill, move, store and remove equipment and supplies, and erect and remove temporary
26 structures on the land and to perform any other work necessary and incident to the construction of
27 the _____ Project, together with the right to trim, cut, fell and remove there from
28 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
29 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
30 rights and privileges as may be used without interfering with or abridging the rights and easement
31 hereby acquired; subject, however, to existing easements for public roads and highways, public
32 utilities, railroads and pipelines.

33 **CHANNEL IMPROVEMENT EASEMENT.**

34 A perpetual and assignable right and easement to construct, operate, and maintain channel
35 improvement works on, over and across (the land described in Schedule A) (Tracts Nos. _____,
36 _____ and _____) for the purposes as authorized by the Act of Congress approved _____,
37 including the right to clear, cut, fell, remove and dispose of any and all timber, trees, underbrush,
38 buildings, improvements and/or other obstructions there from; to excavate: dredge, cut away, and
39 remove any or all of said land and to place thereon dredge or spoil material; and for such other
40 purposes as may be required in connection with said work of improvement; reserving, however, to
41 the owners, their heirs and assigns, all such rights and privileges as may be used without interfering
42 with or abridging the rights and easement hereby acquired; subject, however, to existing easements
43 far public roads and highways, public utilities, railroads and pipelines.

44

1 **DRAINAGE DITCH EASEMENT.**

2 A perpetual and assignable easement and right-of-way in, over and across (the land described in
 3 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
 4 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
 5 and privileges in the land as may be used without interfering with or abridging the rights and
 6 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 7 public utilities, railroads and pipelines.

8 **3.3.5.17 Real Estate Estimate**

9 A summary of the cost for each option is at Table 3.3.5.17-1. The real estate estimates at Tables
 10 3.3.5.17-2 and 3.3.5.17-3 include the land cost for acquisition of land, relocation benefits to include a
 11 replacement housing payment and fixed rate move expenses, and Federal and non-Federal
 12 administrative costs. Administrative costs are those costs incurred for verifying ownership of lands,
 13 certification of those lands required for project purposes, legal opinions, analysis or other
 14 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
 15 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 16 PED. If further real estate requirements are identified during PED or if there is a significant increase
 17 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 18 the current estimate.

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**Table 3.3.5.17-1.
Real Estate Cost Summary**

Option	Impacted Parcels	Relocatio ns	Total Cost
Option A - 17.0	67	2	\$2,571,00 0
Option B - 21.0	67	4	\$2,649,00 0

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**Table 3.3.5.17-2.
LOD3 Harrison County Forrest Heights Levee, Gulfport - Option A 17.0 Estimate**

a. Lands and Improvements/Permits			
18 Ownerships for Levee, 2 Improvements			219,740
1 Ownerships for Pond, 0 Improvements			13,392
<u>48 Ownerships for Channel Improvement</u>			245,520
67 Ownerships			Subtotal 478,652
b. Mineral Rights			0
c. Damages			0
d. P.L. 91-646 Relocation costs - 2 relocations			56,000
e. Administrative Cost			1,522,500

Federal	Relocation 3,000	Acquisition 167,500	Total 170,500
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1 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
 2 estate requirements are identified during PED or if there is a significant increase in cost, a
 3 supplement to the Real Estate Appendix will be prepared.

4 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
 5 completed during PED.

6 Any requirement for mitigation lands will be identified during PED.

7 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
 8 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
 9 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 10 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

11 A relocation plan will need to be completed during PED to address potential relocation activity under
 12 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
 13 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 14 housing replacement payments, are very likely due to the size of the project and the lack of available
 15 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 16 schedule is the cost of business relocations. Depending on the type of business and the operation,
 17 this could involve moving equipment and machinery to new locations. It is necessary to interview
 18 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 19 determine the requirements for relocation and to estimate a cost for the relocation.

20 **3.3.5.19 Chart of Accounts**

21 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 22 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 23 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 24 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 25 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 26 Tables 3.3.5.19-1 and 3.3.5.19-2 shows the CWBS for real estate activities.

27 **Table 3.3.5.19-1.**
 28 **Chart of Accounts - LOD3 Harrison County Forrest Heights Levee, Gulfport -**
 29 **Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	167,500		167,500
01B20	Acquisition by NFS		1,340,000	1,340,000
01BX	Contingencies (25%)	<u>41,875</u>	<u>335,000</u>	<u>376,875</u>
	Subtotal	209,375	1,675,000	1,884,375
01F	PL 91-646 Assistance			
01F20	By NFS		12,000	12,000
01FX	Contingencies (25%)		<u>3,000</u>	<u>3,000</u>
	Subtotal		15,000	15,000

01A	Project Planning	Federal	Non-Federal	Totals
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		478,652	478,652
01R2B	PL91-646 Relocation Payment by NFS		56,000	56,000
01R2D	Review of NFS	3,000		3,000
01RX	Contingencies (25%)	<u>750</u>	<u>133,663</u>	<u>134,413</u>
	Subtotal	3,750	668,315	672,065
	Totals	213,125	2,358,315	2,571,440
	Rounded			2,571,000

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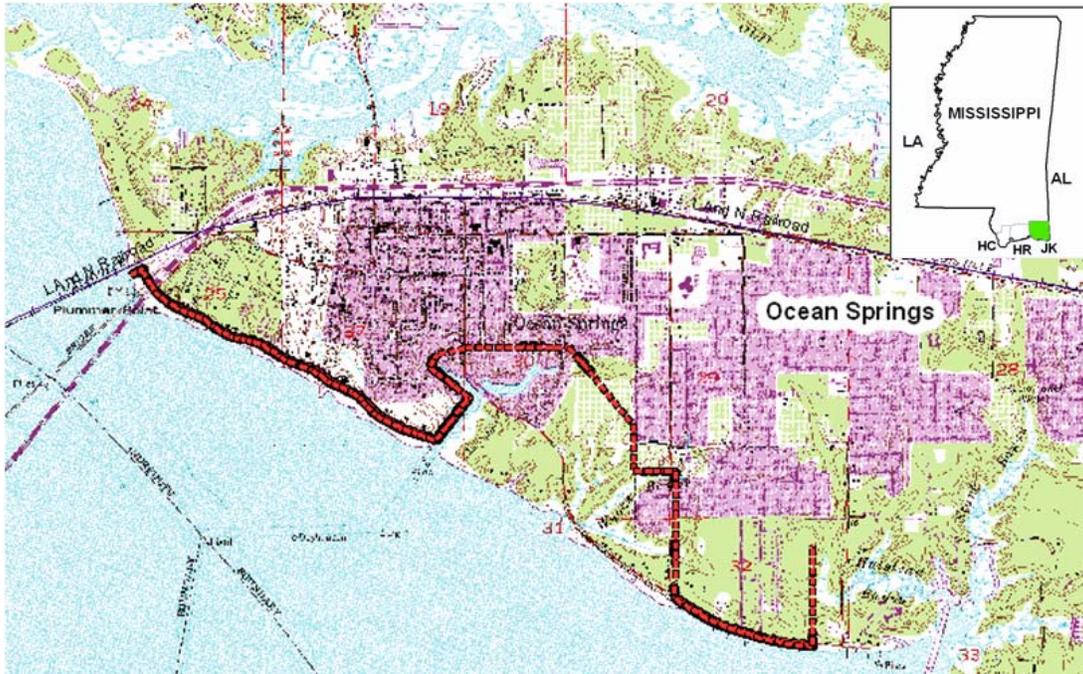
Table 3.3.5.19-2.
Chart of Accounts - LOD3 Harrison County Forrest Heights Levee, Gulfport - Option B

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B4				
0	Acquisition/Review of NFS	167,500		167,500
01B2				
0	Acquisition by NFS		1,340,000	1,340,000
01BX	Contingencies (25%)	<u>41,875</u>	<u>335,000</u>	<u>376,875</u>
	Subtotal	209,375	1,675,000	1,884,375
01F	PL 91-646 Assistance			
01F20	By NFS		12,000	12,000
01FX	Contingencies (25%)		<u>3,000</u>	<u>3,000</u>
	Subtotal		15,000	15,000
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		540,712	540,712
01R2				
B	PL91-646 Relocation Payment by NFS		56,000	56,000
01R2				
D	Review of NFS	3,000		3,000
01RX	Contingencies (25%)	<u>750</u>	<u>149,178</u>	<u>149,928</u>
	Subtotal	3,750	745,890	749,640
	Totals	213,125	2,435,890	2,649,015
	Rounded			2,649,000

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1 **3.3.6 Jackson County, Elevated Roadway**

2 Residential and business areas along the coast in Jackson County are susceptible to storm surge
3 damage. The city of Ocean Springs lies at the eastern side of the Back Bay of Biloxi. Ground
4 elevations over most of the residential and business areas vary between elevations 16-24 ft
5 NAVD88, with houses along the coast between 8-16 ft NAVD88. This option entails the raising of the
6 Beach Road and the adjoining seawall to Elevation 11.00 from Highway 90 eastward to the Jackson
7 County Marina. The project also provides for all utility infrastructures such as water, sewer, storm
8 drain, gas and electric lines to be removed and reinstalled to meet the new grades. The project
9 location is shown in Figure 3.3.6-1 with the roadway in red.



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**Figure 3.3.6-1.
Vicinity Map, Ocean Springs**

13 **3.3.6.1 Project Description**

14 This option consists of raising the beach road to elevation 11 feet NAVD88 in Ocean Springs. The
15 internal sub-basins and levee culvert/pump locations are shown on Figure 3.3.6.1-1. Drainage on the
16 interior of the raised highway would be collected at the highway and channeled to culverts placed at
17 locations shown below. Drainage Ditches along the toe of the highway will be required to assure that
18 smaller basins can be drained to a culvert/pump site.



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Figure 3.3.6.1-1.
Pump/Culvert/Sub-basin Site Location

5 The Line 3 defense elevates the roadway and accompanying seawall by extending the seawall at its present slope to grade, creating the roadway sub grade then, sloping the backside to one vertical to three horizontal side slopes with a twenty five foot toe width for access and drainage. All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and compacted. The embankment will be constructed of sand clay materials obtained from off site commercial sources, trucked to the work area. The final surface on the back side will be armored by the placement of 12 inch thick gabion mattress filled with small stone for erosion protection during an event that overtops the road. All non critical surface areas will be subsequently covered by grassing. Road crossings will incorporate ramping over the embankment where the surface elevation is near that of the crest elevation. Drainage on the interior of the raised roadway would be collected at the highway and channeled to culverts. The culverts would have flap gates on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An additional closure gate would also be provided at every culvert for control in the event the flap gate malfunctions. In addition, pumps would be constructed near the outflow points to remove water from the interior during storm events occurring when the culverts were closed because of high water in the sound.

20 Operation and maintenance activities for this project will be required on an annual basis. All pumps and gates will be operated to assure proper working order. Debris and shoaled sediment will be removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from causing weak levee locations.

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3.3.6.2 Real Estate Requirements

Real Estate requirements for Line of Defense 3, Jackson County Elevated Road measure include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to raise a road and construct an earthen levee, drainage ditches and 7 culvert/pump station facilities. Based on the project footprint, it was determined that approximately 137 parcels and 55 structures would be impacted. The acreage to be acquired is unknown. It is known that the 7 pump stations will

1 require approximately 0.23 of an acre each for a total of 1.61 acres. Lands required for construction
2 of the levee will be acquired in fee simple interest. Based on the number of structures being
3 impacted, the assumption is that there will be 55 relocations.

4 Ditches that will be constructed to provide drainage for the levee are expected to be located within
5 the footprint of the levee. Until final plans and specifications are completed, an assumption is made
6 that the ditches will be constructed on the same lands acquired for construction of the levee. If any
7 additional lands are required, this will be determined during PED.

8 Raising of the roadway and relocation of any utilities will most probably need to be accomplished
9 through a relocation contract. This will be further investigated and confirmed during PED.

10 An assumption is made that excavated materials from clearing, snagging, and construction of
11 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
12 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
13 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
14 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
15 the cost of using a commercial landfill and make a determination which method is most cost
16 effective.

17 The recommended plan proposes to use material from an inventory of upland borrow sites to
18 construct the project. A specific site has not been identified or confirmed for use at time of this
19 report. Typically if borrow sites are required, this would be considered a part of the LERRD
20 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
21 upland borrow site with the cost of using a commercial borrow site and make a determination which
22 method is most cost effective. The requirement for temporary work areas is unknown. Sponsor
23 owned lands will be used if available. Otherwise, this may be an additional real estate requirement,
24 and will be further defined during PED.

25 **3.3.6.3 Utility/Facility Relocation**

26 The plan calls for elevation of Highway 90. Some removal/relocation of utilities may be required. An
27 assumption is made that this work will be accomplished under a relocation contract. This will be
28 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
29 discussion.

30 **3.3.6.4 Existing Projects/Studies**

31 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
32 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

33 **3.3.6.5 Environmental Impacts**

34 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
35 for a full discussion on environmental effects.

36 **3.3.6.6 Project Sponsor Responsibilities and Capabilities**

37 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
38 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
39 all alterations and relocations of facilities, structures and improvements determined by the
40 government to be necessary for construction of the Project.

1 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
2 the United States Government. Prior to advertisement of any construction contract, the NFS shall
3 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
4 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
5 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
6 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
7 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
8 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
9 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
10 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
11 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
12 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

13 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
14 lands it provides and the value of the relocations that are required for the project. Generally, for the
15 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
16 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
17 non-federal sponsor provided for the project as required by the Government. The NFS cannot
18 receive credit for the value of any LER, including incidental costs, which were previously provided as
19 an item of cooperation for another Federal project, including projects that preceded enactment of
20 WRDA 1986.

21 **3.3.6.7 Government Owned Property**

22 There are no known Government owned lands within the proposed project.

23 **3.3.6.8 Historical Significance**

24 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
25 on cultural and archaeological resources.

26 **3.3.6.9 Mineral Rights**

27 There are no known mineral activities within the scope of the proposed project.

28 **3.3.6.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

29 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
30 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
31 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

32 **3.3.6.11 Public Law 91-646, Relocation Assistance Benefits**

33 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
34 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
35 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
36 result of programs designed for the benefits of the public as a whole. A qualified displaced person
37 may be entitled to certain relocation assistance benefits which include reimbursement of moving
38 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
39 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
40 types - purchase supplement, rental assistance and down payment. All replacement housing must
41 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

1 It is estimated that there are approximately 55 relocations in this alternative. All estimates are based
2 on information from county public records. The number of business relocations as compared to
3 residential relocations is unknown. In order to accomplish the relocation activity in a timely manner,
4 the plan set forth in Chapter 2. Section 2.5 can be used.

5 **3.3.6.12 Attitude of Property Owners**

6 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
7 However, numerous public meetings have been held at different locations throughout the study area
8 to inform stakeholders and property owners about the study and the protective measures under
9 consideration for the Mississippi coastal area. A number of local newspapers have published articles
10 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
11 may occur as a result of the project. Some of these articles can be found on web sites. While many
12 of the locals may welcome the benefits of the proposed project, there are some who oppose the
13 project.

14 **3.3.6.13 Acquisition Schedule**

15 An acquisition schedule will be developed when plans and specifications become available and
16 more definite information is available pertaining to the specific areas and number of parcels for
17 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
18 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
19 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
20 completed certification of lands acquired/owned by the sponsor will be necessary prior to
21 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
22 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
23 implementation/management plan.

24 **3.3.6.14 Estates for Proposed Project**

25 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
26 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
27 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
28 recommended are standard estates.

29 **FEE.**

30 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
31 subject, however, to existing easements for public roads and highways, public utilities, railroads and
32 pipelines.

33 **BORROW EASEMENT.**

34 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
35 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
36 _____ and _____); subject, however, to existing easements for public roads and highways, public
37 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
38 such rights and privileges in said land as may be used without interfering with or abridging the rights
39 and easement hereby acquired.

40 **TEMPORARY WORK AREA EASEMENT.**

41 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
42 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,

1 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
 2 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
 3 backfill, move, store and remove equipment and supplies, and erect and remove temporary
 4 structures on the land and to perform any other work necessary and incident to the construction of
 5 the _____ Project, together with the right to trim, cut, fell and remove there from
 6 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 7 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 8 rights and privileges as may be used without interfering with or abridging the rights and easement
 9 hereby acquired; subject, however, to existing easements for public roads and highways, public
 10 utilities, railroads and pipelines.

11 **DRAINAGE DITCH EASEMENT.**

12 A perpetual and assignable easement and right-of-way in, over and across (the land described in
 13 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
 14 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
 15 and privileges in the land as may be used without interfering with or abridging the rights and
 16 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 17 public utilities, railroads and pipelines.

18 **3.3.6.15 Real Estate Estimate**

19 The real estate cost estimate at Table 3.3.6.15-1 includes the land cost for acquisition of land,
 20 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
 21 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
 22 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
 23 analysis or other requirements that may be necessary, during PED. No cost is included for a borrow
 24 site or temporary work area. The requirement, if any, for a borrow site or temporary work area will be
 25 identified during PED. If further real estate requirements are identified during PED or if there is a
 26 significant increase in cost, a supplement to the Real Estate Appendix will be prepared. A 25%
 27 contingency is applied to the current estimate.

28 **Table 3.3.6.15-1.**
 29 **LOD3 Jackson County Elevated Road Estimate**

a. Lands and Improvements/Permits			
	130 Ownerships for Levee, 55 Improvements		25,914,583
	<u>7 Pump Stations</u>		271,308
	137 Ownerships	Subtotal	26,185,891
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs – 55 relocations			
			1,523,200
e. Administrative Cost			
			3,495,000
	Relocation	Acquisition	Total
Federal	82,500	342,500	425,000
Non-Federal	330,000	2,740,000	3,070,000
	412,500	3,082,500	3,495,000

Subtotal	31,204,091
Contingencies (25%)	7,801,023
Totals	39,005,114
Rounded	39,005,000

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2 **3.3.6.16 Summary of Potential Real Estate Issues**

3 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
4 these areas be required, these would be considered as part of the LERRD requirements. Typically if
5 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
6 the cost of acquiring an these sites with the cost of using a commercial sites and make a
7 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

8 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
9 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
10 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
11 estate requirements are identified during PED or if there is a significant increase in cost, a
12 supplement to the Real Estate Appendix will be prepared.

13 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
14 completed during PED.

15 Any requirement for mitigation lands will be identified during PED.

16 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
17 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
18 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
19 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

20 A relocation plan will need to be completed during PED to address potential relocation activity under
21 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
22 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
23 housing replacement payments, are very likely due to the size of the project and the lack of available
24 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
25 schedule is the cost of business relocations. Depending on the type of business and the operation,
26 this could involve moving equipment and machinery to new locations. It is necessary to interview
27 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
28 determine the requirements for relocation and to estimate a cost for the relocation.

29 **3.3.6.17 Chart of Accounts**

30 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
31 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
32 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
33 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
34 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
35 Table 3.3.6.17-1 shows the CWBS for real estate activities.

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**Table 3.3.6.17-1.
Chart of Accounts - LOD3 Jackson County Elevated Road**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	342,500		342,500
01B20	Acquisition by NFS		2,740,000	2,740,000
01BX	Contingencies (25%)	<u>85,625</u>	<u>685,000</u>	<u>770,625</u>
	Subtotal	428,125	3,425,000	3,853,125
01F	PL 91-646 Assistance			
01F20	By NFS		330,000	330,000
01FX	Contingencies (25%)		<u>82,500</u>	<u>82,500</u>
	Subtotal		412,500	412,500
01R	Real Estate Land Payments			
01R1	Land Payments by NFS		26,185,891	26,185,891
B				
01R2	PL91-646 Relocation Payment by		1,523,200	1,523,200
B	NFS			
01R2	Review of NFS	82,500		82,500
D				
01RX	Contingencies (25%)	<u>20,625</u>	<u>6,927,273</u>	<u>6,947,898</u>
	Subtotal	103,125	34,636,364	34,739,489
	Totals	531,250	38,473,864	39,005,114
	Rounded			39,005,000

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4 **3.3.7 Jackson County Ring Levees, Ocean Springs**

5 Several high density residential and business areas in Jackson County were identified. They are
6 Ocean Springs, Gulf Park, Belle Fontaine, Gautier and Pascagoula/Moss Point. The city of Ocean
7 Springs is located in the western part of Jackson County and lies at the eastern side of the Back Bay
8 of Biloxi as shown in Figure 3.3.7-1. Ground elevations over most of the residential and business
9 areas vary between elevations 16-24 feet NAVD88, with houses along the coast at between 8-16
10 feet NAVD88. These areas are subject to damage from storm surges associated with hurricanes.
11 For purposes of providing protection for future storm events, the construction of an earthen ring
12 levee is evaluated. The options in this study are identified as Option A and Option B. The levees
13 were evaluated at elevations 20 ft NAVD88 and 30 ft NAVD88. The top width was assumed 15 ft
14 with side slopes of 1 vertical to 3 horizontal.



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Figure 3.3.7-1.
Vicinity Map, Ocean Springs, MS

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3.3.7.1 Option A - Elevation 20.0 ft NAVD88

5 This option consists of an earthen dike around the most densely populated areas of Ocean Springs
6 along with the internal sub-basins and levee culvert/pump locations. The levee would have an
7 elevation of 20.0 feet with a top width of 15 ft and slopes of 1 vertical to 3 horizontal.

8
3.3.7.2 Option B - Elevation 30.0 ft NAVD88

9 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
10 only difference between the description of this option and preceding description of Option A is the
11 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
12 of the levee culverts.

13
3.3.7.3 Project Description

14 Figure 3.3.7.3-1 shows the location of the proposed project alternatives. As described above, the levee
15 will be an earthen berm constructed either at elevation 20.0 feet or 30.0 feet along with the internal
16 sub-basins and levee culvert/pump locations. Drainage on the interior of the ring levee would be
17 collected at the levee and channeled to culverts placed in the levee. The culverts would have flap
18 gates on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An
19 additional closure gate would also be provided at every culvert in the levee for control in the event the
20 flap gate malfunctions. In addition, pumps would be constructed near the outflow points to remove
21 water from the interior during storm events occurring when the culverts are closed because of high
22 water in the sound. Drainage ditches along the toe of the levee will be required to assure that smaller
23 basins can be drained to a culvert/pump site. Figure 3.3.7.3-2 shows the proposed location of the
24 pump/culvert sites. During some hurricane events, when the gates are shut, and rainfall exceeds the

- 1 average 10-yr intensity over the basin, some ponding from rainfall will occur. Further studies will detail
- 2 the requirement for the appropriate ponding areas, pump sizes, or buyouts in the affected areas.



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Figure 3.3.7.3-1.
Ocean Springs Ring Levee



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**Figure 3.3.7.3-2.
Pump/Culvert/Sub-basin Site Locations**

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The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials obtained from off site commercial sources, and trucked to the work area. The final surface will be armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion protection during an event that overtops the levee. The armoring will be anchored on the front face by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front side of the levee and all non critical surface areas will be subsequently covered by grassing. In order to maintain the natural runoff patterns culverts would be inserted through the protection line at appropriate locations. Pump facilities are required at 14 locations. As any flood barrier is constructed the natural groundwater runoff would be inhibited. In order to maintain the natural runoff patterns culverts would be inserted through the protection line at appropriate locations. For this study these were configured as cast-in-place reinforced concrete box structures fitted with flap gates to minimize normal backflows and sluice gates to provide storm closure when needed.

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Road crossings will incorporate small gate structures or ramping over the embankment where the surface elevation is near that of the crest elevation. The elevation relationship of the crest and the adjacent railroad will be a governing factor. At each point where a roadway crosses the protection line the decision must be made whether to maintain this artery and adapt the protection line to accommodate it, or to terminate the artery at the protection line and divert traffic to cross the protection line at another location. For this study it was assumed that all roadways and railways crossing the levee alignment would be retained except where it was very evident that traffic could be combined without undue congestion. Once the decision has been made to retain a particular roadway, it must then be determined how best to configure the artery to conduct traffic across the protection line. The simplest means of passing roadway traffic is to ramp the roadway over the protection line. This alternative is not always viable because of severe right-of-way restraints caused

1 by extreme levee height, urban congestion, etc. In such instances other methods can be used
2 including partial ramping in combination with low profile roller gates. In more restricted areas full
3 height gates which would leave the roadway virtually unaltered might be preferable, even though this
4 alternative would usually be more costly than ramping. In some extreme circumstances where high
5 levees are required to pass through very congested areas, installation of tunnels with closure gates
6 may be required.

7 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
8 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
9 alternatives would include gated pass through structures. Because of the vertical clearance
10 requirements of railroad traffic all railroad pass through structures for this study were configured
11 having vertical walls on either side of the railway with double swing gates extending to the full height
12 of the levee.

13 With the installation of a ring levee around the Ocean Springs area at Option A, elevation 20.0,
14 24 roadway intersections would have to be accommodated. For this study it was estimated that
15 6 roller gate structures and 18 would require swing gate structures would be required. At Option B,
16 elevation 30.0, 76 roadway intersections would have to be accommodated, and it was estimated that
17 6 roller gate structures and 70 swing gate structures would be required

18 Operation and maintenance activities for this project will be required on an annual basis. All pumps
19 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
20 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
21 causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

22 **3.3.7.4 Real Estate Requirements**

23 Real Estate requirements for Line of Defense 3, Ocean Spring Ring Levees include lands,
24 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
25 construct an earthen levee, drainage ditches and 14 culvert/pump station facilities.

26 Based on the footprint of the Option A 20.0 foot elevation, it was determined that approximately
27 197 parcels and 83 structures would be impacted. The acreage to be acquired for the levee is
28 unknown. It is known that the 14 pump stations will require approximately 0.23 of an acre each for a
29 total of 3.22 acres. Lands required for construction of the levee will be acquired in fee simple
30 interest. Based on the number of structures being impacted, the assumption is that there will be
31 83 relocations.

32 Based on the footprint of the Option B 30.0 foot elevation, it was determined that 576 parcels and
33 312 structures are impacted. The acreage to be acquired for the levee is unknown. It is known that
34 the 14 pump stations would require approximately 0.23 of an acre each for a total of 3.22 acres.
35 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
36 number of structures being impacted, the assumption is that there will be 312 relocations.

37 Ditches that will be constructed to provide drainage for the interior of the ring levee are expected to
38 be located within the footprint of the levee. Until final plans and specifications are completed, an
39 assumption is made that the ditches will be constructed on the same lands acquired for construction
40 of the levee. If any additional lands are required, this will be determined during PED.

41 Any modifications to the roadways and utilities will most probably need to be accomplished through
42 a relocation contract. This will be further investigated and confirmed during PED.

43 An assumption is made that excavated materials from clearing, snagging, and construction of
44 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that

1 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
2 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
3 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
4 the cost of using a commercial landfill and make a determination which method is most cost
5 effective.

6 The recommended plan proposes to use material from an inventory of upland borrow sites to
7 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
8 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
9 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
10 borrow site with the cost of using a commercial borrow site and make a determination which method
11 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
12 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
13 further defined during PED.

14 **3.3.7.5 Utility/Facility Relocation**

15 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
16 assumption is made that this work will be accomplished through a relocation contract. This will be
17 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
18 discussion.

19 **3.3.7.6 Existing Projects/Studies**

20 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
21 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

22 **3.3.7.7 Environmental Impacts**

23 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
24 for a full discussion on environmental effects.

25 **3.3.7.8 Project Sponsor Responsibilities and Capabilities**

26 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
27 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
28 all alterations and relocations of facilities, structures and improvements determined by the
29 government to be necessary for construction of the Project.

30 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
31 the United States Government. Prior to advertisement of any construction contract, the NFS shall
32 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
33 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
34 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
35 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
36 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
37 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
38 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
39 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
40 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
41 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

1 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
2 lands it provides and the value of the relocations that are required for the project. Generally, for the
3 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
4 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
5 non-federal sponsor provided for the project as required by the Government. The NFS cannot
6 receive credit for the value of any LER, including incidental costs, which were previously provided as
7 an item of cooperation for another Federal project, including projects that preceded enactment of
8 WRDA 1986.

9 **3.3.7.9 Government Owned Property**

10 There 11 Government owned parcels within the footprint of the project. In viewing the footprint, it
11 appears that these parcels will be minimally impacted by construction of the levee for the most part.
12 Three of the parcels may be impacted to a greater degree. Land values are listed in the public
13 records but no improvement values are listed. Ownership is listed in public records as US of America
14 and United States of America. Specific impacts to Government owned lands will be determined
15 during PED.

16 **3.3.7.10 Historical Significance**

17 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
18 on cultural and archaeological resources.

19 **3.3.7.11 Mineral Rights**

20 There are no known mineral activities within the scope of the proposed project.

21 **3.3.7.12 Hazardous, Toxic, and Radioactive Waste (HTRW)**

22 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
23 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
24 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

25 **3.3.7.13 Public Law 91-646, Relocation Assistance Benefits**

26 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
27 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
28 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
29 result of programs designed for the benefits of the public as a whole. A qualified displaced person
30 may be entitled to certain relocation assistance benefits which include reimbursement of moving
31 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
32 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
33 types - purchase supplement, rental assistance and down payment. All replacement housing must
34 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

35 It is estimated that there are approximately 83 relocations in Option A and approximately
36 312 relocations in Option B. No relocation plan has been completed nor has a relocation survey
37 been done. All estimates are based on information from county public records. The number of
38 business relocations as compared to residential relocations is unknown. In order to accomplish the
39 relocation activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

1 **3.3.7.14 Attitude of Property Owners**

2 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
3 However, numerous public meetings have been held at different locations throughout the study area
4 to inform stakeholders and property owners about the study and the protective measures under
5 consideration for the Mississippi coastal area. A number of local newspapers have published articles
6 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
7 may occur as a result of the project. Some of these articles can be found on web sites. While many
8 of the locals may welcome the benefits of the proposed project, there are some who oppose the
9 project.

10 **3.3.7.15 Acquisition Schedule**

11 An acquisition schedule will be developed when plans and specifications become available and
12 more definite information is available pertaining to the specific areas and number of parcels for
13 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
14 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
15 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
16 completed certification of lands acquired/owned by the sponsor will be necessary prior to
17 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
18 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
19 implementation/management plan.

20 **3.3.7.16 Estates for Proposed Project**

21 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
22 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
23 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
24 recommended are standard estates.

25 **FEE.**

26 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
27 subject, however, to existing easements for public roads and highways, public utilities, railroads and
28 pipelines.

29 **BORROW EASEMENT.**

30 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
31 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
32 _____ and _____); subject, however, to existing easements for public roads and highways, public
33 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
34 such rights and privileges in said land as may be used without interfering with or abridging the rights
35 and easement hereby acquired.

36 **TEMPORARY WORK AREA EASEMENT.**

37 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
38 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
39 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
40 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
41 backfill, move, store and remove equipment and supplies, and erect and remove temporary
42 structures on the land and to perform any other work necessary and incident to the construction of
43 the _____ Project, together with the right to trim, cut, fell and remove there from

1 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 2 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 3 rights and privileges as may be used without interfering with or abridging the rights and easement
 4 hereby acquired; subject, however, to existing easements for public roads and highways, public
 5 utilities, railroads and pipelines.

6 **DRAINAGE DITCH EASEMENT.**

7 A perpetual and assignable easement and right-of-way in, over and across (the land described in
 8 Schedule A) (Tracts Nos. ____, ____ and _____) to construct, maintain, repair, operate, patrol and
 9 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
 10 and privileges in the land as may be used without interfering with or abridging the rights and
 11 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 12 public utilities, railroads and pipelines.

13 **3.3.7.17 Real Estate Estimate**

14 A summary of the cost for each option is at Table 3.3.7.17-1. The real estate estimates at Tables
 15 3.3.7.17-2 and 3.3.7.17-3 include the land cost for acquisition of land, relocation benefits to include a
 16 replacement housing payment and fixed rate move expenses, and Federal and non-Federal
 17 administrative costs. Administrative costs are those costs incurred for verifying ownership of lands,
 18 certification of those lands required for project purposes, legal opinions, analysis or other
 19 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
 20 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 21 PED. If further real estate requirements are identified during PED or if there is a significant increase
 22 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 23 the current estimate.

24 **Table 3.3.7.17-1.**
 25 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocatio ns	Total Cost
Option A - 20.0	197	83	\$43,609,00 0
Option B - 30.0	576	312	\$119,542,0 00

26

27 **Table 3.3.7.17-2.**
 28 **LOD3 Jackson County Ring Levee, Ocean Springs - Option A 20.0 Estimate**

a. Lands and Improvements/Permits	
183 Ownerships for Levee, 83 Improvements	26,959,933
<u>14 Pump Stations</u>	542,617
197 Ownerships	Subtotal 27,502,550
b. Mineral Rights	0
c. Damages	0

d. P.L. 91-646 Relocation costs – 83 relocations				2,329,600
e. Administrative Cost				5,055,000
		Relocation	Acquisition	Total
Federal		124,500	492,500	617,000
Non-Federal		498,000	3,940,000	4,438,000
		<u>622,500</u>	<u>4,432,500</u>	<u>5,055,000</u>
Subtotal				34,887,150
Contingencies (25%)				8,721,788
		Totals		43,608,938
		Rounded		43,609,000

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**Table 3.3.7.17-3.
LOD3 Jackson County Ring Levee, Ocean Springs - Option B 30.0 Estimate**

a. Lands and Improvements/Permits				
562 Ownerships for Levee, 312 Improvements				71,055,087
<u>14 Pump Stations</u>				542,617
576 Ownerships			Subtotal	71,597,704
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 312 relocations				8,736,000
e. Administrative Cost				15,300,000
		Relocation	Acquisition	Total
Federal		468,000	1,440,000	1,908,000
Non-Federal		1,872,000	11,520,000	13,392,000
		<u>2,340,000</u>	<u>12,960,000</u>	<u>15,300,000</u>
Subtotal				95,633,704
Contingencies (25%)				23,908,426
		Totals		119,542,130
		Rounded		119,542,000

4

3.3.7.18 Summary of Potential Real Estate Issues

The requirement for temporary work areas, disposal or borrow areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements. Typically if disposal or borrow sites are required, Real estate would provide an analysis during PED to compare

1 the cost of acquiring an these sites with the cost of using a commercial sites and make a
2 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

3 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
4 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
5 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
6 estate requirements are identified during PED or if there is a significant increase in cost, a
7 supplement to the Real Estate Appendix will be prepared.

8 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
9 completed during PED.

10 Any requirement for mitigation lands will be identified during PED.

11 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
12 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
13 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
14 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

15 A relocation plan will need to be completed during PED to address potential relocation activity under
16 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
17 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
18 housing replacement payments, are very likely due to the size of the project and the lack of available
19 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
20 schedule is the cost of business relocations. Depending on the type of business and the operation,
21 this could involve moving equipment and machinery to new locations. It is necessary to interview
22 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
23 determine the requirements for relocation and to estimate a cost for the relocation.

24 **3.3.7.19 Chart of Accounts**

25 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
26 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
27 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
28 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
29 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
30 Tables 3.3.7.19-1 and 3.3.7.19-2 shows the CWBS for real estate activities.

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Table 3.3.7.19-1.

Chart of Accounts - LOD3 Jackson County Ring Levee, Ocean Springs - Option A

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	492,500		492,500
01B20	Acquisition by NFS		3,940,000	3,940,000
01BX	Contingencies (25%)	<u>123,125</u>	<u>985,000</u>	<u>1,108,125</u>
	Subtotal	615,625	4,925,000	5,540,625
01F	PL 91-646 Assistance			
01F20	By NFS		498,000	498,000
01FX	Contingencies (25%)		<u>124,500</u>	<u>124,500</u>
	Subtotal		622,500	622,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		27,502,550	27,502,550
01R2B	PL91-646 Relocation Payment by NFS		2,329,600	2,329,600
01R2D	Review of NFS	124,500		124,500
01RX	Contingencies (25%)	<u>31,125</u>	<u>7,458,038</u>	<u>7,489,163</u>
	Subtotal	155,625	37,290,188	37,445,813
	Totals	771,250	42,837,688	43,608,938
	Rounded			43,609,000

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Table 3.3.7.19-2.

Chart of Accounts - LOD3 Jackson County Ring Levee, Ocean Springs - Option B

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	1,440,000		1,440,000
01B20	Acquisition by NFS		11,520,000	11,520,000
01BX	Contingencies (25%)	<u>360,000</u>	<u>2,880,000</u>	<u>3,240,000</u>
	Subtotal	1,800,000	14,400,000	16,200,000
01F	PL 91-646 Assistance			
01F20	By NFS		1,872,000	1,872,000
01FX	Contingencies (25%)		<u>468,000</u>	<u>468,000</u>
	Subtotal		2,340,000	2,340,000
01R	Real Estate Land Payments			
01R1 B	Land Payments by NFS		71,597,704	71,597,704
01R2 B	PL91-646 Relocation Payment by NFS		8,736,000	8,736,000
01R2	Review of NFS	468,000		468,000

01A	Project Planning	Federal	Non-Federal	Totals
D				
01RX	Contingencies (25%)	117,000	20,083,426	20,200,426
	Subtotal	585,000	100,417,130	101,002,130
	Totals	2,385,000	117,157,130	119,542,130
	Rounded			119,542,000

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2 **3.3.8 Jackson County Ring Levees, Gulf Park**

3 Several high density residential and business areas in Jackson County were identified. They are
4 Ocean Springs, Gulf Park, Belle Fontaine, Gautier and Pascagoula/Moss Point. Gulf Park Estates
5 Subdivision is located adjacent to and east of Ocean Springs. The area of study for the ring levee is
6 bounded by Simmons Bayou on the north and the Mississippi Sound on the south. The location of
7 the Gulf Park Estate ring levee is shown in Figure 3.3.8-1. Ground elevations over most of the
8 residential areas vary between elevations 10-20 feet NAVD88. These areas are subject to damage
9 from storm surges associated with hurricanes. For purposes of providing protection for future storm
10 events, the construction of an earthen ring levee is evaluated. The options in this study are identified
11 as Option A, Option B, Option C and Option D. The levees were evaluated at elevations 20 ft
12 NAVD88 and 30 ft NAVD88. The top width was assumed 15 ft with side slopes of 1 vertical to
13 3 horizontal.



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Figure 3.3.8-1.
Vicinity Map, Gulf Park Estates

1 **3.3.8.1 Option A - Elevation 20.0 ft NAVD88**

2 This option consists of an earthen dike around the most densely populated areas of Gulf Park
3 Estates along with the internal sub-basins and levee culvert/pump locations. The levee would have
4 an elevation of 20.0 feet with a top width of 15 ft and slopes of 1 vertical to 3 horizontal.

5 **3.3.8.2 Option B - Elevation 30.0 ft NAVD88**

6 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
7 only difference between the description of this option and preceding description of Option A is the
8 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
9 of the levee culverts.

10 **3.3.8.3 Option C - Alternate Alignment, Elevation 20.0 ft NAVD88**

11 Option C consists of an earthen levee at elevation 20.0 feet in an alignment slightly different from the
12 alignment for Options A and B. Additionally, the lands that lay between the alignment of Option A
13 and the alternate alignment, Option C will be acquired as a buffer zone in this option.

14 **3.3.8.4 Option D - Alternate Alignment, Elevation 30.0 ft NAVD88**

15 The alignment of the levee is the same as Option C, above but with an elevation of 30.0 feet. The
16 only difference between the description of this option and preceding description of Option C is the
17 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
18 of the levee culverts. As above, the buffer zone lands will be acquired.

19 **3.3.8.5 Project Description**

20 Figure 3.3.8.5-1 shows the location of the proposed project alternatives with the alternate alignment
21 representing Options C and D. As described above, the levee will be an earthen berm constructed
22 either at elevation 20.0 feet or 30.0 feet along with the internal sub-basins and levee culvert/pump
23 locations. Drainage on the interior of the ring levee would be collected at the levee and channeled to
24 culverts placed in the levee. The culverts would have flap gates on the seaward ends to prevent
25 backflow when the water in Mississippi Sound is high. An additional closure gate would also be
26 provided at every culvert in the levee for control in the event the flap gate malfunctions. In addition,
27 pumps would be constructed near the outflow points to remove water from the interior during storm
28 events occurring when the culverts are closed because of high water in the sound. Drainage ditches
29 along the toe of the levee will be required to assure that smaller basins can be drained to a
30 culvert/pump site. Figure 3.3.8.5-2 shows the proposed location of the pump/culvert sites. During
31 some hurricane events, when the gates are shut, and rainfall exceeds the average 10-yr intensity
32 over the basin, some ponding from rainfall will occur. Further studies will detail the requirement for
33 the appropriate ponding areas, pump sizes, or buyouts in the affected areas.



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Figure 3.3.8.5-1.
Gulf Park Estates Ring Levee



**Figure 3.3.8.5-2.
Pump/Culvert/Sub-basin Site Locations**

The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials obtained from off site commercial sources, and trucked to the work area. The final surface will be armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion protection during an event that overtops the levee. The armoring will be anchored on the front face by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front side of the levee and all non critical surface areas will be subsequently covered by grassing. In order to maintain the natural runoff patterns culverts would be inserted through the protection line at appropriate locations. For this study the culverts were configured as cast-in-place reinforced concrete box structures fitted with flap gates to minimize normal backflows and sluice gates to provide storm closure when needed. Pump facilities are required at 8 locations for Options A and B and at 9 locations for Options C and D.

Road crossings will incorporate small gate structures or ramping over the embankment where the surface elevation is near that of the crest elevation. The elevation relationship of the crest and the adjacent railroad will be a governing factor. At each point where a roadway crosses the protection line the decision must be made whether to maintain this artery and adapt the protection line to accommodate it, or to terminate the artery at the protection line and divert traffic to cross the protection line at another location. For this study it was assumed that all roadways and railways crossing the levee alignment would be retained except where it was very evident that traffic could be combined without undue congestion. Once the decision has been made to retain a particular roadway, it must then be determined how best to configure the artery to conduct traffic across the protection line. The simplest means of passing roadway traffic is to ramp the roadway over the

1 protection line. This alternative is not always viable because of severe right-of-way restraints caused
2 by extreme levee height, urban congestion, etc. In such instances other methods can be used
3 including partial ramping in combination with low profile roller gates. In more restricted areas full
4 height gates which would leave the roadway virtually unaltered might be preferable, even though this
5 alternative would usually be more costly than ramping. In some extreme circumstances where high
6 levees are required to pass through very congested areas, installation of tunnels with closure gates
7 may be required.

8 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
9 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
10 alternatives would include gated pass through structures. Because of the vertical clearance
11 requirements of railroad traffic all railroad pass through structures for this study were configured
12 having vertical walls on either side of the railway with double swing gates extending to the full height
13 of the levee.

14 With the installation of a ring levee around Gulf Park Estates at Option A, elevation 20.0, 20 roadway
15 intersections would have to be accommodated. For this study it was estimated that 2 roller gate
16 structures and 18 would require swing gate structures would be required. At Option B, elevation
17 30.0, 13 roadway intersections would have to be accommodated, and it was estimated that all
18 13 would require swing gate structures. At Option C, elevations 20.0, 18 roadway gates for
19 intersections would have to be accommodated, and 14 would require swing gate structures with the
20 remaining 4 requiring roller gates of varying heights. For Option D, elevation 30.0, 15 roadway
21 intersections would have to be accommodated and all 15 would require swing gate structures.

22 Operation and maintenance activities for this project will be required on an annual basis. All pumps
23 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
24 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
25 causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

26 **3.3.8.6 Real Estate Requirements**

27 Real Estate requirements for Line of Defense 3, Gulf Park Estates Ring Levees include lands,
28 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
29 acquire buffer zone lands, construct an earthen levee, drainage ditches and 8 - 9 culvert/pump
30 station facilities depending on the option.

31 Based on the footprint of Option A, 20.0 foot elevation, it was determined that approximately
32 354 parcels and 62 structures would be impacted. The acreage to be acquired for the levee is
33 unknown. It is known that the 8 pump stations will require approximately 0.23 of an acre each for a
34 total of 1.84 acres. Lands required for construction of the levee will be acquired in fee simple
35 interest, and lands for the drainage ditches that will be constructed outside the levee footprint will be
36 acquired either in easement or fee as necessary. Based on the number of structures being
37 impacted, the assumption is that there will be 62 relocations.

38 Based on the footprint of Option B, 30.0 foot elevation, it was determined that approximately
39 399 parcels and 66 structures would be impacted. The acreage to be acquired for the levee is
40 unknown. It is known that the 8 pump stations will require approximately 0.23 of an acre each for a
41 total of 1.84 acres. Lands required for construction of the levee will be acquired in fee simple
42 interest, and lands for the drainage ditches that will be constructed outside the levee footprint will be
43 acquired either in easement or fee as necessary. Based on the number of structures being
44 impacted, the assumption is that there will be 66 relocations.

45 Based on the footprint of Option C, 20.0 foot elevation, it was determined that approximately
46 521 parcels and 134 structures would be impacted. This number includes acquisition of the buffer

1 zone. The acreage to be acquired for the levee is unknown. It is known that the 9 pump stations will
2 require approximately 0.23 of an acre each for a total of 2.07 acres. Lands required for construction
3 of the levee will be acquired in fee simple interest, and lands for the drainage ditches that will be
4 constructed outside the levee footprint will be acquired either in easement or fee as necessary.
5 Based on the number of structures being impacted, the assumption is that there will be
6 134 relocations.

7 Based on the footprint of Option D, 30.0 foot elevation, it was determined that approximately
8 561 parcels and 144 structures would be impacted. This number includes acquisition of the buffer
9 zone. The acreage to be acquired for the levee is unknown. It is known that the 9 pump stations will
10 require approximately 0.23 of an acre each for a total of 2.07 acres. Lands required for construction
11 of the levee will be acquired in fee simple interest, and lands for the drainage ditches that will be
12 constructed outside the levee footprint will be acquired either in easement or fee as necessary.
13 Based on the number of structures being impacted, the assumption is that there will be
14 141 relocations.

15 Any modifications to the roadways and utilities will most probably need to be accomplished through
16 a relocation contract. This will be further investigated and confirmed during PED.

17 An assumption is made that excavated materials from clearing, snagging, and construction of
18 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
19 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
20 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
21 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
22 the cost of using a commercial landfill and make a determination which method is most cost
23 effective.

24 The recommended plan proposes to use material from an inventory of upland borrow sites to
25 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
26 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
27 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
28 borrow site with the cost of using a commercial borrow site and make a determination which method
29 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
30 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
31 further defined during PED.

32 **3.3.8.7 Utility/Facility Relocation**

33 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
34 assumption is made that this work will be accomplished through a relocation contract. This will be
35 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
36 discussion.

37 **3.3.8.8 Existing Projects/Studies**

38 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
39 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

40 **3.3.8.9 Environmental Impacts**

41 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
42 for a full discussion on environmental effects.

1 **3.3.8.10 Project Sponsor Responsibilities and Capabilities**

2 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
3 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
4 all alterations and relocations of facilities, structures and improvements determined by the
5 government to be necessary for construction of the Project.

6 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
7 the United States Government. Prior to advertisement of any construction contract, the NFS shall
8 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
9 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
10 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
11 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
12 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
13 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
14 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
15 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
16 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
17 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

18 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
19 lands it provides and the value of the relocations that are required for the project. Generally, for the
20 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
21 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
22 non-federal sponsor provided for the project as required by the Government. The NFS cannot
23 receive credit for the value of any LER, including incidental costs, which were previously provided as
24 an item of cooperation for another Federal project, including projects that preceded enactment of
25 WRDA 1986.

26 **3.3.8.11 Government Owned Property**

27 There are no known Government owned lands within the proposed project.

28 **3.3.8.12 Historical Significance**

29 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
30 on cultural and archaeological resources.

31 **3.3.8.13 Mineral Rights**

32 There are no known mineral activities within the scope of the proposed project.

33 **3.3.8.14 Hazardous, Toxic, and Radioactive Waste (HTRW)**

34 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
35 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
36 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

37 **3.3.8.15 Public Law 91-646, Relocation Assistance Benefits**

38 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
39 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
40 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a

1 result of programs designed for the benefits of the public as a whole. A qualified displaced person
2 may be entitled to certain relocation assistance benefits which include reimbursement of moving
3 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
4 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
5 types - purchase supplement, rental assistance and down payment. All replacement housing must
6 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

7 It is estimated that there are approximately 62 relocations in Option A, 66 relocations in Option B,
8 134 relocations in Option C, and 144 relocations in Option D. No relocation plan has been completed
9 nor has a relocation survey been done. All estimates are based on information from county public
10 records. The number of business relocations as compared to residential relocations is unknown. In
11 order to accomplish the relocation activity in a timely manner, the plan set forth in Chapter 2. Section
12 2.5 can be used.

13 **3.3.8.16 Attitude of Property Owners**

14 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
15 However, numerous public meetings have been held at different locations throughout the study area
16 to inform stakeholders and property owners about the study and the protective measures under
17 consideration for the Mississippi coastal area. A number of local newspapers have published articles
18 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
19 may occur as a result of the project. Some of these articles can be found on web sites. While many
20 of the locals may welcome the benefits of the proposed project, there are some who oppose the
21 project.

22 **3.3.8.17 Acquisition Schedule**

23 An acquisition schedule will be developed when plans and specifications become available and
24 more definite information is available pertaining to the specific areas and number of parcels for
25 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
26 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
27 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
28 completed certification of lands acquired/owned by the sponsor will be necessary prior to
29 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
30 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
31 implementation/management plan.

32 **3.3.8.18 Estates for Proposed Project**

33 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
34 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
35 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
36 recommended are standard estates.

37 **FEE.**

38 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. ____, ____ and ____),
39 subject, however, to existing easements for public roads and highways, public utilities, railroads and
40 pipelines.

41 **BORROW EASEMENT.**

42 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
43 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,

1 _____ and _____); subject, however, to existing easements for public roads and highways, public
2 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
3 such rights and privileges in said land as may be used without interfering with or abridging the rights
4 and easement hereby acquired.

5 **TEMPORARY WORK AREA EASEMENT.**

6 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
7 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
8 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
9 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
10 backfill, move, store and remove equipment and supplies, and erect and remove temporary
11 structures on the land and to perform any other work necessary and incident to the construction of
12 the _____ Project, together with the right to trim, cut, fell and remove there from
13 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
14 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
15 rights and privileges as may be used without interfering with or abridging the rights and easement
16 hereby acquired; subject, however, to existing easements for public roads and highways, public
17 utilities, railroads and pipelines.

18 **DRAINAGE DITCH EASEMENT.**

19 A perpetual and assignable easement and right-of-way in, over and across (the land described in
20 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
21 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
22 and privileges in the land as may be used without interfering with or abridging the rights and
23 easement hereby acquired; subject, however, to existing easements for public roads and highways,
24 public utilities, railroads and pipelines.

25 **3.3.8.19 Real Estate Estimate**

26 A summary of the cost for each option is at Table 3.3.8.19-1. The real estate estimates at Tables
27 3.3.8.19-2 through 3.3.8.19-5 include the land cost for acquisition of land, relocation benefits to
28 include a replacement housing payment and fixed rate move expenses, and Federal and non-
29 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
30 lands, certification of those lands required for project purposes, legal opinions, analysis or other
31 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
32 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
33 PED. If further real estate requirements are identified during PED or if there is a significant increase
34 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
35 the current estimate.

36 **Table 3.3.8.19-1.**
37 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocations	Total Cost
Option A - 20.0	354	62	\$31,458,000
Option B - 30.0	399	66	\$34,051,000
Option C - 20.0	521	134	\$55,002,000
Option D - 30.0	561	144	\$58,603,000

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Table 3.3.8.19-2.
LOD3 Jackson County Ring Levee, Gulf Park - Option A 20.0 Estimate

a. Lands and Improvements/Permits				
				13,792,587
				897,419
				310,067
			Subtotal	15,000,073
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 62 relocations				1,736,000
e. Administrative Cost				8,430,000
		Relocation	Acquisition	Total
	Federal	93,000	885,000	978,000
	Non-Federal	372,000	7,080,000	7,452,000
		465,000	7,965,000	8,430,000
Sub-Total				25,166,073
Contingencies (25%)				6,291,518
Totals				31,457,591
Rounded				31,458,000

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Table 3.3.8.19-3.
LOD3 Jackson County Ring Levee, Gulf Park - Option B 30.0 Estimate

a. Lands and Improvements/Permits				
				14,712,847
				897,419
				310,067
			Subtotal	15,920,333
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 66 relocations				1,848,000
e. Administrative Cost				9,472,500
		Relocation	Acquisition	Total
	Federal	99,000	997,500	1,096,500
	Non-Federal	396,000	7,980,000	8,376,000
		495,000	8,977,500	9,472,500
Sub-Total				27,240,833
Contingencies (25%)				6,810,208
Totals				34,051,041
Rounded				34,051,000

1 **Table 3.3.8.19-5.**
 2 **LOD3 Jackson County Ring Levee, Gulf Park - Option D Alternate Alignment**
 3 **Elevation 30.0 Estimate**

a. Lands and Improvements/Permits			
			25,624,634
	418 Ownerships for Levee, 135 Improvements		
	100 Ownerships for Buffer, 7 Improvements		2,271,308
	34 Ownerships for Ditches, 2 Improvements		897,419
	<u>9 Ownerships for Pump Stations</u>		348,825
	561 Ownerships	Subtotal	29,142,186
b. Mineral Rights			
c. Damages			
d. P.L. 91-646 Relocation costs - 144 relocations			
e. Administrative Cost			
	Relocation	Acquisition	Total
Federal	216,000	1,402,500	1,618,500
Non-Federal	864,000	11,220,000	12,084,000
	<u>1,080,000</u>	<u>12,622,500</u>	<u>13,702,500</u>
Sub-Total			46,882,286
Contingencies (25%)			11,720,572
Totals			58,602,858
Rounded			58,603,000

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 5 **3.3.8.20 Summary of Potential Real Estate Issues**

6 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
 7 these areas be required, these would be considered as part of the LERRD requirements. Typically if
 8 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
 9 the cost of acquiring an these sites with the cost of using a commercial sites and make a
 10 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

11 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
 12 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
 13 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
 14 estate requirements are identified during PED or if there is a significant increase in cost, a
 15 supplement to the Real Estate Appendix will be prepared.

16 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
 17 completed during PED.

18 Any requirement for mitigation lands will be identified during PED.

19 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
 20 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate

1 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 2 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

3 A relocation plan will need to be completed during PED to address potential relocation activity under
 4 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
 5 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 6 housing replacement payments, are very likely due to the size of the project and the lack of available
 7 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 8 schedule is the cost of business relocations. Depending on the type of business and the operation,
 9 this could involve moving equipment and machinery to new locations. It is necessary to interview
 10 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 11 determine the requirements for relocation and to estimate a cost for the relocation.

12 **3.3.8.21 Chart of Accounts**

13 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 14 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 15 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 16 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 17 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 18 Tables 3.3.8.21-1 through 3.3.8.21-4 shows the CWBS for real estate activities.

19 **Table 3.3.8.21-1.**
 20 **Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park - Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	885,000		885,000
01B20	Acquisition by NFS		7,080,000	7,080,000
01BX	Contingencies (25%)	<u>221,250</u>	<u>1,770,000</u>	<u>1,991,250</u>
	Subtotal	1,106,250	8,850,000	9,956,250
01F	PL 91-646 Assistance			
01F20	By NFS		372,000	372,000
01FX	Contingencies (25%)		<u>93,000</u>	<u>93,000</u>
	Subtotal		465,000	465,000
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		15,000,073	15,000,073
01R2				
B	PL91-646 Relocation Payment by NFS		1,736,000	1,736,000
01R2				
D	Review of NFS	93,000		93,000
01RX	Contingencies (25%)	<u>23,250</u>	<u>4,184,018</u>	<u>4,207,268</u>
	Subtotal	116,250	20,920,091	21,036,341
	Totals	1,222,500	30,235,091	31,457,591
	Rounded			31,458,000

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Table 3.3.8.21-2.
Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park - Option B

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	997,500		997,500
01B20	Acquisition by NFS		7,980,000	7,980,000
01BX	Contingencies (25%)	<u>249,375</u>	<u>1,995,000</u>	<u>2,244,375</u>
	Subtotal	1,246,875	9,975,000	11,221,875
01F	PL 91-646 Assistance			
01F20	By NFS		396,000	396,000
01FX	Contingencies (25%)		<u>99,000</u>	<u>99,000</u>
	Subtotal		495,000	495,000
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		15,920,333	15,920,333
01R2				
B	PL91-646 Relocation Payment by NFS		1,848,000	1,848,000
01R2				
D	Review of NFS	99,000		99,000
01RX	Contingencies (25%)	<u>24,750</u>	<u>4,442,083</u>	<u>4,466,833</u>
	Subtotal	123,750	22,210,416	22,334,166
	Totals	1,370,625	32,680,416	34,051,041
	Rounded			34,051,000

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**Table 3.3.8.21-3.
Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park - Option C
Alternate Alignment**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	1,302,500		1,302,500
01B20	Acquisition by NFS		10,420,000	10,420,000
01BX	Contingencies (25%)	<u>325,625</u>	<u>2,605,000</u>	<u>2,930,625</u>
	Subtotal	1,628,125	13,025,000	14,653,125
01F	PL 91-646 Assistance			
01F20	By NFS		804,000	804,000
01FX	Contingencies (25%)		<u>201,000</u>	<u>201,000</u>
	Subtotal		1,005,000	1,005,000
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		27,505,451	27,505,451
01R2				
B	PL91-646 Relocation Payment by NFS		3,768,800	3,768,800
01R2				
D	Review of NFS	201,000		201,000
01RX	Contingencies (25%)	<u>50,250</u>	<u>7,818,563</u>	<u>7,868,813</u>
	Subtotal	251,250	39,092,814	39,344,064
	Totals	1,879,375	53,122,814	55,002,189
	Rounded			55,002,000

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1 **Table 3.3.8.21-4.**
 2 **Chart of Accounts - LOD3 Jackson County Ring Levee, Gulf Park - Option D**
 3 **Alternate Alignment**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B4				
0	Acquisition/Review of NFS	1,402,500		1,402,500
01B2				
0	Acquisition by NFS		11,220,000	11,220,000
01BX	Contingencies (25%)	<u>350,625</u>	<u>2,805,000</u>	<u>3,155,625</u>
	Subtotal	1,753,125	14,025,000	15,778,125
01F	PL 91-646 Assistance			
01F20	By NFS		864,000	864,000
01FX	Contingencies (25%)		<u>216,000</u>	<u>216,000</u>
	Subtotal		1,080,000	1,080,000
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		29,142,186	29,142,186
01R2				
B	PL91-646 Relocation Payment by NFS		4,037,600	4,037,600
01R2				
D	Review of NFS	216,000		216,000
01RX	Contingencies (25%)	<u>54,000</u>	<u>8,294,947</u>	<u>8,348,947</u>
	Subtotal	270,000	41,474,733	41,744,733
	Totals	2,023,125	56,579,733	58,602,858
	Rounded			58,603,000

4

5 **3.3.9 Jackson County Ring Levees, Belle Fontaine**

6 Several high density residential and business areas in Jackson County were identified. They are
 7 Ocean Springs, Gulf Park, Belle Fontaine, Gautier, and Pascagoula/Moss Point. The subdivision of
 8 Belle Fontaine is located just west of Gautier along the gulf coast on Mississippi Sound. The location
 9 of the Belle Fontaine ring levee is shown in Figure 3.3.9-1. The northeastern part of the subdivision
 10 is near elevation 10-14 feet NAVD88 and very flat. Ground elevations over the southwestern part of
 11 the area vary between elevations 16-20 feet NAVD88. These areas are subject to damage from
 12 storm surges associated with hurricanes. For purposes of providing protection for future storm
 13 events, the construction of an earthen ring levee is evaluated. The options in this study are identified
 14 as Option A, Option B, Option C and Option D. The levees were evaluated at elevations 20 ft
 15 NAVD88 and 30 ft NAVD88. The top width was assumed 15 ft with side slopes of 1 vertical to
 16 3 horizontal.



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Figure 3.3.9-1.
Vicinity Map, Belle Fontaine

4 **3.3.9.1 Option A - Elevation 20.0 ft NAVD88**

5 This option consists of an earthen dike around the subdivision of Belle Fontaine along with the
6 internal sub-basins and levee culvert/pump locations. The levee would have an elevation of 20.0 feet
7 with a top width of 15 ft and slopes of 1 vertical to 3 horizontal.

8 **3.3.9.2 Option B - Elevation 30.0 ft NAVD88**

9 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
10 only difference between the description of this option and preceding description of Option A is the
11 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
12 of the levee culverts.

13 **3.3.9.3 Option C - Alternate Alignment, Elevation 20.0 ft NAVD88**

14 Option C consists of an earthen levee at elevation 20.0 feet in an alignment slightly different from the
15 alignment for Options A and B. Additionally, the lands that lay between the alignment of Option A
16 and the alternate alignment Option C will be acquired as a buffer zone in this option.

17 **3.3.9.4 Option D - Alternate Alignment, Elevation 30.0 ft NAVD88**

18 The alignment of the levee is the same as Option C, above but with an elevation of 30.0 feet. The
19 only difference between the description of this option and preceding description of Option C is the
20 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
21 of the levee culverts. As above, the buffer zone lands will be acquired.

1 **3.3.9.5 Project Description**

2 Figure 3.3.9.5-1 shows the location of the proposed project alternatives with the alternate alignment
3 representing Options C and D. As described above, the levee will be an earthen berm constructed
4 either at elevation 20.0 feet or 30.0 feet along with the internal sub-basins and levee culvert/pump
5 locations. Drainage on the interior of the ring levee would be collected at the levee and channeled to
6 culverts placed in the levee. The culverts would have flap gates on the seaward ends to prevent
7 backflow when the water in Mississippi Sound is high. An additional closure gate would also be
8 provided at every culvert in the levee for control in the event the flap gate malfunctions. In addition,
9 pumps would be constructed near the outflow points to remove water from the interior during storm
10 events occurring when the culverts are closed because of high water in the sound. Drainage ditches
11 along the toe of the levee will be required to assure that smaller basins can be drained to a
12 culvert/pump site. Figure 3.3.9.5-2 shows the proposed location of the pump/culvert sites. During
13 some hurricane events, when the gates are shut, and rainfall exceeds the average 10-yr intensity
14 over the basin, some ponding from rainfall will occur. Further studies will detail the requirement for
15 the appropriate ponding areas, pump sizes, or buyouts in the affected areas.



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**Figure 3.3.9.5-1.
Belle Fontaine Ring Levee**



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**Figure 3.3.9.5-2.
Pump/Culvert/Sub-basin Site Locations**

4 The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a
 5 fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and
 6 surface organics and all existing foundations, streets, utilities, etc. will be removed and the
 7 subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials
 8 obtained from off site commercial sources, and trucked to the work area. The final surface will be
 9 armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion
 10 protection during an event that overtops the levee. The armoring will be anchored on the front face
 11 by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front
 12 side of the levee and all non critical surface areas will be subsequently covered by grassing. In order
 13 to maintain the natural runoff patterns culverts would be inserted through the protection line at
 14 appropriate locations. For this study these were configured as cast-in-place reinforced concrete box
 15 structures fitted with flap gates to minimize normal backflows and sluice gates to provide storm
 16 closure when needed. Pump facilities are required at 7 locations.

17 Road crossings will incorporate small gate structures or ramping over the embankment where the
 18 surface elevation is near that of the crest elevation. The elevation relationship of the crest and the
 19 adjacent railroad will be a governing factor. At each point where a roadway crosses the protection
 20 line the decision must be made whether to maintain this artery and adapt the protection line to
 21 accommodate it, or to terminate the artery at the protection line and divert traffic to cross the
 22 protection line at another location. For this study it was assumed that all roadways and railways
 23 crossing the levee alignment would be retained except where it was very evident that traffic could be
 24 combined without undue congestion. Once the decision has been made to retain a particular
 25 roadway, it must then be determined how best to configure the artery to conduct traffic across the
 26 protection line. The simplest means of passing roadway traffic is to ramp the roadway over the
 27 protection line. This alternative is not always viable because of severe right-of-way restraints caused

1 by extreme levee height, urban congestion, etc. In such instances other methods can be used
2 including partial ramping in combination with low profile roller gates. In more restricted areas full
3 height gates which would leave the roadway virtually unaltered might be preferable, even though this
4 alternative would usually be more costly than ramping. In some extreme circumstances where high
5 levees are required to pass through very congested areas, installation of tunnels with closure gates
6 may be required.

7 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
8 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
9 alternatives would include gated pass through structures. Because of the vertical clearance
10 requirements of railroad traffic all railroad pass through structures for this study were configured
11 having vertical walls on either side of the railway with double swing gates extending to the full height
12 of the levee.

13 With the installation of a ring levee around Belle Fontaine at Option A, elevation 20.0, 10 roadway
14 intersections would have to be accommodated. For this study it was estimated that 5 roller gate
15 structures and 5 swing gate structures would be required. At Option B, elevation 30.0, 13 roadway
16 intersections would have to be accommodated, and it was estimated that all 13 would require swing
17 gate structures. At Option C, elevation 20.0, 13 roadway intersections would have to be
18 accommodated and it was estimated that 5 of these would require swing gate structures with the
19 remaining five requiring roller gates of varying heights. At Option D, elevation 30.0, 11 roadway
20 intersections would have to be accommodated and it was estimated that all 11 would require swing
21 gate structures.

22 Operation and maintenance activities for this project will be required on an annual basis. All pumps
23 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
24 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
25 causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

26 **3.3.9.6 Real Estate Requirements**

27 Real Estate requirements for Line of Defense 3, Belle Fontaine Ring Levee include lands,
28 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
29 acquire buffer zone lands, construct an earthen levee, drainage ditches and 7 culvert/pump station
30 facilities.

31 Based on the footprint of Option A, 20.0 foot elevation, it was determined that approximately
32 228 parcels and 30 structures would be impacted. The acreage to be acquired for the levee is
33 unknown. It is known that the 7 pump stations will require approximately 0.23 of an acre each for a
34 total of 1.61 acres. Lands required for construction of the levee will be acquired in fee simple
35 interest. Based on the number of structures being impacted, the assumption is that there will be
36 30 relocations.

37 Based on the footprint of Option B, 30.0 foot elevation, it was determined that 297 parcels and
38 38 structures are impacted. The acreage to be acquired for the levee is unknown. It is known that
39 the 7 pump stations would require approximately 0.23 of an acre each for a total of 1.61 acres.
40 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
41 number of structures being impacted, the assumption is that there will be 28 relocations.

42 Based on the footprint of Option C, 20.0 foot elevation, it was determined that 286 parcels and
43 45 structures would be impacted. This number includes acquisition of the buffer zone lands. The
44 acreage to be acquired for the levee is unknown. It is known that the 7 pump stations will require
45 approximately 0.23 of an acre each for a total of 1.61 acres. Lands required for construction of the

1 levee will be acquired in fee simple interest. Based on the number of structures being impacted, the
2 assumption is that there will be 45 relocations.

3 Based on the footprint of Option D, 30.0 foot elevation, it was determined that 359 parcels and
4 54 structures would be impacted. This includes acquisition of the buffer zone lands. The acreage to
5 be acquired for the levee is unknown. It is known that the 7 pump stations will require approximately
6 0.23 of an acre each for a total of 1.61 acres. Lands required for construction of the levee will be
7 acquired in fee simple interest. Based on the number of structures being impacted, the assumption
8 is that there will be 54 relocations.

9 Ditches that will be constructed to provide drainage for the interior of the ring levee are expected to
10 be located within the footprint of the levee. Until final plans and specifications are completed, an
11 assumption is made that the ditches will be constructed on the same lands acquired for construction
12 of the levee. If any additional lands are required, this will be determined during PED.

13 Any modifications to the roadways and utilities will most probably need to be accomplished through
14 a relocation contract. This will be further investigated and confirmed during PED.

15 An assumption is made that excavated materials from clearing, snagging, and construction of
16 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
17 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
18 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
19 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
20 the cost of using a commercial landfill and make a determination which method is most cost
21 effective.

22 The recommended plan proposes to use material from an inventory of upland borrow sites to
23 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
24 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
25 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
26 borrow site with the cost of using a commercial borrow site and make a determination which method
27 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
28 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
29 further defined during PED.

30 **3.3.9.7 Utility/Facility Relocation**

31 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
32 assumption is made that this work will be accomplished through a relocation contract. This will be
33 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
34 discussion.

35 **3.3.9.8 Existing Projects/Studies**

36 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
37 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

38 **3.3.9.9 Environmental Impacts**

39 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
40 for a full discussion on environmental effects.

1 **3.3.9.10 Project Sponsor Responsibilities and Capabilities**

2 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
3 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
4 all alterations and relocations of facilities, structures and improvements determined by the
5 government to be necessary for construction of the Project.

6 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
7 the United States Government. Prior to advertisement of any construction contract, the NFS shall
8 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
9 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
10 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
11 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
12 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
13 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
14 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
15 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
16 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
17 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

18 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
19 lands it provides and the value of the relocations that are required for the project. Generally, for the
20 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
21 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
22 non-federal sponsor provided for the project as required by the Government. The NFS cannot
23 receive credit for the value of any LER, including incidental costs, which were previously provided as
24 an item of cooperation for another Federal project, including projects that preceded enactment of
25 WRDA 1986.

26 **3.3.9.11 Government Owned Property**

27 There are no known Government owned lands within the proposed project.

28 **3.3.9.12 Historical Significance**

29 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
30 on cultural and archaeological resources.

31 **3.3.9.13 Mineral Rights**

32 There are no known mineral activities within the scope of the proposed project.

33 **3.3.9.14 Hazardous, Toxic, and Radioactive Waste (HTRW)**

34 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
35 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
36 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

37 **3.3.9.15 Public Law 91-646, Relocation Assistance Benefits**

38 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
39 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
40 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a

1 result of programs designed for the benefits of the public as a whole. A qualified displaced person
2 may be entitled to certain relocation assistance benefits which include reimbursement of moving
3 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
4 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
5 types - purchase supplement, rental assistance and down payment. All replacement housing must
6 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

7 It is estimated that there are approximately 30 relocations in Option A, 38 relocations in Option B,
8 45 relocations in Option C, and 54 relocations in Option D. No relocation plan has been completed
9 nor has a relocation survey been done. All estimates are based on information from county public
10 records. The number of business relocations as compared to residential relocations is unknown. In
11 order to accomplish the relocation activity in a timely manner, the plan set forth in Chapter 2. Section
12 2.5 can be used.

13 **3.3.9.16 Attitude of Property Owners**

14 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
15 However, numerous public meetings have been held at different locations throughout the study area
16 to inform stakeholders and property owners about the study and the protective measures under
17 consideration for the Mississippi coastal area. A number of local newspapers have published articles
18 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
19 may occur as a result of the project. Some of these articles can be found on web sites. While many
20 of the locals may welcome the benefits of the proposed project, there are some who oppose the
21 project.

22 **3.3.9.17 Acquisition Schedule**

23 An acquisition schedule will be developed when plans and specifications become available and
24 more definite information is available pertaining to the specific areas and number of parcels for
25 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
26 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
27 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
28 completed certification of lands acquired/owned by the sponsor will be necessary prior to
29 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
30 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
31 implementation/management plan.

32 **3.3.9.18 Estates for Proposed Project**

33 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
34 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
35 temporary work areas and the Drainage Ditch Easement will be used as required. The estates
36 recommended are standard estates.

37 **FEE.**

38 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. ____, ____ and ____),
39 subject, however, to existing easements for public roads and highways, public utilities, railroads and
40 pipelines.

41 **BORROW EASEMENT.**

42 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
43 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,

1 _____ and _____); subject, however, to existing easements for public roads and highways, public
 2 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
 3 such rights and privileges in said land as may be used without interfering with or abridging the rights
 4 and easement hereby acquired.

5 **TEMPORARY WORK AREA EASEMENT.**

6 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
 7 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
 8 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
 9 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
 10 backfill, move, store and remove equipment and supplies, and erect and remove temporary
 11 structures on the land and to perform any other work necessary and incident to the construction of
 12 the _____ Project, together with the right to trim, cut, fell and remove there from
 13 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 14 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 15 rights and privileges as may be used without interfering with or abridging the rights and easement
 16 hereby acquired; subject, however, to existing easements for public roads and highways, public
 17 utilities, railroads and pipelines.

18 **DRAINAGE DITCH EASEMENT.**

19 A perpetual and assignable easement and right-of-way in, over and across (the land described in
 20 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
 21 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
 22 and privileges in the land as may be used without interfering with or abridging the rights and
 23 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 24 public utilities, railroads and pipelines.

25 **3.3.9.19 Real Estate Estimate**

26 A summary of the cost for each option is at Table 3.3.9.19-1. The real estate estimates at Tables
 27 3.3.9.19-2 through 3.3.9.19-5 include the land cost for acquisition of land, relocation benefits to
 28 include a replacement housing payment and fixed rate move expenses, and Federal and non-
 29 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
 30 lands, certification of those lands required for project purposes, legal opinions, analysis or other
 31 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
 32 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 33 PED. If further real estate requirements are identified during PED or if there is a significant increase
 34 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 35 the current estimate.

36 **Table 3.3.9.19-1.**
 37 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocations	Total Cost
Option A - 20.0	228	30	\$19,366,000
Option B - 30.0	297	38	\$25,774,000
Option C - 20.0	286	45	\$26,711,000
Option D - 30.0	359	54	\$33,260,000

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**Table 3.3.9.19-4.
LOD3 Jackson County Ring Levee, Belle Fontaine - Option C Alternate Alignment,
Elevation 20.0 Estimate**

a. Lands and Improvements/Permits				
				11,442,807
				1,314,250
				271,308
			Subtotal	13,028,365
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 45 relocations				1,568,000
e. Administrative Cost				6,772,500
	Relocation	Acquisition	Total	
Federal	67,500	715,000	782,500	
Non-Federal	270,000	5,720,000	5,990,000	
	337,500	6,435,000	6,772,500	
Sub-Total				21,368,865
Contingencies (25%)				5,342,216
Totals				26,711,081
Rounded				26,711,000

1 **Table 3.3.9.19-5.**
 2 **LOD3 Jackson County Ring Levee, Belle Fontaine - Option D Alternate Alignment,**
 3 **Elevation 30.0 Estimate**

a. Lands and Improvements/Permits				
	335 Ownerships for Levee, 54 Improvements		15,586,002	
	17 Ownerships for Buffer, 0 Improvements		745,255	
	<u>7 Ownerships for Pump Stations</u>		271,308	
	359 Ownerships	Subtotal	16,602,565	
b. Mineral Rights				
c. Damages				
d. P.L. 91-646 Relocation costs - 54 relocations				
e. Administrative Cost				
	Federal	Relocation	Acquisition	Total
		81,000	897,500	978,500
	Non-Federal	324,000	7,180,000	7,504,000
		405,000	8,077,500	8,482,500
Sub-Total				26,608,265
Contingencies (25%)				6,652,066
Totals				33,260,331
Rounded				33,260,000

4
 5 **3.3.9.20 Summary of Potential Real Estate Issues**

6 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
 7 these areas be required, these would be considered as part of the LERRD requirements. Typically if
 8 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
 9 the cost of acquiring an these sites with the cost of using a commercial sites and make a
 10 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

11 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
 12 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
 13 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
 14 estate requirements are identified during PED or if there is a significant increase in cost, a
 15 supplement to the Real Estate Appendix will be prepared.

16 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
 17 completed during PED.

18 Any requirement for mitigation lands will be identified during PED.

19 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
 20 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
 21 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 22 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

1 A relocation plan will need to be completed during PED to address potential relocation activity under
 2 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
 3 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 4 housing replacement payments, are very likely due to the size of the project and the lack of available
 5 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 6 schedule is the cost of business relocations. Depending on the type of business and the operation,
 7 this could involve moving equipment and machinery to new locations. It is necessary to interview
 8 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 9 determine the requirements for relocation and to estimate a cost for the relocation.

10 **3.3.9.21 Chart of Accounts**

11 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 12 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 13 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 14 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 15 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 16 Tables 3.3.9.21-1 through 3.3.9.21-4 shows the CWBS for real estate activities.

17 **Table 3.3.9.21-1.**
 18 **Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine - Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	570,000		570,000
01B20	Acquisition by NFS		4,560,000	4,560,000
01BX	Contingencies (25%)	<u>142,500</u>	<u>1,140,000</u>	<u>1,282,500</u>
	Subtotal	712,500	5,700,000	6,412,500
01F	PL 91-646 Assistance			
01F20	By NFS		180,000	180,000
01FX	Contingencies (25%)		<u>45,000</u>	<u>45,000</u>
	Subtotal		225,000	225,000
01R	Real Estate Land Payments			
01R1	Land Payments by NFS		9,286,508	9,286,508
B				
01R2	PL91-646 Relocation Payment by NFS		851,200	851,200
B				
01R2	Review of NFS	45,000		45,000
D				
01RX	Contingencies (25%)	<u>11,250</u>	<u>2,534,427</u>	<u>2,545,677</u>
	Subtotal	56,250	12,672,135	12,728,385
	Totals	768,750	18,597,135	19,365,885
	Rounded			19,366,000

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**Table 3.3.9.21-2.
Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine - Option B**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	742,500		742,500
01B20	Acquisition by NFS		5,940,000	5,940,000
01BX	Contingencies (25%)	<u>185,625</u>	<u>1,485,000</u>	<u>1,670,625</u>
	Subtotal	928,125	7,425,000	8,353,125
01F	PL 91-646 Assistance			
01F20	By NFS		228,000	228,000
01FX	Contingencies (25%)		<u>57,000</u>	<u>57,000</u>
	Subtotal		285,000	285,000
01R	Real Estate Land Payments			
01R1	Land Payments by NFS		12,598,782	12,598,782
B				
01R2	PL91-646 Relocation Payment by NFS		1,052,800	1,052,800
B				
01R2	Review of NFS	57,000		57,000
D				
01RX	Contingencies (25%)	<u>14,250</u>	<u>3,412,896</u>	<u>3,427,146</u>
	Subtotal	71,250	17,064,478	17,135,728
	Totals	999,375	24,774,478	25,773,853
	Rounded			25,774,000

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Table 3.3.9.21-3.
Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine - Option C
Alternate Alignment

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B4				
0	Acquisition/Review of NFS	715,000		715,000
01B2				
0	Acquisition by NFS		5,720,000	5,720,000
01BX	Contingencies (25%)	<u>178,750</u>	<u>1,430,000</u>	<u>1,608,750</u>
	Subtotal	893,750	7,150,000	8,043,750
01F	PL 91-646 Assistance			
01F20	By NFS		270,000	270,000
01FX	Contingencies (25%)		<u>67,500</u>	<u>67,500</u>
	Subtotal		337,500	337,500
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		13,028,365	13,028,365
01R2				
B	PL91-646 Relocation Payment by NFS		1,568,000	1,568,000
01R2				
D	Review of NFS	67,500		67,500
01RX	Contingencies (25%)	<u>16,875</u>	<u>3,649,091</u>	<u>3,665,966</u>
	Subtotal	84,375	18,245,456	18,329,831
	Totals	978,125	25,732,956	26,711,081
	Rounded			26,711,000

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1 **Table 3.3.9.21-4.**
 2 **Chart of Accounts - LOD3 Jackson County Ring Levee, Belle Fontaine - Option D**
 3 **Alternate Alignment**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B4				
0	Acquisition/Review of NFS	897,500		897,500
01B2				
0	Acquisition by NFS		7,180,000	7,180,000
01BX	Contingencies (25%)	<u>224,375</u>	<u>1,795,000</u>	<u>2,019,375</u>
	Subtotal	1,121,875	8,975,000	10,096,875
01F	PL 91-646 Assistance			
01F20	By NFS		324,000	324,000
01FX	Contingencies (25%)		<u>81,000</u>	<u>81,000</u>
	Subtotal		405,000	405,000
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		16,602,565	16,602,565
01R2				
B	PL91-646 Relocation Payment by NFS		1,523,200	1,523,200
01R2				
D	Review of NFS	81,000		81,000
01RX	Contingencies (25%)	<u>20,250</u>	<u>4,531,441</u>	<u>4,551,691</u>
	Subtotal	101,250	22,657,206	22,758,456
	Totals	1,223,125	32,037,206	33,260,331
	Rounded			33,260,000

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5 **3.3.10 Jackson County Ring Levees, Gautier**

6 Several high density residential and business areas in Jackson County were identified. They are
 7 Ocean Springs, Gulf Park, Belle Fontaine, Gautier and Pascagoula/Moss Point. Gautier is located on
 8 the west side of the Pascagoula River delta at the mouth of the West Pascagoula River at the
 9 Mississippi Sound. The location of the Gautier ring levee is shown in Figure 3.3.10-1. Ground
 10 elevations over most of the residential and business areas vary between elevations 10-20 feet
 11 NAVD88. These areas are subject to damage from storm surges associated with hurricanes. For
 12 purposes of providing protection for future storm events, the construction of an earthen ring levee is
 13 evaluated. The options in this study are identified as Option A and Option B. The levees were
 14 evaluated at elevations 20 ft NAVD88 and 30 ft NAVD88. The top width was assumed 15 ft with side
 15 slopes of 1 vertical to 3 horizontal.



**Figure 3.3.10-1.
Vicinity Map, Gautier**

3.3.10.1 Option A - Elevation 20.0 ft NAVD88

This option consists of an earthen dike around the most densely populated areas of Gautier along with the internal sub-basins and levee culvert/pump locations. The levee would have an elevation of 20.0 feet with a top width of 15 ft and slopes of 1 vertical to 3 horizontal.

3.3.10.2 Option B - Elevation 30.0 ft NAVD88

The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The only difference between the description of this option and preceding description of Option A is the height of the levee, pumping facilities, number of roadway and railroad intersections, and the length of the levee culverts.

3.3.10.3 Project Description

Figure 3.3.10.3-1 shows the location of the proposed project alternatives. As described above, the levee will be an earthen berm constructed either at elevation 20.0 feet or 30.0 feet along with the internal sub-basins and levee culvert/pump locations. Drainage on the interior of the ring levee would be collected at the levee and channeled to culverts placed in the levee. The culverts would have tidal gates on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An additional closure gate would also be provided at every culvert in the levee for manual control in the event the tidal gate malfunctions. In addition, pumps would be constructed near the outflow points to remove water from the interior during storm events occurring when the culverts are closed because of high water in the sound. Drainage ditches along the toe of the levee will be required to assure that smaller basins can be drained to a culvert/pump site. Figure 3.3.10.3-2 shows the proposed location of the pump/culvert sites. During some hurricane events, when the gates are shut, and rainfall exceeds

- 1 the average 10-yr intensity over the basin, some ponding from rainfall will occur. Further studies will
- 2 detail the requirement for the appropriate ponding areas, pump sizes, or buyouts in the affected areas.



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**Figure 3.3.10.3-1.
Gautier Ring Levee**



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**Figure 3.3.10.3-2.
Pump/Culvert/Sub-basin/Boat Access Site Locations**

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The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and surface organics and all existing foundations, streets, utilities, etc. will be removed and the subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials obtained from off site commercial sources, and trucked to the work area. The final surface will be armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion protection during an event that overtops the levee. The armoring will be anchored on the front face by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front side of the levee and all non critical surface areas will be subsequently covered by grassing. In order to maintain the natural runoff patterns culverts would be inserted through the protection line at appropriate locations. For this study the culverts were configured as cast-in-place reinforced concrete box structures fitted with flap gates to minimize normal backflows and sluice gates to provide closure when needed. Pump facilities are required at 11 locations.

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Road crossings will incorporate small gate structures or ramping over the embankment where the surface elevation is near that of the crest elevation. The elevation relationship of the crest and the adjacent railroad will be a governing factor. At each point where a roadway crosses the protection line the decision must be made whether to maintain this artery and adapt the protection line to accommodate it, or to terminate the artery at the protection line and divert traffic to cross the protection line at another location. For this study it was assumed that all roadways and railways crossing the levee alignment would be retained except where it was very evident that traffic could be combined without undue congestion. Once the decision has been made to retain a particular roadway, it must then be determined how best to configure the artery to conduct traffic across the

1 protection line. The simplest means of passing roadway traffic is to ramp the roadway over the
2 protection line. This alternative is not always viable because of severe right-of-way restraints caused
3 by extreme levee height, urban congestion, etc. In such instances other methods can be used
4 including partial ramping in combination with low profile roller gates. In more restricted areas full
5 height gates which would leave the roadway virtually unaltered might be preferable, even though this
6 alternative would usually be more costly than ramping. In some extreme circumstances where high
7 levees are required to pass through very congested areas, installation of tunnels with closure gates
8 may be required.

9 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
10 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
11 alternatives would include gated pass through structures. Because of the vertical clearance
12 requirements of railroad traffic all railroad pass through structures for this study were configured
13 having vertical walls on either side of the railway with double swing gates extending to the full height
14 of the levee.

15 With the installation of a ring levee around Gautier at Option A, elevation 20.0, 20 roadway
16 intersections would have to be accommodated. For this study it was estimated that 11 roller gate
17 structures and 11 swing gate structures would be required. At Option B, elevation 30.0, 23 roadway
18 intersections would have to be accommodated, and it was estimated that all 23 would require swing
19 gate structures.

20 Operation and maintenance activities for this project will be required on an annual basis. All pumps
21 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
22 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
23 causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

24 **3.3.10.4 Real Estate Requirements**

25 Real Estate requirements for Line of Defense 3, Gautier Ring Levee include lands, easements,
26 rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to construct an
27 earthen levee, drainage ditches and 11 culvert/pump station facilities.

28 Based on the footprint of the Option A 20.0 foot elevation, it was determined that approximately 313
29 parcels and 139 structures would be impacted. The acreage to be acquired for the levee is unknown.
30 It is known that the 11 pump stations will require approximately 0.23 of an acre each for a total of
31 2.53 acres. Lands required for construction of the levee will be acquired in fee simple interest. Based
32 on the number of structures being impacted, the assumption is that there will be 139 relocations.

33 Based on the footprint of the Option B 30.0 foot elevation, it was determined that 354 parcels and
34 161 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
35 that the 11 pump stations will require approximately 0.23 of an acre each for a total of 2.53 acres.
36 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
37 number of structures being impacted, the assumption is that there will be 161 relocations.

38 Ditches that will be constructed to provide drainage for the interior of the ring levee are expected to
39 be located within the footprint of the levee. Until final plans and specifications are completed, an
40 assumption is made that the ditches will be constructed on the same lands acquired for construction
41 of the levee. If any additional lands are required, this will be determined during PED.

42 Any modifications to the roadways and utilities will most probably need to be accomplished through
43 a relocation contract. This will be further investigated and confirmed during PED.

1 In some areas the levee alignment would cross a moderately sized water course where it is apparent
2 that boats currently traverse the area. To allow continued free boat access to areas behind the levee
3 these water courses will be fitted with a scaled down adaptation of the larger rising sector gate
4 structure used for the bay barriers at Biloxi and Bay St. Louis. A small boat access structure is
5 shown at the mouth of multiple basins in the project footprint. Rising sector gates will be provided at
6 these gates allowing shallow draft traffic most of the time. The gates will be closed prior to hurricane
7 storm surge. No additional real estate interest is identified for boat access points as they fall within
8 the footprint of the project and impacted parcels are included in the total that is projected. For those
9 lands required for construction that lay below the mean high water mark, navigation servitude will
10 apply.

11 An assumption is made that excavated materials from clearing, snagging, and construction of
12 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
13 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
14 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
15 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
16 the cost of using a commercial landfill and make a determination which method is most cost
17 effective.

18 An assumption is made that excavated materials from clearing, snagging, and construction of
19 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
20 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
21 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
22 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
23 the cost of using a commercial landfill and make a determination which method is most cost
24 effective.

25 The recommended plan proposes to use material from an inventory of upland borrow sites to
26 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
27 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
28 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
29 borrow site with the cost of using a commercial borrow site and make a determination which method
30 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
31 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
32 further defined during PED.

33 **3.3.10.5 Utility/Facility Relocation**

34 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
35 assumption is made that this work will be accomplished through a relocation contract. This will be
36 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
37 discussion.

38 **3.3.10.6 Existing Projects/Studies**

39 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
40 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

41 **3.3.10.7 Environmental Impacts**

42 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
43 for a full discussion on environmental effects.

1 **3.3.10.8 Project Sponsor Responsibilities and Capabilities**

2 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
3 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
4 all alterations and relocations of facilities, structures and improvements determined by the
5 government to be necessary for construction of the Project.

6 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
7 the United States Government. Prior to advertisement of any construction contract, the NFS shall
8 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
9 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
10 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
11 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
12 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
13 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
14 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
15 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
16 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
17 Real Estate Appendix. The assessment will be made during PED phase.

18 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
19 lands it provides and the value of the relocations that are required for the project. Generally, for the
20 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
21 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
22 non-federal sponsor provided for the project as required by the Government. The NFS cannot
23 receive credit for the value of any LER, including incidental costs, which were previously provided as
24 an item of cooperation for another Federal project, including projects that preceded enactment of
25 WRDA 1986.

26 **3.3.10.9 Government Owned Property**

27 There are no known Government owned lands within the proposed project.

28 **3.3.10.10 Historical Significance**

29 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
30 on cultural and archaeological resources.

31 **3.3.10.11 Mineral Rights**

32 There are no known mineral activities within the scope of the proposed project.

33 **3.3.10.12 Hazardous, Toxic, and Radioactive Waste (HTRW)**

34 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
35 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
36 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

37 **3.3.10.13 Public Law 91-646, Relocation Assistance Benefits**

38 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
39 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
40 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a

1 result of programs designed for the benefits of the public as a whole. A qualified displaced person
2 may be entitled to certain relocation assistance benefits which include reimbursement of moving
3 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
4 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
5 types - purchase supplement, rental assistance and down payment. All replacement housing must
6 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

7 It is estimated that there are approximately 139 relocations in Option A and approximately
8 161 relocations in Option B. No relocation plan has been completed nor has a relocation survey
9 been done. All estimates are based on information from county public records. The number of
10 business relocations as compared to residential relocations is unknown. In order to accomplish the
11 relocation activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

12 **3.3.10.14 Attitude of Property Owners**

13 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
14 However, numerous public meetings have been held at different locations throughout the study area
15 to inform stakeholders and property owners about the study and the protective measures under
16 consideration for the Mississippi coastal area. A number of local newspapers have published articles
17 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
18 may occur as a result of the project. Some of these articles can be found on web sites. While many
19 of the locals may welcome the benefits of the proposed project, there are some who oppose the
20 project.

21 **3.3.10.15 Acquisition Schedule**

22 An acquisition schedule will be developed when plans and specifications become available and
23 more definite information is available pertaining to the specific areas and number of parcels for
24 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
25 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
26 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
27 completed certification of lands acquired/owned by the sponsor will be necessary prior to
28 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
29 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
30 implementation/management plan.

31 **3.3.10.16 Estates for Proposed Project**

32 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
33 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
34 temporary work areas, and the Drainage Ditch Easement will be used as required. The estates
35 recommended are standard estates.

36 **FEE.**

37 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
38 subject, however, to existing easements for public roads and highways, public utilities, railroads and
39 pipelines.

40 **BORROW EASEMENT.**

41 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
42 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
43 _____ and _____); subject, however, to existing easements for public roads and highways, public

1 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
2 such rights and privileges in said land as may be used without interfering with or abridging the rights
3 and easement hereby acquired.

4 **TEMPORARY WORK AREA EASEMENT.**

5 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
6 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
7 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
8 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
9 backfill, move, store and remove equipment and supplies, and erect and remove temporary
10 structures on the land and to perform any other work necessary and incident to the construction of
11 the _____ Project, together with the right to trim, cut, fell and remove there from
12 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
13 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
14 rights and privileges as may be used without interfering with or abridging the rights and easement
15 hereby acquired; subject, however, to existing easements for public roads and highways, public
16 utilities, railroads and pipelines.

17 **DRAINAGE DITCH EASEMENT.**

18 A perpetual and assignable easement and right-of-way in, over and across (the land described in
19 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
20 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
21 and privileges in the land as may be used without interfering with or abridging the rights and
22 easement hereby acquired; subject, however, to existing easements for public roads and highways,
23 public utilities, railroads and pipelines.

24 **3.3.10.17 Real Estate Estimate**

25 A summary of the cost for each option is at Table 3.3.10.17-1. The real estate estimates at Table
26 3.3.10.17-2 and 3.3.10.17-3 include the land cost for acquisition of land, relocation benefits to
27 include a replacement housing payment and fixed rate move expenses, and Federal and non-
28 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
29 lands, certification of those lands required for project purposes, legal opinions, analysis or other
30 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
31 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
32 PED. If further real estate requirements are identified during PED or if there is a significant increase
33 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
34 the current estimate.

35 **Table 3.3.10.17-1.**
36 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocations	Total Cost
Option A - 20.0	313	139	\$56,977,000
Option B - 30.0	354	161	\$66,585,000

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**Table 3.3.10.17-2.
LOD3 Jackson County Ring Levee, Gautier - Option A 20.0 Estimate**

a. Lands and Improvements/Permits				
302 Ownerships for Levee, 139 Improvements				33,172,344
<u>11 Pump Stations</u>				426,342
313 Ownerships			Subtotal	33,598,686
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 139 relocations				3,897,600
e. Administrative Cost				8,085,000
		Relocation	Acquisition	Total
Federal		208,500	782,500	991,000
Non-Federal		834,000	6,260,000	7,094,000
		1,042,500	7,042,500	8,085,000
Subtotal				45,581,286
Contingencies (25%)				11,395,322
Totals				56,976,608
Rounded				56,977,000

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**Table 3.3.10.17-3.
LOD3 Jackson County Ring Levee, Gautier - Option B 30.0 Estimate**

a. Lands and Improvements/Permits				
343 Ownerships for Levee, 161 Improvements				39,166,820
<u>11 Pump Stations</u>				426,342
354 Ownerships			Subtotal	39,593,162
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 161 relocations				4,502,400
e. Administrative Cost				9,172,500
		Relocation	Acquisition	Total
Federal		241,500	885,000	1,126,500
Non-Federal		966,000	7,080,000	8,046,000
		1,207,500	7,965,000	9,172,500
Subtotal				53,268,062
Contingencies (25%)				13,317,016
Totals				66,585,078
Rounded				66,585,000

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3.3.10.18 Summary of Potential Real Estate Issues

The requirement for temporary work areas, disposal or borrow areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements. Typically if disposal or borrow sites are required, Real estate would provide an analysis during PED to compare the cost of acquiring an these sites with the cost of using a commercial sites and make a determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real estate acquisition requirement, valuation of lands will be performed. Land costs associated with these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared.

Any requirements for relocation contracts pertaining to facilities/utilities will be identified and completed during PED.

Any requirement for mitigation lands will be identified during PED.

Should condemnation of any required real estate interest be necessary, it is the responsibility of the NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate Acquisition Capability. However, if the real estate interest is one that the NFS does not have authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

A relocation plan will need to be completed during PED to address potential relocation activity under P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard housing replacement payments, are very likely due to the size of the project and the lack of available decent, safe and sanitary housing in the area. Another factor that could increase cost and impact schedule is the cost of business relocations. Depending on the type of business and the operation, this could involve moving equipment and machinery to new locations. It is necessary to interview each impacted individual and business during Pre-Construction, Engineering and Design Phase to determine the requirements for relocation and to estimate a cost for the relocation.

3.3.10.19 Chart of Accounts

The cost estimate for all Federal and non-Federal real estate activities necessary for implementation of the project after completion of the feasibility study for land acquisition, construction, LERRD, and other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate cost estimate is then incorporated into the Total Current Working Estimate utilizing the Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at Tables 3.3.10.19-1 and 3.3.10.19-2 shows the CWBS for real estate activities.

**Table 3.3.10.19-1.
Chart of Accounts - LOD3 Jackson County Ring Levee, Gautier - Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	782,500		782,500

01A	Project Planning	Federal	Non-Federal	Totals
01B20	Acquisition by NFS		6,260,000	6,260,000
01BX	Contingencies (25%)	<u>195,625</u>	<u>1,565,000</u>	<u>1,760,625</u>
	Subtotal	978,125	7,825,000	8,803,125
01F	PL 91-646 Assistance			
01F20	By NFS		834,000	834,000
01FX	Contingencies (25%)		<u>208,500</u>	<u>208,500</u>
	Subtotal		1,042,500	1,042,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		33,598,686	33,598,686
01R2B	PL91-646 Relocation Payment by NFS		3,897,600	3,897,600
01R2D	Review of NFS	208,500		208,500
01RX	Contingencies (25%)	<u>52,125</u>	<u>9,374,072</u>	<u>9,426,197</u>
	Subtotal	260,625	46,870,358	47,130,983
	Totals	1,238,750	55,737,858	56,976,608
	Rounded			56,977,000

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Table 3.3.10.19-2.
Chart of Accounts - LOD3 Jackson County Ring Levee, Gautier - Option B

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	885,000		885,000
01B20	Acquisition by NFS		7,080,000	7,080,000
01BX	Contingencies (25%)	<u>221,250</u>	<u>1,770,000</u>	<u>1,991,250</u>
	Subtotal	1,106,250	8,850,000	9,956,250
01F	PL 91-646 Assistance			
01F20	By NFS		966,000	966,000
01FX	Contingencies (25%)		<u>241,500</u>	<u>241,500</u>
	Subtotal		1,207,500	1,207,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		39,593,162	39,593,162
01R2B	PL91-646 Relocation Payment by NFS		4,502,400	4,502,400
01R2D	Review of NFS	241,500		241,500
01RX	Contingencies (25%)	<u>60,375</u>	<u>11,023,891</u>	<u>11,084,266</u>
	Subtotal	301,875	55,119,453	55,421,328
	Totals	1,408,125	65,176,953	66,585,078
	Rounded			66,585,000

4

1 **3.3.11 Jackson County Ring Levees, Pascagoula/Moss Point**

2 Several high density residential and business areas in Jackson County were identified. They are
3 Ocean Springs, Gulf Park, Belle Fontaine, Gautier and Pascagoula/Moss Point. The cities of Moss
4 Point and Pascagoula lie at the confluence of the Escatawpa and Pascagoula Rivers along the gulf
5 coast on Mississippi Sound as shown on Figure 3.3.11-1. Both the northern part of Moss Point and
6 the southern Part of Pascagoula are very flat. Ground elevations over most of the residential and
7 business areas vary between elevations 10-12 feet NAVD88 in the southern part of the area
8 (Pascagoula) and 14-20 feet NAVD88 in the northern part (Moss Point). These areas are subject to
9 damage from storm surges associated with hurricanes. For purposes of providing protection for
10 future storm events, the construction of an earthen ring levee is evaluated. The options in this study
11 are identified as Options A through H. The levees were evaluated at elevations 20 ft NAVD88 and
12 30 ft NAVD88. The top width was assumed 15 ft with side slopes of 1 vertical to 3 horizontal.

13 **3.3.11.1 Option A - Elevation 20.0 ft NAVD88**

14 This option consists of an earthen dike around the most densely populated areas of Moss Point and
15 Pascagoula along with the internal sub-basins and levee culvert/pump locations. The levee would
16 have an elevation of 20.0 feet with a top width of 15 ft and slopes of 1 vertical to 3 horizontal. This is
17 the basic alignment and is the most extensive, covering the main residential areas in Pascagoula
18 and Moss Point.



19
20 **Figure 3.3.11-1.**
21 **Vicinity Map, Pascagoula/Moss Point**

22 **3.3.11.2 Option B - Elevation 30.0 ft NAVD88**

23 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
24 only difference between the description of this option and preceding description of Option A is the

1 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
2 of the levee culverts.

3 **3.3.11.3 Option C - Washington Avenue Alternate Alignment, Elevation 20.0 ft NAVD88**

4 The alignment of the Option C levee is the same as Option A, except that it follows Washington
5 Avenue on the southernmost leg of the levee. Additionally the lands that lay between the alignment
6 of Option A and the alternate alignment Option C will be acquired as buffer zone in this option.

7 **3.3.11.4 Option D - Washington Avenue Alternate Alignment, Elevation 30.0 ft NAVD88**

8 The alignment of the levee is the same as Option C above. The only difference between the
9 description of this option and preceding description of Option C is the height of the levee, pumping
10 facilities, number of roadway and railroad intersections, and the length of the levee culverts. As
11 above, the buffer zone lands will be acquired

12 **3.3.11.5 Option E - Moss point Alternate Alignment, Elevation 20.0 ft NAVD88**

13 The alignment of the Option E levee is the same as Option A, except that it follows a modified
14 alignment through Moss Point along higher ground on the north leg of the levee. Additionally the
15 lands that lay between the alignment of Option A and the alternate alignment Option E will be
16 acquired as a buffer zone in this option.

17 **3.3.11.6 Option F - Moss Point Alternate Alignment, Elevation 30.0 ft NAVD88**

18 The alignment of the levee is the same as Option E above. The only difference between the
19 description of this option and preceding description of Option C is the height of the levee, pumping
20 facilities, number of roadway and railroad intersections, and the length of the levee culverts. As
21 above, the buffer zone lands will be acquired.

22 **3.3.11.7 Option G - Combined Washington Avenue and Moss Point Alternative
23 Alignments, Elevation 20.0 ft NAVD88**

24 The alignment of the levee is the same as Option A, above, except that it follows the same modified
25 alignment along Washington Ave as for Options C and D on the south, and the modified alignment in
26 Moss Point as for Options E and F along the north leg of the levee. Additionally, the lands that lay
27 between the alignment of Option A and the alternate alignments Option C and Option E will be
28 acquired as buffer zones in this option.

29 **3.3.11.8 Option H - Combined Washington Avenue and Moss Point Alternative
30 Alignments, Elevation 30.0 ft NAVD88**

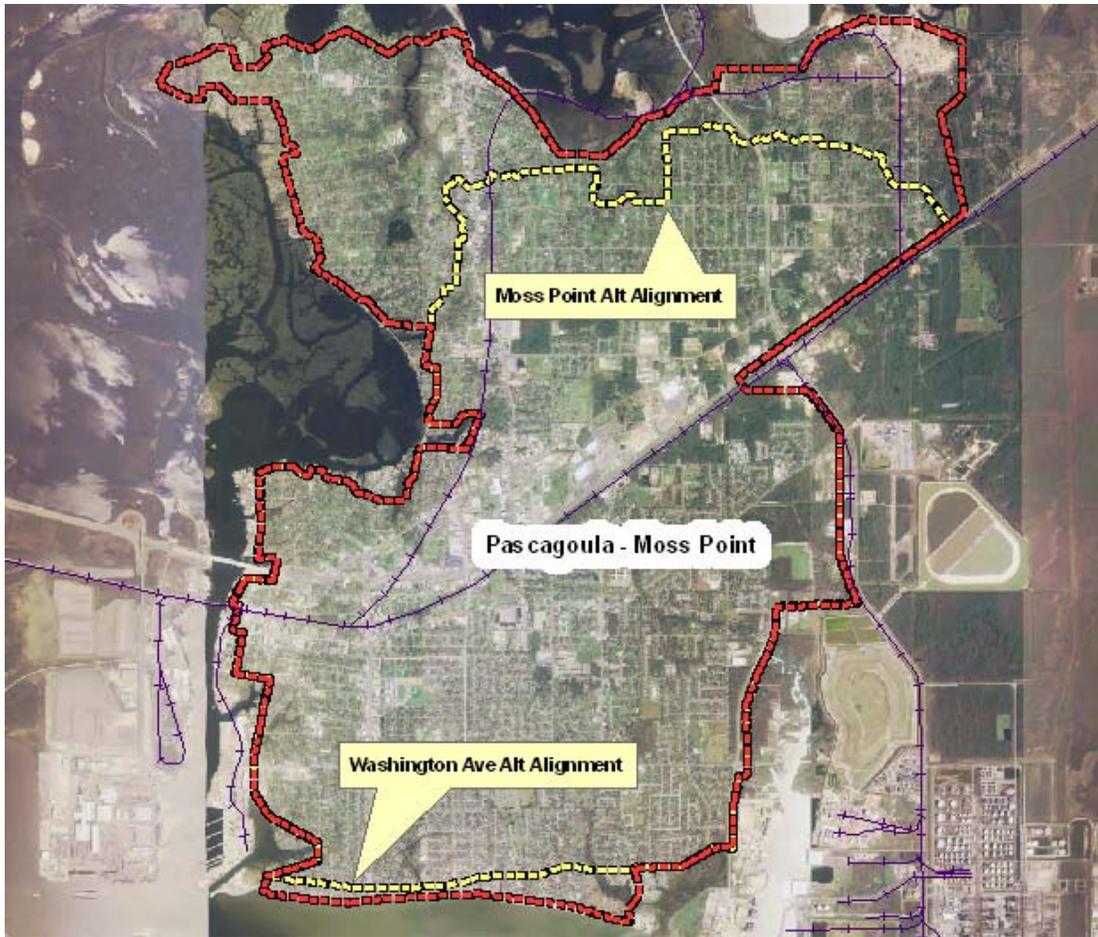
31 The alignment of the levee is the same as Option G above. The only difference between the
32 description of this option and preceding description of Option G is the height of the levee, pumping
33 facilities, number of roadway and railroad intersections, and the length of the levee culverts. As
34 above, the buffer zone lands will be acquired.

35 **3.3.11.9 Project Description**

36 Figure 3.3.11.9-1 shows the location of the proposed project alternatives with the alternate
37 alignments representing Options C-H. As described above, the levee will be an earthen berm
38 constructed either at elevation 20.0 feet or 30.0 feet along with the internal sub-basins and levee

1 culvert/pump locations. Drainage on the interior of the ring levee would be collected at the levee and
2 channeled to culverts placed in the levee. The culverts would have flap gates on the seaward ends
3 to prevent backflow when the water in Mississippi Sound is high. An additional closure gate would
4 also be provided at every culvert in the levee for control in the event the flap gate malfunctions. In
5 addition, pumps would be constructed near the outflow points to remove water from the interior
6 during storm events occurring when the culverts are closed because of high water in the sound.
7 Drainage ditches along the toe of the levee will be required to assure that smaller basins can be
8 drained to a culvert/pump site. Figure 3.3.11.9-2 shows the proposed location of the pump/culvert
9 sites. During some hurricane events, when the gates are shut, and rainfall exceeds the average
10 10-yr intensity over the basin, some ponding from rainfall will occur. Further studies will detail the
11 requirement for the appropriate ponding areas, pump sizes, or buyouts in the affected areas.

12 The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a
13 fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and
14 surface organics and all existing foundations, streets, utilities, etc. will be removed and the
15 subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials
16 obtained from off site commercial sources, and trucked to the work area. The final surface will be
17 armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion
18 protection during an event that overtops the levee. The armoring will be anchored on the front face
19 by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front
20 side of the levee and all non critical surface areas will be subsequently covered by grassing. In order
21 to maintain the natural runoff patterns culverts would be inserted through the protection line at
22 appropriate locations. For this study these were configured as cast-in-place reinforced concrete box
23 structures fitted with flap gates to minimize normal backflows and sluice gates to provide storm
24 closure when needed. Pump facilities are required at 23-28 locations with variance depending on the
25 option.

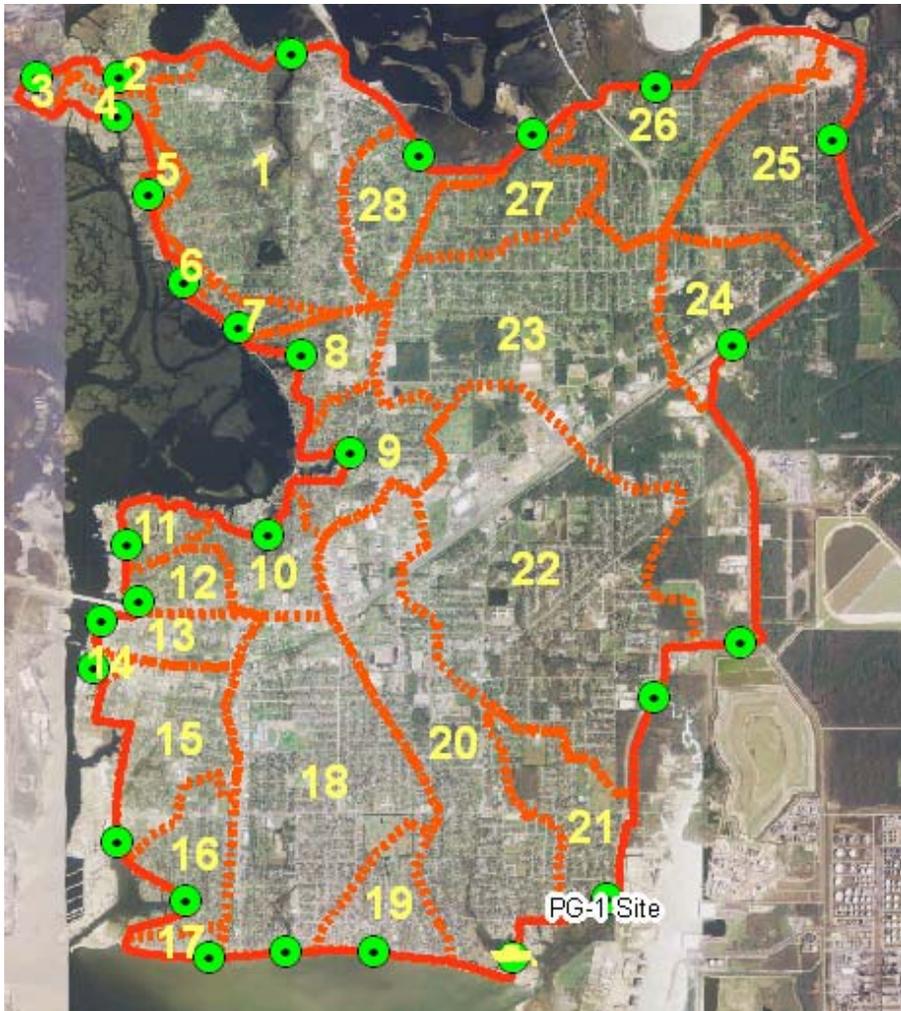


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**Figure 3.3.11.9-1.
Pascagoula/Moss Point Levee**



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**Figure 3.3.11.9-2.
Pump/Culvert/Sub-basin/Boat Access Site Locations**

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Road crossings will incorporate small gate structures or ramping over the embankment where the surface elevation is near that of the crest elevation. The elevation relationship of the crest and the adjacent railroad will be a governing factor. At each point where a roadway crosses the protection line the decision must be made whether to maintain this artery and adapt the protection line to accommodate it, or to terminate the artery at the protection line and divert traffic to cross the protection line at another location. For this study it was assumed that all roadways and railways crossing the levee alignment would be retained except where it was very evident that traffic could be combined without undue congestion. Once the decision has been made to retain a particular roadway, it must then be determined how best to configure the artery to conduct traffic across the protection line. The simplest means of passing roadway traffic is to ramp the roadway over the protection line. This alternative is not always viable because of severe right-of-way restraints caused by extreme levee height, urban congestion, etc. In such instances other methods can be used including partial ramping in combination with low profile roller gates. In more restricted areas full height gates which would leave the roadway virtually unaltered might be preferable, even though this alternative would usually be more costly than ramping. In some extreme circumstances where high levees are required to pass through very congested areas, installation of tunnels with closure gates may be required.

1 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
 2 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
 3 alternatives would include gated pass through structures. Because of the vertical clearance
 4 requirements of railroad traffic all railroad pass through structures for this study were configured
 5 having vertical walls on either side of the railway with double swing gates extending to the full height
 6 of the levee.

7 Table 3.3.11.9-1 summarizes the number of roadway/railway intersections impacted by the various
 8 options. The number of roller gate, swing gate and railroad gate structures are listed for each option.

9 **Table 3.3.11.9-1.**
 10 **Levee and Roadway/Railway Intersections**

Option	Roadway/Railway Intersections	Roller Gates	Swing Gates	Railroad Gates
Option A	68	29	35	8
Option B	79	1	73	5
Option C	76	24	108	14
Option D	87	1	180	18
Option E	43	15	56	10
Option F	75		75	14
Option G	48	15	72	10
Option H	79		79	14

11
 12 Operation and maintenance activities for this project will be required on an annual basis. All pumps
 13 and gates will be operated to assure proper working order. Debris and shoaled sediment will be
 14 removed. Vegetation on the levees will be cut to facilitate inspection and to prevent roots from
 15 causing weak levee locations. Rills will be filled and damaged revetment will be repaired.

16 **3.3.11.10 Real Estate Requirements**

17 Real Estate requirements for Line of Defense 3, Pascagoula/Moss Point Ring Levee include lands,
 18 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
 19 acquire buffer zone lands, construct an earthen levee, drainage ditches and 23 - 28 culvert/pump
 20 station facilities depending on the option.

21 Based on the footprint of the Option A, 20.0 foot elevation, it was determined that approximately
 22 1075 parcels and 536 structures would be impacted. The acreage to be acquired for the levee is
 23 unknown. It is known that the 28 pump stations will require approximately 0.23 of an acre each for a
 24 total of 6.44 acres. Lands required for construction of the levee will be acquired in fee simple
 25 interest, and lands for the drainage ditches that will be constructed outside the levee footprint will be
 26 acquired either in easement or fee as necessary. Based on the number of structures being
 27 impacted, the assumption is that there will be 536 relocations.

28 Based on the footprint of the Option B, 30.0 foot elevation, it was determined that 1203 parcels and
 29 602 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
 30 that the 28 pump stations will require approximately 0.23 of an acre each for a total of 6.44 acres.
 31 Lands required for construction of the levee will be acquired in fee simple interest, and lands for the
 32 drainage ditches that will be constructed outside the levee footprint will be acquired either in
 33 easement or fee as necessary. Based on the number of structures being impacted, the assumption
 34 is that there will be 602 relocations.

1 Based on the footprint of the Option C, 20.0 foot elevation, it was determined that 1175 parcels and
2 550 structures would be impacted. Lands for the buffer zone are included in this number. The
3 acreage to be acquired for the levee is unknown. It is known that the 27 pump stations will require
4 approximately 0.23 of an acre each for a total of 6.21 acres. Lands required for the buffer zone and
5 for construction of the levee will be acquired in fee simple interest, and lands for the drainage ditches
6 that will be constructed outside the levee footprint will be acquired either in easement or fee as
7 necessary. Based on the number of structures being impacted, the assumption is that there will be
8 550 relocations.

9 Based on the footprint of the Option D, 30.0 foot elevation, it was determined that 1321 parcels and
10 623 structures would be impacted. Lands for the buffer zone are included in this number. The
11 acreage to be acquired for the levee is unknown. It is known that the 27 pump stations will require
12 approximately 0.23 of an acre each for a total of 6.21 acres. Lands required for the buffer zone and
13 for construction of the levee will be acquired in fee simple interest, and lands for the drainage ditches
14 that will be constructed outside the levee footprint will be acquired either in easement or fee as
15 necessary. Based on the number of structures being impacted, the assumption is that there will be
16 623 relocations.

17 Based on the footprint of the Option E, 20.0 foot elevation, it was determined that 2964 parcels and
18 1870 structures would be impacted. Lands for the buffer zone are included in this number. The
19 acreage to be acquired for the levee is unknown. It is known that the 24 pump stations will require
20 approximately 0.23 of an acre each for a total of 5.52 acres. Lands required for the buffer zone and
21 for construction of the levee will be acquired in fee simple interest, and lands for the drainage ditches
22 that will be constructed outside the levee footprint will be acquired either in easement or fee as
23 necessary. Based on the number of structures being impacted, the assumption is that there will be
24 1870 relocations.

25 Based on the footprint of the Option F, 30.0 foot elevation, it was determined that 3076 parcels and
26 1926 structures would be impacted. Lands for the buffer zone are included in this number. The
27 acreage to be acquired for the levee is unknown. It is known that the 24 pump stations will require
28 approximately 0.23 of an acre each for a total of 5.52 acres. Lands required for the buffer zone and
29 for construction of the levee will be acquired in fee simple interest, and lands for the drainage ditches
30 that will be constructed outside the levee footprint will be acquired either in easement or fee as
31 necessary. Based on the number of structures being impacted, the assumption is that there will be
32 1926 relocations.

33 Based on the footprint of the Option G 20.0 foot elevation, it was determined that 3138 parcels and
34 1939 structures would be impacted. Lands for the buffer zone are included in this number. The
35 acreage to be acquired for the levee is unknown. It is known that the 23 pump stations will require
36 approximately 0.23 of an acre each for a total of 5.29 acres. Lands required for the buffer zone and
37 for construction of the levee will be acquired in fee simple interest, and lands for the drainage ditches
38 that will be constructed outside the levee footprint will be acquired either in easement or fee as
39 necessary. Based on the number of structures being impacted, the assumption is that there will be
40 1939 relocations.

41 Based on the footprint of the Option H, 30.0 foot elevation, it was determined that 3253 parcels and
42 1994 structures would be impacted. The acreage to be acquired for the levee is unknown. It is
43 known that the 23 pump stations will require approximately 0.23 of an acre each for a total of 5.29
44 acres. Lands required for the buffer zone and for construction of the levee will be acquired in fee
45 simple interest, and lands for the drainage ditches that will be constructed outside the levee footprint
46 will be acquired either in easement or fee as necessary. Based on the number of structures being
47 impacted, the assumption is that there will be 1994 relocations. Table 3.3.11.10-1 below summarizes
48 the real estate requirements for the various alternatives.

1
2

**Table 3.3.11.10-1.
Real Estate Requirements - LOD3 Pascagoula/Moss Point Alternatives**

Option	Impacted Parcels	Impacted Structure s	# Pump Stations/A C	Relocatio ns
Option A	1,075	536	28 6.44 AC	536
Option B	1,203	602	28 6.44 AC	602
Option C	1,175	550	27 6.21 AC	550
Option D	1,321	623	27 6.21 AC	623
Option E	2,964	1,870	24 5.52 AC	1870
Option F	3,076	1,926	24 5.52 AC	1926
Option G	3,138	1,939	23 5.29 AC	1939
Option H	3,253	1,994	23 5.29 AC	1994

3

4 Any modifications to the roadways and utilities will most probably need to be accomplished through
5 a relocation contract. This will be further investigated and confirmed during PED.

6 In some areas the levee alignment would cross a moderately sized water course where it is apparent
7 that boats currently traverse the area. To allow continued free boat access to areas behind the levee
8 these water courses will be fitted with a scaled down adaptation of the larger rising sector gate
9 structure used for the bay barriers at Biloxi and Bay St. Louis. A small boat access structure is
10 shown at the mouth of one basin in the project footprint. Rising sector gates will be provided at this
11 gate allowing shallow draft traffic most of the time. The gate will be closed prior to hurricane storm
12 surge. No additional real estate interest is identified for boat access points as they fall within the
13 footprint of the project and impacted parcels are included in the total that is projected. For those
14 lands required for construction that lay below the mean high water mark, navigation servitude will
15 apply.

16 An assumption is made that excavated materials from clearing, snagging, and construction of
17 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
18 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
19 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
20 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
21 the cost of using a commercial landfill and make a determination which method is most cost
22 effective.

23 The recommended plan proposes to use material from an inventory of upland borrow sites to
24 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
25 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
26 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
27 borrow site with the cost of using a commercial borrow site and make a determination which method
28 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands

1 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
2 further defined during PED.

3 **3.3.11.11 Utility/Facility Relocation**

4 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
5 assumption is made that this work will be accomplished through a relocation contract. This will be
6 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
7 discussion.

8 **3.3.11.12 Existing Projects/Studies**

9 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
10 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

11 **3.3.11.13 Environmental Impacts**

12 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
13 for a full discussion on environmental effects.

14 **3.3.11.14 Project Sponsor Responsibilities and Capabilities**

15 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
16 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
17 all alterations and relocations of facilities, structures and improvements determined by the
18 government to be necessary for construction of the Project.

19 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
20 the United States Government. Prior to advertisement of any construction contract, the NFS shall
21 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
22 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
23 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
24 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
25 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
26 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
27 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
28 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
29 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
30 Real Estate Appendix. The assessment will be made during PED phase.

31 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
32 lands it provides and the value of the relocations that are required for the project. Generally, for the
33 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
34 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
35 non-federal sponsor provided for the project as required by the Government. The NFS cannot
36 receive credit for the value of any LER, including incidental costs, which were previously provided as
37 an item of cooperation for another Federal project, including projects that preceded enactment of
38 WRDA 1986.

39 **3.3.11.15 Government Owned Property**

40 One (1) Government owned parcel is within the footprint of the project. In viewing the footprint, it
41 appears that approximately 30% of the parcel will be impacted by construction of the levee. Land

1 value is listed as \$131,090 and improvement value is listed as \$427,020. Ownership is listed in
2 public records as US Govt (Pasc Fishery Lab). Specific impacts to this particular parcel and/or
3 structure will be determined during PED.

4 **3.3.11.16 Historical Significance**

5 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
6 on cultural and archaeological resources.

7 **3.3.11.17 Mineral Rights**

8 There are no known mineral activities within the scope of the proposed project.

9 **3.3.11.18 Hazardous, Toxic, and Radioactive Waste (HTRW)**

10 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
11 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
12 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

13 **3.3.11.19 Public Law 91-646, Relocation Assistance Benefits**

14 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
15 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
16 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
17 result of programs designed for the benefits of the public as a whole. A qualified displaced person
18 may be entitled to certain relocation assistance benefits which include reimbursement of moving
19 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
20 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
21 types - purchase supplement, rental assistance and down payment. All replacement housing must
22 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

23 Table 3.3.11.19-1 shows the number of expected relocations for each Option. No relocation plan has
24 been completed nor has a relocation survey been done. All estimates are based on information from
25 county public records. The number of business relocations as compared to residential relocations is
26 unknown. In order to accomplish the relocation activity in a timely manner, the plan set forth in
27 Chapter 2. Section 2.5 can be used.

28

29

**Table 3.3.11.19-1.
PL 91-646 - Relocation Assistance**

Option	Number of Relocations
Option A	536
Option B	602
Option C	550
Option D	623
Option E	1870
Option F	1926
Option G	1939
Option H	1994

30

1 **3.3.11.20 Attitude of Property Owners**

2 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
3 However, numerous public meetings have been held at different locations throughout the study area
4 to inform stakeholders and property owners about the study and the protective measures under
5 consideration for the Mississippi coastal area. A number of local newspapers have published articles
6 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
7 may occur as a result of the project. Some of these articles can be found on web sites. While many
8 of the locals may welcome the benefits of the proposed project, there are some who oppose the
9 project.

10 **3.3.11.21 Acquisition Schedule**

11 An acquisition schedule will be developed when plans and specifications become available and
12 more definite information is available pertaining to the specific areas and number of parcels for
13 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
14 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
15 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
16 completed certification of lands acquired/owned by the sponsor will be necessary prior to
17 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
18 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
19 implementation/management plan.

20 **3.3.11.22 Estates for Proposed Project**

21 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
22 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
23 temporary work areas, and for drainage ditches constructed outside the footprint of the levee, fee or
24 the Drainage Ditch Easement will be used as appropriate. The estates recommended are standard
25 estates.

26 **FEE.**

27 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
28 subject, however, to existing easements for public roads and highways, public utilities, railroads and
29 pipelines.

30 **BORROW EASEMENT.**

31 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
32 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
33 _____ and _____); subject, however, to existing easements for public roads and highways, public
34 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
35 such rights and privileges in said land as may be used without interfering with or abridging the rights
36 and easement hereby acquired.

37 **TEMPORARY WORK AREA EASEMENT.**

38 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
39 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
40 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
41 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
42 backfill, move, store and remove equipment and supplies, and erect and remove temporary
43 structures on the land and to perform any other work necessary and incident to the construction of

1 the _____ Project, together with the right to trim, cut, fell and remove there from
 2 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 3 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 4 rights and privileges as may be used without interfering with or abridging the rights and easement
 5 hereby acquired; subject, however, to existing easements for public roads and highways, public
 6 utilities, railroads and pipelines.

7 **DRAINAGE DITCH EASEMENT.**

8 A perpetual and assignable easement and right-of-way in, over and across (the land described in
 9 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
 10 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
 11 and privileges in the land as may be used without interfering with or abridging the rights and
 12 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 13 public utilities, railroads and pipelines.

14 **3.3.11.23 Real Estate Estimate**

15 A summary of cost for each option is at Table 3.3.11.23-1. The real estate estimates at Tables
 16 3.3.11.23-2 through 3.3.11.23-9 include the land cost for acquisition of land, relocation benefits to
 17 include a replacement housing payment and fixed rate move expenses, and Federal and non-
 18 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
 19 lands, certification of those lands required for project purposes, legal opinions, analysis or other
 20 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
 21 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 22 PED. If further real estate requirements are identified during PED or if there is a significant increase
 23 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 24 the current estimate.

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**Table 3.3.11.23-1.
 Real Estate Cost Summary**

Option	Impacted Parcels	Relocation s	Total Cost
Option A - 20.0	1,075	536	\$237,004,00 0
Option B - 30.0	1,203	602	\$256,517,00 0
Option C - 20.0	1,175	550	\$278,147,00 0
Option D - 30.0	1,321	623	\$297,899,00 0
Option E - 20.0	2,964	1,870	\$520,145,00 0
Option F - 30.0	3,076	1,926	\$533,059,00 0
Option G - 20.0	3,138	1,939	\$574,040,00 0
Option H - 30.0	3,253	1,994	\$584,742,00 0

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Table 3.3.11.23-2.
LOD3 Jackson County Ring Levee, Pascagoula/Moss Point - Option A
20.0 Estimate

a. Lands and Improvements/Permits				
				137,828,453
				7,463,013
				1,085,233
			Subtotal	146,376,699
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 536 relocations				15,019,200
e. Administrative Cost				28,207,500
		Relocation	Acquisition	Total
	Federal	804,000	2,687,500	3,491,500
	Non-Federal	3,216,000	21,500,000	24,716,000
		<u>4,020,000</u>	<u>24,187,500</u>	<u>28,207,500</u>
Sub-Total				189,603,399
Contingencies (25%)				47,400,850
Totals				237,004,249
Rounded				237,004,000

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Table 3.3.11.23-3.
LOD3 Jackson County Ring Levee, Pascagoula/Moss Point - Option B
30.0 Estimate

a. Lands and Improvements/Permits			
			150,053,939
	1,104 Ownerships for Levee, 557 Improvements		
	71 Ownerships for Ditches, 45 Improvements		5,641,239
	<u>28 Pump Stations</u>		1,085,233
	1,203 Ownerships	subtotal	156,780,411
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 602 relocations			
			16,850,400
e. Administrative Cost			
			31,582,500
	Federal	Relocation	Acquisition
		903,000	3,007,500
	Non-Federal	3,612,000	24,060,000
		<u>4,515,000</u>	<u>27,067,500</u>
			Total
			3,910,500
			27,672,000
			31,582,500
	Sub-Total		205,213,311
	Contingencies (25%)		51,303,328
	Totals		256,516,639
	Rounded		256,517,000

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**Table 3.3.11.23-4.
LOD3 Jackson County Ring Levee, Washington Avenue Alternate Alignment -
Option C 20.0 Estimate**

<hr/>			
a. Lands and Improvements/Permits			
926 Ownerships for Levee, 464 Improvements			128,375,987
168 Ownerships for Buffer, 58 Improvements			43,205,925
54 Ownerships for Ditches, 28 Improvements			3,926,389
<u>27 Pump Stations</u>			1,046,475
1,175 Ownerships	Subtotal		176,554,776
b. Mineral Rights			0
c. Damages			0
d. P.L. 91-646 Relocation costs - 550 relocations			15,400,000
e. Administrative Cost			30,562,500
	Relocation	Acquisition	Total
Federal	825,000	2,937,500	3,762,500
Non-Federal	3,300,000	23,500,000	26,800,000
	<hr/>	<hr/>	<hr/>
	4,125,000	26,437,500	30,562,500
Sub-Total			222,517,276
Contingencies (25%)			55,629,319
	<hr/>		
	Totals		278,146,595
	Rounded		278,147,000
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**Table 3.3.11.23-5.
LOD3 Jackson County Ring Levee, Washington Avenue Alternate Alignment -
Option D 30.0 Estimate**

a. Lands and Improvements/Permits			
			142,777,351
			38,729,810
			3,926,389
			1,046,475
		Subtotal	186,480,025
b. Mineral Rights			
0			
c. Damages			
0			
d. P. L. 91-646 Relocation costs - 623 relocations			
17,444,000			
e. Administrative Cost			
34,395,000			
	Relocation	Acquisition	Total
Federal	934,500	3,302,500	4,237,000
Non-Federal	3,738,000	26,420,000	30,158,000
	4,672,500	29,722,500	34,395,000
Sub-Total			238,319,025
Contingencies (25%)			59,579,756
Totals			297,898,781
Rounded			297,899,000

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**Table 3.3.11.23-6.
LOD3 Jackson County Ring Levee, Moss Point Alternate Alignment -
Option E 20.0 Estimate**

a. Lands and Improvements/Permits				
	850 Ownerships for Levee, 385 Improvements		110,203,673	
	2,001 Ownerships for Buffer, 1,444 Improvements		168,271,915	
	89 Ownerships for Ditches, 41 Improvements		3,634,894	
	<u>24 Pump Stations</u>		930,200	
	2,964 Ownerships	Subtotal	283,040,682	
b. Mineral Rights				
			0	
c. Damages				
			0	
d. P.L. 91-646 Relocation costs - 1,870 relocations				
			52,360,000	
e. Administrative Cost				
			80,715,000	
	Federal	Relocation	Acquisition	Total
		2,805,000	7,410,000	10,215,000
	Non-Federal	11,220,000	59,280,000	70,500,000
		14,025,000	66,690,000	80,715,000
Sub-Total				
				416,115,682
Contingencies (25%)				
				104,028,921
Totals				
				520,144,603
Rounded				
				520,145,000

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Table 3.3.11.23-7.
LOD3 Jackson County Ring Levee, Moss Point Alternate Alignment -
Option F 30.0 Estimate

a. Lands and Improvements/Permits				
997 Ownerships for Levee, 464 Improvements				118,287,317
1,987 Ownerships for Buffer, 1,433 Improvements				166,979,295
68 Ownerships for Ditches, 29 Improvements				2,667,427
<u>24 Pump Stations</u>				930,200
3,076 Ownerships			Subtotal	288,864,239
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 1,926 relocations				53,928,000
e. Administrative Cost				83,655,000
		Relocation	Acquisition	Total
Federal		2,889,000	7,690,000	10,579,000
Non-Federal		11,556,000	61,520,000	73,076,000
		<u>14,445,000</u>	<u>69,210,000</u>	<u>83,655,000</u>
Sub-Total				426,447,239
Contingencies (25%)				106,611,810
		Totals		533,059,049
		Rounded		533,059,000

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**Table 3.3.11.23-9.
LOD3 Jackson County Ring Levee, Combined Washington Avenue
and Moss Point Alternate Alignment - Option H 30.0 Estimate**

a. Lands and Improvements/Permits				
				111,202,627
				205,709,105
				6,010,699
				891,442
			Subtotal	323,813,873
b. Mineral Rights				
0				
c. Damages				
0				
d. P.L. 91-646 Relocation costs - 1,994 relocations				
55,832,000				
e. Administrative Cost				
88,147,500				
		Relocation	Acquisition	Total
	Federal	2,991,000	8,132,500	11,123,500
	Non-Federal	11,964,000	65,060,000	77,024,000
		14,955,000	73,192,500	88,147,500
Sub-Total				467,793,373
Contingencies (25%)				116,948,343
Totals				584,741,716
Rounded				584,742,000

3.3.11.24 Summary of Potential Real Estate Issues

The requirement for temporary work areas, disposal or borrow areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements. Typically if disposal or borrow sites are required, Real estate would provide an analysis during PED to compare the cost of acquiring an these sites with the cost of using a commercial sites and make a determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real estate acquisition requirement, valuation of lands will be performed. Land costs associated with these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared.

Any requirements for relocation contracts pertaining to facilities/utilities will be identified and completed during PED.

Any requirement for mitigation lands will be identified during PED.

Should condemnation of any required real estate interest be necessary, it is the responsibility of the NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate

1 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 2 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

3 A relocation plan will need to be completed during PED to address potential relocation activity under
 4 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
 5 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 6 housing replacement payments, are very likely due to the size of the project and the lack of available
 7 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 8 schedule is the cost of business relocations. Depending on the type of business and the operation,
 9 this could involve moving equipment and machinery to new locations. It is necessary to interview
 10 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 11 determine the requirements for relocation and to estimate a cost for the relocation.

12 **3.3.11.25 Chart of Accounts**

13 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 14 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 15 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 16 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 17 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 18 Tables 3.3.11.25-1 through 3.3.11.25-8 shows the CWBS for real estate activities.

19 **Table 3.3.11.25-1.**
 20 **Chart of Accounts - LOD3 Jackson County Ring Levee, Pascagoula/Moss Point -**
 21 **Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	2,687,500		2,687,500
01B20	Acquisition by NFS		21,500,000	21,500,000
01BX	Contingencies (25%)	<u>671,875</u>	<u>5,375,000</u>	<u>6,046,875</u>
	Subtotal	3,359,375	26,875,000	30,234,375
01F	PL 91-646 Assistance			
01F20	By NFS		3,216,000	3,216,000
01FX	Contingencies (25%)		<u>804,000</u>	<u>804,000</u>
	Subtotal		4,020,000	4,020,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		146,376,699	146,376,699
01R2B	PL91-646 Relocation Payment by NFS		15,019,200	15,019,200
01R2D	Review of NFS	804,000		804,000
01RX	Contingencies (25%)	<u>201,000</u>	<u>40,348,975</u>	<u>40,549,975</u>
	Subtotal	1,005,000	201,744,874	202,749,874
	Totals	4,364,375	232,639,874	237,004,249
	Rounded			237,004,000

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Table 3.3.11.25-2.
Chart of Accounts - LOD3 Jackson County Ring Levee, Pascagoula/Moss Point -
Option B

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	3,007,500		3,007,500
01B20	Acquisition by NFS		24,060,000	24,060,000
01BX	Contingencies (25%)	<u>751,875</u>	<u>6,015,000</u>	<u>6,766,875</u>
	Subtotal	3,759,375	30,075,000	33,834,375
01F	PL 91-646 Assistance			
01F20	By NFS		3,612,000	3,612,000
01FX	Contingencies (25%)		<u>903,000</u>	<u>903,000</u>
	Subtotal		4,515,000	4,515,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		156,780,411	156,780,411
01R2B	PL91-646 Relocation Payment by NFS		16,850,400	16,850,400
01R2D	Review of NFS	903,000		903,000
01RX	Contingencies (25%)	<u>225,750</u>	<u>43,407,703</u>	<u>43,633,453</u>
	Subtotal	1,128,750	217,038,514	218,167,264
	Totals	4,888,125	251,628,514	256,516,639
	Rounded			256,517,000

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Table 3.3.11.25-3.
Chart of Accounts - LOD3 Jackson County Ring Levee, Washington Avenue
Alternate
Alignment - Option C

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	2,937,500		2,937,500
01B20	Acquisition by NFS		23,500,000	23,500,000
01BX	Contingencies (25%)	<u>734,375</u>	<u>5,875,000</u>	<u>6,609,375</u>
	Subtotal	3,671,875	29,375,000	33,046,875
01F	PL 91-646 Assistance			
01F20	By NFS		3,300,000	3,300,000
01FX	Contingencies (25%)		<u>825,000</u>	<u>825,000</u>
	Subtotal		4,125,000	4,125,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		176,554,776	176,554,776
01R2B	PL91-646 Relocation Payment by NFS		15,400,000	15,400,000
01R2D	Review of NFS	825,000		825,000
01RX	Contingencies (25%)	<u>206,250</u>	<u>47,988,694</u>	<u>48,194,944</u>
	Subtotal	1,031,250	239,943,470	240,974,720
	Totals	4,703,125	273,443,470	278,146,595
	Rounded			278,147,000

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Table 3.3.11.25-4.
Chart of Accounts - LOD3 Jackson County Ring Levee, Washington Avenue
Alternate
Alignment - Option D

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	3,302,500		3,302,500
01B20	Acquisition by NFS		26,420,000	26,420,000
01BX	Contingencies (25%)	<u>825,625</u>	<u>6,605,000</u>	<u>7,430,625</u>
	Subtotal	4,128,125	33,025,000	37,153,125
01F	PL 91-646 Assistance			
01F20	By NFS		3,738,000	3,738,000
01FX	Contingencies (25%)		<u>934,500</u>	<u>934,500</u>
	Subtotal		4,672,500	4,672,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		186,480,025	186,480,025
01R2B	PL91-646 Relocation Payment by NFS		17,444,000	17,444,000
01R2D	Review of NFS	934,500		934,500
01RX	Contingencies (25%)	<u>233,625</u>	<u>50,981,006</u>	<u>51,214,631</u>
	Subtotal	1,168,125	254,905,031	256,073,156
	Totals	5,296,250	292,602,531	297,898,781
	Rounded			297,899,000

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**Table 3.3.11.25-5.
Chart of Accounts - LOD3 Jackson County Ring Levee, Moss Point Alternate
Alignment - Option E**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	7,410,000		7,410,000
01B20	Acquisition by NFS		59,280,000	59,280,000
01BX	Contingencies (25%)	<u>1,852,500</u>	<u>14,820,000</u>	<u>16,672,500</u>
	Subtotal	9,262,500	74,100,000	83,362,500
01F	PL 91-646 Assistance			
01F20	By NFS		11,220,000	11,220,000
01FX	Contingencies (25%)		<u>2,805,000</u>	<u>2,805,000</u>
	Subtotal		14,025,000	14,025,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		283,040,682	283,040,682
01R2B	PL91-646 Relocation Payment by NFS		52,360,000	52,360,000
01R2D	Review of NFS	2,805,000		2,805,000
01RX	Contingencies (25%)	<u>701,250</u>	<u>83,850,171</u>	<u>84,551,421</u>
	Subtotal	3,506,250	419,250,853	422,757,103
	Totals	12,768,750	507,375,853	520,144,603
	Rounded			520,145,000

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Table 3.3.11.25-6.
Chart of Accounts - LOD3 Jackson County Ring Levee, Moss Point
Alternate Alignment -
Option F

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	7,690,000		7,690,000
01B20	Acquisition by NFS		61,520,000	61,520,000
01BX	Contingencies (25%)	<u>1,922,500</u>	<u>15,380,000</u>	<u>17,302,500</u>
	Subtotal	9,612,500	76,900,000	86,512,500
01F	PL 91-646 Assistance			
01F20	By NFS		11,556,000	11,556,000
01FX	Contingencies (25%)		<u>2,889,000</u>	<u>2,889,000</u>
	Subtotal		14,445,000	14,445,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		288,864,239	288,864,239
01R2B	PL91-646 Relocation Payment by NFS		53,928,000	53,928,000
01R2D	Review of NFS	2,889,000		2,889,000
01RX	Contingencies (25%)	<u>722,250</u>	<u>85,698,060</u>	<u>86,420,310</u>
	Subtotal	3,611,250	428,490,299	432,101,549
	Totals	13,223,750	519,835,299	533,059,049
	Rounded			533,059,000

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1 **Table 3.3.11.25-8.**
2 **Chart of Accounts - LOD3 Jackson County Ring Levee, Combined Washington**
3 **Avenue and Moss Point Alternate Alignment - Option H**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	8,132,500		8,132,500
01B20	Acquisition by NFS		65,060,000	65,060,000
01BX	Contingencies (25%)	<u>2,033,125</u>	<u>16,265,000</u>	<u>18,298,125</u>
	Subtotal	10,165,625	81,325,000	91,490,625
01F	PL 91-646 Assistance			
01F20	By NFS		11,964,000	11,964,000
01FX	Contingencies (25%)		<u>2,991,000</u>	<u>2,991,000</u>
	Subtotal		14,955,000	14,955,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		323,813,873	323,813,873
01R2B	PL91-646 Relocation Payment by NFS		55,832,000	55,832,000
01R2D	Review of NFS	2,991,000		2,991,000
01RX	Contingencies (25%)	<u>747,750</u>	<u>94,911,468</u>	<u>95,659,218</u>
	Subtotal	3,738,750	474,557,341	478,296,091
	Totals	13,904,375	570,837,341	584,741,716
	Rounded			584,742,000

4 **3.4 Line of Defense 4 - Inland Barrier and Surge Gates**

5 To preserve the shoreline environment as much as possible, a 4th line of defense for very large
6 storms is envisioned that would be inland from the coast. This line of defense would be the highest
7 line and could contain a larger storm surge up to that associated with a “Maximum Possible
8 Intensity” (MPI) hurricane. Storms that will be modeled against this line will vary from a Camille type
9 storm up to the MPI. This alignment would follow the same path as the railway that crosses the state
10 near the coast but not cross either the Pearl River in Hancock County to the west or the Pascagoula
11 River in Jackson County to the east. In Harrison County, this pathway is through heavily populated
12 and commercial zones. The first major watershed divide west of the Pascagoula River was selected
13 to turn the barrier north and extend it to a location beyond the extent of the storm surge associated
14 with a MPI event. Similarly to the west in Hancock County, LOD-4 follows the railway to a watershed
15 divide that is located east of the Pearl River where it follows the divide north to the MPI line. Both of
16 these northward extensions will cross the path of Interstate 10 and may dictate some modifications
17 to the highway depending on the selected top elevation of the line.

18 In order to protect much of the developed areas around Biloxi and St. Louis Bays, LOD-4 would
19 have to include a structural surge barrier that would also cross the mouth of these bays. These
20 surge barriers, when closed, would prevent storm surge from moving in through the inlets of the
21 bays. The structural barriers across the bays could be similar to designs used in Europe for storm
22 surge protection.

1 LOD-4 could also be designed to have roadways, even major highways on top if desired. This line
2 would be the highest defense, but would not protect structures seaward from the larger storms that
3 might overtop Line 3. All facilities seaward of Line 4 would be prone to flooding in a large storm, so
4 flood-proofing would be necessary in this zone. As described prior, this barrier would extend from
5 high ground east of the Pearl River to high ground west of the Pascagoula River for a distance of
6 approximately 57 miles. It would not cross either of these river systems.

7 **3.4.1 Hancock County Inland Barrier**

8 Several high density residential and business areas are located in Hancock County. These are
9 subject to damage from storm surges associated with hurricanes. Earthen levees were evaluated for
10 protection of these areas. The levees were evaluated at elevations 20 ft NAVD88 and 30 ft NAVD88
11 and 40 ft NAVD88. The top width was assumed 15 ft with side-slopes of 1 vertical to 3 horizontal.
12 These alternatives are Identified as Option A, Option B and Option C. Storm surge gates across St
13 Louis Bay are also included to prevent flooding from hurricanes.

14 Hancock County is located on the west side of the Mississippi coast of Mississippi Sound as shown
15 in Figure 3.4.1-1. The main residential and business areas are at Bay St Louis and Waveland.
16 Ground elevations over the areas behind the levee vary between elevations 10-20 ft NAVD88 at low
17 areas to as low as 5 ft NAVD88 in the Shoreline Park area. The area drains to the south along the
18 coast to Mississippi Sound, to the north and east to St Louis Bay, and on the far west to Pearl River.
19 The location of the levee in Hancock County is parallel to the CSX Railroad and the coast and turns
20 northward across I-10 to tie into the corresponding elevation.



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**Figure 3.4.1-1
Vicinity Map Hancock County, MS**

1 **3.4.1.1 Option A - Elevation 20.0 ft NAVD88**

2 This option consists of an earthen dike across the high ground of the county along with the internal
3 sub-basins and levee culvert/pump locations. The levee would have a top width of 15 ft and slopes
4 of 1 vertical to 3 horizontal. The levee is located mostly along high ground so ponding at the levee
5 would be minimal. However, some ditching for drainage would be required on the outside of the
6 levee.

7 **3.4.1.2 Option B - Elevation 30.0 ft NAVD88**

8 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
9 only difference between the description of this option and preceding description of Option A is the
10 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
11 of the levee culverts.

12 **3.4.1.3 Option C - Elevation 40.0 ft NAVD88**

13 The alignment of the levee is the same as Option A, above but with an elevation of 40.0 feet. The
14 only difference between the description of this option and preceding description of Option A is the
15 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
16 of the levee culverts.

17 **3.4.1.4 Project Description**

18 Figures 3.4.1.4-1 through 3.4.1.4-3 show the location of the proposed project alternatives. As
19 described above, the inland barrier will be an earthen levee constructed either at elevation 20.0 feet,
20 30.0 or 40.0 feet along with the internal sub-basins and levee culvert/pump locations. Drainage on
21 the interior of the ring levee would be collected at the levee and channeled to culverts placed in the
22 levee. The culverts would have flap gates on the seaward ends to prevent backflow when the water
23 in Mississippi Sound is high. An additional closure gate would also be provided at every culvert in
24 the levee for control in the event the flap gate malfunctions. In addition, pumps would be constructed
25 near the outflow points to remove water from the interior during storm events occurring when the
26 culverts are closed because of high water in the sound. Drainage ditches along the toe of the levee
27 will be required to assure that smaller basins can be drained to a culvert/pump site. Figures 3.4.1.4-4
28 through 3.4.1.4-6 show the proposed locations of the pump/culvert sites. During some hurricane
29 events, when the gates are shut, and rainfall exceeds the average 10-yr intensity over the basin,
30 some ponding from rainfall will occur. Further studies will detail the requirement for the appropriate
31 ponding areas, pump sizes, or buyouts in the affected areas.

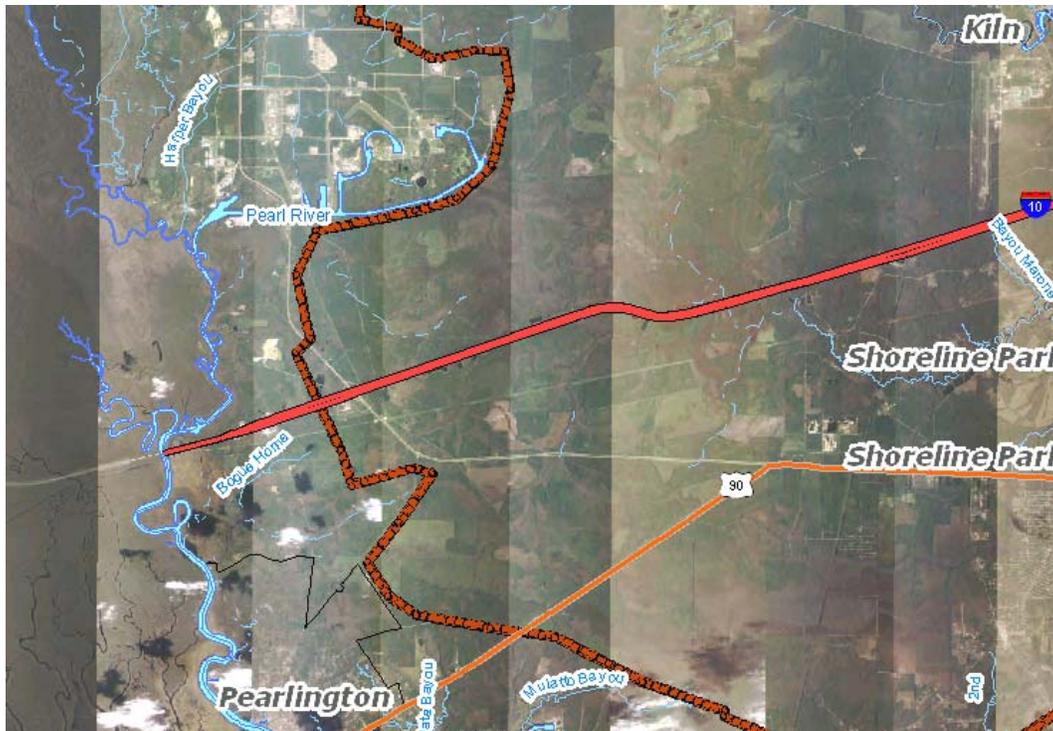


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**Figure 3.4.1.4-1.
Hancock County Inland Barrier**

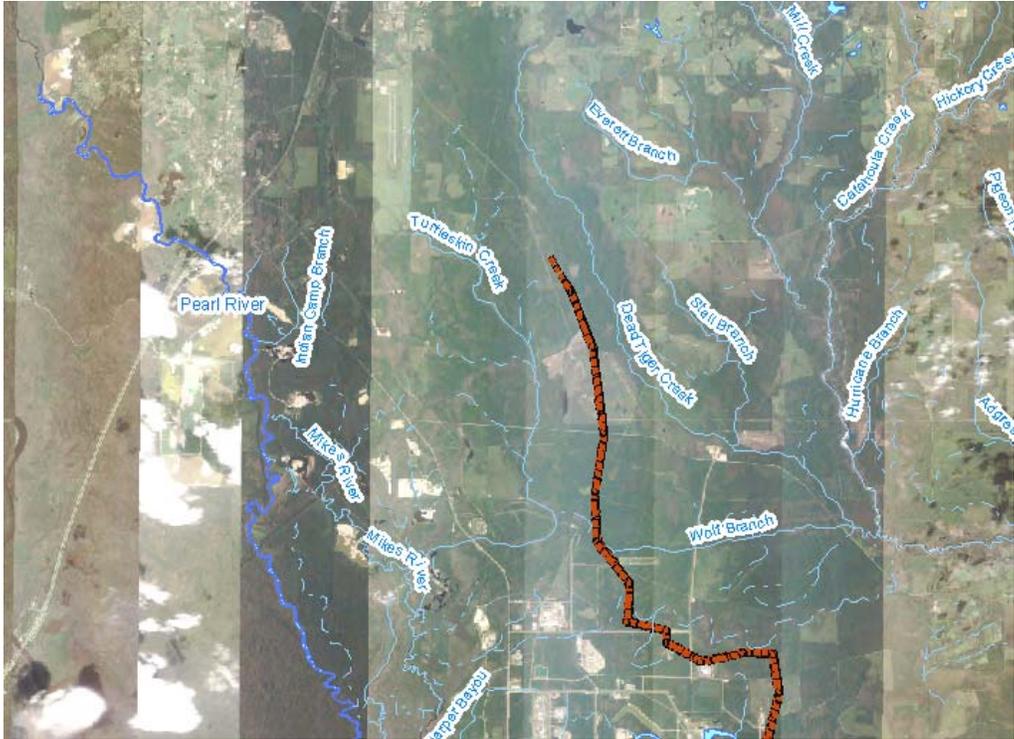


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**Figure 3.4.1.4-2.
Hancock County Inland Barrier**



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**Figure 3.4.1.4-3.
Hancock County Inland Barrier**



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**Figure 3.4.1.4-4.
Pump/Culvert/Sub-basins/Boat Access Site Locations**

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**Figure 3.4.1.4-5.
Pump/Culvert/Sub-basin Site Locations**

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**Figure 3.4.1.4-6.
Pump/Culvert/Sub-basin Site Locations**

1 The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a
2 fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and
3 surface organics and all existing foundations, streets, utilities, etc. will be removed and the
4 subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials
5 obtained from off site commercial sources, and trucked to the work area. The final surface will be
6 armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion
7 protection during an event that overtops the levee. The armoring will be anchored on the front face
8 by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front
9 side of the levee and all non critical surface areas will be subsequently covered by grassing. In order
10 to maintain the natural runoff patterns culverts would be inserted through the protection line at
11 appropriate locations. For Options A, B, and C, drainage features would be required at 16 locations
12 ranging from 20-inch diameter reinforced concrete pipe to reinforced concrete box culverts having
13 11 water passages, each measuring 12' wide by 4' high. Each water passage would be fitted with
14 both a flap gate at the outlet end and a sluice gate placed near the center of the culvert with a
15 vertical operator stem extending through an access shaft to the top of levee elevation.

16 Road crossings will incorporate small gate structures or ramping over the embankment where the
17 surface elevation is near that of the crest elevation. The elevation relationship of the crest and the
18 adjacent railroad will be a governing factor. At each point where a roadway crosses the protection
19 line the decision must be made whether to maintain this artery and adapt the protection line to
20 accommodate it, or to terminate the artery at the protection line and divert traffic to cross the
21 protection line at another location. For this study it was assumed that all roadways and railways
22 crossing the levee alignment would be retained except where it was very evident that traffic could be
23 combined without undue congestion. Once the decision has been made to retain a particular
24 roadway, it must then be determined how best to configure the artery to conduct traffic across the
25 protection line. The simplest means of passing roadway traffic is to ramp the roadway over the
26 protection line. This alternative is not always viable because of severe right-of-way restraints caused
27 by extreme levee height, urban congestion, etc. In such instances other methods can be used
28 including partial ramping in combination with low profile roller gates. In more restricted areas full
29 height gates which would leave the roadway virtually unaltered might be preferable, even though this
30 alternative would usually be more costly than ramping. In some extreme circumstances where high
31 levees are required to pass through very congested areas, installation of tunnels with closure gates
32 may be required.

33 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
34 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
35 alternatives would include gated pass through structures. Because of the vertical clearance
36 requirements of railroad traffic all railroad pass through structures for this study were configured
37 having vertical walls on either side of the railway with double swing gates extending to the full height
38 of the levee. With the installation of a ring levee at Option A, elevation 20.0, 14 roadway/railroad
39 intersections would have to be accommodated. For this study it was estimated that 4 roller gate
40 structures and 6 swing gate structures would be required. In addition, 4 railroad gate structures
41 would be required. At Option B, elevation 30.0, 31 roadway/railroad intersections would have to be
42 accommodated, and it was estimated that 9 roller gate structures and 18 swing gate structures
43 would be required. In addition, 4 railroad gate structures would be required. At Option C, elevation
44 40.0, 40 roadway/railroad intersections would have to be accommodated, and it was estimated that
45 all 36 of the highway crossings would require swing gates. In addition, 4 railroad gate structures
46 would be required.

47 The features that require periodic operations will be the exercising of the pumps and emergency
48 generators at the various pump stations, the testing of the gate structures at the various road
49 crossings, grass cutting of the levee slopes and toe areas and the filling of rilled areas within the

1 embankment due to surface erosion. Scheduled maintenance should include periodic greasing of all
2 gears and coupled joints, maintaining any battery backup systems, and replacement of standby fuel
3 supplies.

4 **3.4.1.5 Real Estate Requirements**

5 Real Estate requirements for Line of Defense 4, Hancock County Levee include lands, easements,
6 rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to construct an
7 earthen levee, drainage ditches and 3 pump station facilities.

8 Based on the footprint of the Option A, 20.0 foot elevation, it was determined that approximately
9 426 parcels and 160 structures would be impacted. The acreage to be acquired for the levee is
10 unknown. It is known that the 3 pump stations will require approximately 0.23 of an acre each for a
11 total of 0.69 of an acre. Lands required for construction of the levee will be acquired in fee simple
12 interest. Based on the number of structures being impacted, the assumption is that there will be
13 160 relocations.

14 Based on the footprint of the Option B, 30.0 foot elevation, it was determined that 484 parcels and
15 186 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
16 that the 3 pump stations will require approximately 0.23 of an acre each for a total of 0.69 of an acre.
17 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
18 number of structures being impacted, the assumption is that there will be 186 relocations.

19 Based on the footprint of the Option C, 40.0 foot elevation, it was determined that 537 parcels and
20 209 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
21 that the 3 pump stations will require approximately 0.23 of an acre each for a total of 0.69 of an acre.
22 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
23 number of structures being impacted, the assumption is that there will be 209 relocations.

24 Any modifications to the roadways and utilities will most probably need to be accomplished through
25 a relocation contract. This will be further investigated and confirmed during PED.

26 Footprints for drainage ditches are not available at time of this report. However, from the figures it
27 appears that acquisition of additional lands for drainage ditches outside the footprint of the levee will
28 be minimal. Until final plans and specifications are completed, land requirements for drainage
29 ditches are assumed to be covered by contingency. This additional requirement will be determined
30 during PED.

31 In some areas the levee alignment would cross a moderately sized water course where it is apparent
32 that boats currently traverse the area. To allow continued free boat access to areas behind the levee
33 these water courses will be fitted with a scaled down adaptation of the larger rising sector gate
34 structure used for the bay barriers at Biloxi and Bay St. Louis. A small boat access structure is
35 shown at the mouth of multiple basins in the project footprint. Rising sector gates will be provided at
36 these gates allowing shallow draft traffic most of the time. The gates will be closed prior to hurricane
37 storm surge. No additional real estate interest is identified for boat access points as they fall within
38 the footprint of the project and impacted parcels are included in the total that is projected. For those
39 lands required for construction that lay below the mean high water mark, navigation servitude will
40 apply.

41 An assumption is made that excavated materials from clearing, snagging, and construction of
42 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
43 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
44 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
45 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with

1 the cost of using a commercial landfill and make a determination which method is most cost
2 effective.

3 The recommended plan proposes to use material from an inventory of upland borrow sites to
4 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
5 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
6 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
7 borrow site with the cost of using a commercial borrow site and make a determination which method
8 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
9 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
10 further defined during PED.

11 **3.4.1.6 Utility/Facility Relocation**

12 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
13 assumption is made that this work will be accomplished through a relocation contract. This will be
14 further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed
15 discussion.

16 **3.4.1.7 Existing Projects/Studies**

17 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
18 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

19 **3.4.1.8 Environmental Impacts**

20 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
21 for a full discussion on environmental effects.

22 **3.4.1.9 Project Sponsor Responsibilities and Capabilities**

23 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
24 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
25 all alterations and relocations of facilities, structures and improvements determined by the
26 government to be necessary for construction of the Project.

27 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
28 the United States Government. Prior to advertisement of any construction contract, the NFS shall
29 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
30 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
31 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
32 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
33 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
34 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law
35 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all
36 affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A
37 form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit
38 "B" to the Real Estate Appendix. The assessment will be made during PED phase.

39 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
40 lands it provides and the value of the relocations that are required for the project. Generally, for the
41 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
42 value of the real property interest, plus certain incidental costs of acquiring those interests, that the

1 non-federal sponsor provided for the project as required by the Government. The NFS cannot
2 receive credit for the value of any LER, including incidental costs, which were previously provided as
3 an item of cooperation for another Federal project, including projects that preceded enactment of
4 WRDA 1986.

5 **3.4.1.10 Government Owned Property**

6 There are 18-25 Government owned parcels within the footprint of the project that will be impacted
7 depending on the option recommended for construction. In viewing the footprint, it is noted that the
8 levee will run through the middle of many of these parcels. However, others may have only minimal
9 impact. These lands are in the vicinity of the John C. Stennis Space Center, or within lands shown
10 as NASA Restricted Area on a state map. Land and structure values are not listed in the public
11 records. Ownership is listed in public records as USA or United States of America. Specific impacts
12 to Government owned lands will be determined during PED.

13 **3.4.1.11 Historical Significance**

14 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
15 on cultural and archaeological resources.

16 **3.4.1.12 Mineral Rights**

17 There are no known mineral activities within the scope of the proposed project.

18 **3.4.1.13 Hazardous, Toxic, and Radioactive Waste (HTRW)**

19 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
20 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
21 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

22 **3.4.1.14 Public Law 91-646, Relocation Assistance Benefits**

23 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
24 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
25 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
26 result of programs designed for the benefits of the public as a whole. A qualified displaced person
27 may be entitled to certain relocation assistance benefits which include reimbursement of moving
28 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
29 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
30 types - purchase supplement, rental assistance and down payment. All replacement housing must
31 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

32 It is estimated that there are approximately 160 relocations in Option A, approximately 186
33 relocations in Option B, and approximately 209 relocations in Option C. No relocation plan has been
34 completed nor has a relocation survey been done. All estimates are based on information from
35 county public records. The number of business relocations as compared to residential relocations is
36 unknown. In order to accomplish the relocation activity in a timely manner, the plan set forth in
37 Chapter 2. Section 2.5 can be used.

38 **3.4.1.15 Attitude of Property Owners**

39 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
40 However, numerous public meetings have been held at different locations throughout the study area

1 to inform stakeholders and property owners about the study and the protective measures under
2 consideration for the Mississippi coastal area. A number of local newspapers have published articles
3 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
4 may occur as a result of the project. Some of these articles can be found on web sites. While many
5 of the locals may welcome the benefits of the proposed project, there are some who oppose the
6 project.

7 **3.4.1.16 Acquisition Schedule**

8 An acquisition schedule will be developed when plans and specifications become available and
9 more definite information is available pertaining to the specific areas and number of parcels for
10 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
11 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
12 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
13 completed certification of lands acquired/owned by the sponsor will be necessary prior to
14 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
15 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
16 implementation/management plan.

17 **3.4.1.17 Estates for Proposed Project**

18 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
19 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
20 temporary work areas, and the Drainage Ditch Easement will be used for construction of any
21 drainage ditches outside the footprint of the levee as required. The estates recommended are
22 standard estates.

23 **FEE.**

24 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
25 subject, however, to existing easements for public roads and highways, public utilities, railroads and
26 pipelines.

27 **BORROW EASEMENT.**

28 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
29 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
30 _____ and _____); subject, however, to existing easements for public roads and highways, public
31 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
32 such rights and privileges in said land as may be used without interfering with or abridging the rights
33 and easement hereby acquired.

34 **TEMPORARY WORK AREA EASEMENT.**

35 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
36 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
37 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
38 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
39 backfill, move, store and remove equipment and supplies, and erect and remove temporary
40 structures on the land and to perform any other work necessary and incident to the construction of
41 the _____ Project, together with the right to trim, cut, fell and remove there from
42 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
43 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
44 rights and privileges as may be used without interfering with or abridging the rights and easement

1 hereby acquired; subject, however, to existing easements for public roads and highways, public
2 utilities, railroads and pipelines.

3 **DRAINAGE DITCH EASEMENT.**

4 A perpetual and assignable easement and right-of-way in, over and across (the land described in
5 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
6 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
7 and privileges in the land as may be used without interfering with or abridging the rights and
8 easement hereby acquired; subject, however, to existing easements for public roads and highways,
9 public utilities, railroads and pipelines.

10 **3.4.1.18 Real Estate Estimate**

11 A summary of the cost for each option is at Table 3.4.1.18-1. The real estate estimates at Tables
12 3.4.1.18-2 through 3.4.1.18-3 include the land cost for acquisition of land, relocation benefits to
13 include a replacement housing payment and fixed rate move expenses, and Federal and non-
14 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
15 lands, certification of those lands required for project purposes, legal opinions, analysis or other
16 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
17 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
18 PED. If further real estate requirements are identified during PED or if there is a significant increase
19 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
20 the current estimate.

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**Table 3.4.1.18-1.
Real Estate Cost Summary**

Option	Impacted Parcels	Relocations	Total Cost
Option A - 20.0	426	160	66,177,000
Option B - 30.0	484	186	74,262,000
Option C - 40.0	537	209	81,107,000

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**Table 3.4.1.18-2.
LOD4 Hancock County Inland Barrier - Option A 20.0 Estimate**

a. Lands and Improvements/Permits			
	423 Ownerships for Levee, 160 Improvements		37,633,020
	<u>3 Pump Stations</u>		43,699
	426 Ownerships	Subtotal	37,676,719
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 160 relocations			
			4,480,000
e. Administrative Cost			
			10,785,000
		Relocation	Acquisition
	Federal	240,000	1,065,000
	Non-Federal	960,000	8,520,000
		<u>1,200,000</u>	<u>9,585,000</u>
			10,785,000
			0
Sub-Total			52,941,719
Contingencies (25%)			13,235,430
Totals			66,177,149
Rounded			66,177,000

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**Table 3.4.1.18-3.
LOD4 Hancock County Inland Barrier - Option B 30.0 Estimate**

a. Lands and Improvements/Permits			
	481 Ownerships for Levee, 186 Improvements		41,884,250
	<u>3 Pump Stations</u>		43,699
	484 Ownerships	Subtotal	41,927,949
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 186 relocations			
			5,196,800
e. Administrative Cost			
			12,285,000
		Relocation	Acquisition
	Federal	279,000	1,210,000
	Non-Federal	1,116,000	9,680,000
		<u>1,395,000</u>	<u>10,890,000</u>
			12,285,000
Sub-Total			59,409,749
Contingencies (25%)			14,852,437
Totals			74,262,186
Rounded			74,262,000

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**Table 3.4.1.18-4.
LOD4 Hancock County Inland Barrier - Option C 40.0 Estimate**

a. Lands and Improvements/Permits			
			45,345,335
			43,699
		Subtotal	45,389,034
b. Mineral Rights			
0			
c. Damages			
0			
d. P.L. 91-646 Relocation costs - 209 relocations			
5,846,400			
e. Administrative Cost			
			13,650,000
	Relocation	Acquisition	Total
Federal	313,500	1,342,500	1,656,000
Non-Federal	1,254,000	10,740,000	11,994,000
	1,567,500	12,082,500	13,650,000
Sub-Total			64,885,434
Contingencies (25%)			16,221,359
Totals			81,106,793
Rounded			81,107,000

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4 **3.4.1.19 Summary of Potential Real Estate Issues**

5 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
6 these areas be required, these would be considered as part of the LERRD requirements. Typically if
7 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
8 the cost of acquiring an these sites with the cost of using a commercial sites and make a
9 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

10 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
11 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
12 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
13 estate requirements are identified during PED or if there is a significant increase in cost, a
14 supplement to the Real Estate Appendix will be prepared.

15 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
16 completed during PED.

17 Any requirement for mitigation lands will be identified during PED.

18 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
19 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
20 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
21 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

22 A relocation plan will need to be completed during PED to address potential relocation activity under
23 P.L 91-646. There are a number of factors pertaining to relocations that can impact the project both

1 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 2 housing replacement payments, are very likely due to the size of the project and the lack of available
 3 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 4 schedule is the cost of business relocations. Depending on the type of business and the operation,
 5 this could involve moving equipment and machinery to new locations. It is necessary to interview
 6 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 7 determine the requirements for relocation and to estimate a cost for the relocation.

8 Costs for easements for drainage ditches are not included in this report as the requirement was
 9 identified late in the study, and a footprint for the drainage ditches is not provided At this time it is
 10 believed that the cost will be minor and that it will have minimal impacts to the overall project costs.
 11 A determination of additional land requirements for drainage ditches will be made during PED.

12 **3.4.1.20 Chart of Accounts**

13 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 14 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 15 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 16 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 17 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 18 Tables 3.4.1.20-1 through 3.4.1.20-3 shows the CWBS for real estate activities.

19 **Table 3.4.1.20-1.**
 20 **Chart of Accounts - LOD4 Hancock County Inland Barrier - Option A 20.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	1,065,000		1,065,000
01B20	Acquisition by NFS		8,520,000	8,520,000
01BX	Contingencies (25%)	<u>266,250</u>	<u>2,130,000</u>	<u>2,396,250</u>
	Subtotal	1,331,250	10,650,000	11,981,250
01F	PL 91-646 Assistance			
01F20	By NFS		960,000	960,000
01FX	Contingencies (25%)		<u>240,000</u>	<u>240,000</u>
	Subtotal		1,200,000	1,200,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		37,676,719	37,676,719
01R2B	PL91-646 Relocation Payment by NFS		4,480,000	4,480,000
01R2D	Review of NFS	240,000		240,000
01RX	Contingencies (25%)	<u>60,000</u>	<u>10,539,180</u>	<u>10,599,180</u>
	Subtotal	300,000	52,695,899	52,995,899
	Totals	1,631,250	64,545,899	66,177,149
	Rounded			66,177,000

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**Table 3.4.1.20-2.
Chart of Accounts - LOD4 Hancock County Inland Barrier - Option B 30.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	1,210,000		1,210,000
01B20	Acquisition by NFS		9,680,000	9,680,000
01BX	Contingencies (25%)	<u>302,500</u>	<u>2,420,000</u>	<u>2,722,500</u>
	Subtotal	1,512,500	12,100,000	13,612,500
01F	PL 91-646 Assistance			
01F20	By NFS		1,116,000	1,116,000
01FX	Contingencies (25%)		<u>279,000</u>	<u>279,000</u>
	Subtotal		1,395,000	1,395,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		41,927,949	41,927,949
01R2B	PL91-646 Relocation Payment by NFS		5,196,800	5,196,800
01R2D	Review of NFS	279,000		279,000
01RX	Contingencies (25%)	<u>69,750</u>	<u>11,781,187</u>	<u>11,850,937</u>
	Subtotal	348,750	58,905,936	59,254,686
	Totals	1,861,250	72,400,936	74,262,186
	Rounded			74,262,000

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**Table 3.4.1.20-3.
Chart of Accounts - LOD4 Hancock County Inland Barrier - Option C 40.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	1,342,500		1,342,500
01B20	Acquisition by NFS		10,740,000	10,740,000
01BX	Contingencies (25%)	<u>335,625</u>	<u>2,685,000</u>	<u>3,020,625</u>
	Subtotal	1,678,125	13,425,000	15,103,125
01F	PL 91-646 Assistance			
01F20	By NFS		1,254,000	1,254,000
01FX	Contingencies (25%)		<u>313,500</u>	<u>313,500</u>
	Subtotal		1,567,500	1,567,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		45,389,034	45,389,034
01R2B	PL91-646 Relocation Payment by NFS		5,846,400	5,846,400
01R2D	Review of NFS	313,500		313,500
01RX	Contingencies (25%)	<u>78,375</u>	<u>12,808,859</u>	<u>12,887,234</u>
	Subtotal	391,875	64,044,293	64,436,168
	Totals	2,070,000	79,036,793	81,106,793
	Rounded			81,107,000

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4 **3.4.2 St. Louis Bay Surge Barrier**

5 In order to protect the properties surrounding Saint Louis Bay and along the lower portions of the
6 various rivers and streams flowing into the bay, a barrier would be required at some point to block
7 storm waters during major storm events. A search of other similar facilities constructed world wide
8 revealed that the structure model best satisfying both the engineering and socio-ecological
9 necessities of this site was that used for the Thames River Barrier in London, UK. The structure
10 tentatively investigated for incorporation into this work was patterned after the Thames River Barrier
11 with certain minor modifications to adapt to the site and environment specific conditions.

12 A photograph of the Thames River Gates is at Figure 3.4.2-1. The St. Louis Bay watershed covers
13 approximately 654 square miles and is comprised of six sub-basins that stretch across the
14 Mississippi counties of Harrison, Hancock, Stone and Pearl River.



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Figure 3.4.2-1.
Thames River Gates, London, UK

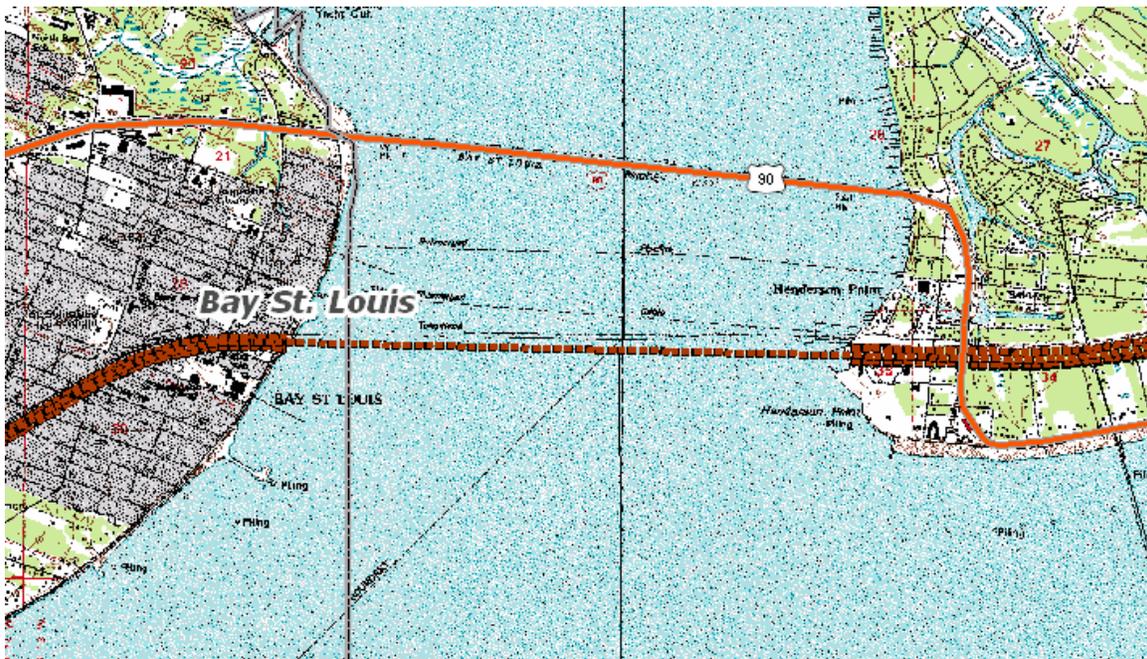
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In the event of an imminent hurricane, the gates St Louis Bay would be closed, and flow from the rivers feeding these bays, as well as local runoff would pond behind the gates. The tentative location of the barrier chosen for this study is shown below in Figure 3.4.2-2. The alternatives for this proposed measure are identified as Option A, Option B and Option C.



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Figure 3.4.2-2.
St Louis Bay Surge Barrier Location

1 **3.4.2.1 Option A - Elevation 20.0 ft NAVD88**

2 Option A is the design and construction of a rising sector gate in the St. Louis Bay creating a barrier
3 to elevation 20.0.

4 **3.4.2.2 Option B - Elevation 30.0 ft NAVD88**

5 Option B is the design and construction of a rising sector gate in the St. Louis Bay creating a barrier
6 to elevation 30.0.

7 **3.4.2.3 Option C - Elevation 40.0 ft NAVD88**

8 Option C is the design and construction of a rising sector gate in the St. Louis Bay creating a barrier
9 to elevation 40.0.

10 **3.4.2.4 Project Description**

11 The alignment for the barrier structure would run parallel with and south of the Railroad Bridge
12 crossing Saint Louis Bay. This would approximate the shortest route across the inlet leading from
13 the Mississippi Sound into the bay. As the layout of the barrier was developed it became apparent
14 that, because of the excavation required, a significant amount of separation would be required
15 between the railroad bridge and the ultimate location of the structures included in the barrier. For this
16 study the centerline of the barrier was positioned approximately 260 feet from the center of the
17 railroad bridge. This was left unaltered for all protection levels. The entire barrier would be
18 approximately 10,320 feet in length from water's edge to water's edge, and would consist of rock fill
19 levees extending from the overland levee at each bank for some distance into the bay and
20 enveloping the mass concrete non-overflow wall sections leading to each end of the gated structure.

21 The points at which the barrier would come ashore in Harrison County on the east and Hancock
22 County on the west, are in urban areas with extensive residential and commercial development.
23 Several structures would need to be relocated and it is uncertain the extent to which existing utilities
24 might have to be relocated to clear the way for this facility.

25 Structurally, the Barrier as configured for this study would consist of a series of 38 large stainless
26 steel clad, structural steel framed gates called rising sector gates. Each of these would be supported
27 on reinforced concrete piers resting on large continuous concrete sills with pile foundations. The
28 tentative layout used to estimate the scope of the structure was configured having gates 132 feet
29 long mounted on 28-foot wide piers. The number of gates was determined by the extent of water
30 having depth sufficient to support their operation. To facilitate as nearly as possible the normal ebb
31 and flow of tide waters through the barrier, the concrete connector wall and rock fill portions of the
32 barrier either side of the gated structure would be fitted with a series of closely spaced low level
33 gated culverts. The gate and pier heights were varied to accommodate the "level of protection" under
34 consideration. The three elevations selected for this study were 20, 30, and 40 NAVD88. In each
35 instance the gate heights were set to match the protection level elevations with pier heights set
36 approximately 3 feet higher to provide minor wave clearance for protection of operating equipment.
37 Atop each pier an operating machinery block would be mounted to house the operating equipment.
38 Operating and utility access would be provided through two continuous tunnels passing through the
39 sill section and the rock fill, to operating facilities located on each bank.

40 In order to assure proper functioning of the facilities once they are placed in service a program of
41 Operations and Maintenance would be developed by the U.S. Army Corps of Engineers, in
42 conjunction and cooperation with the affected state and local entities. This O & M Plan would
43 address specific responsibilities as to daily operation of the facilities, the periodic testing and

1 maintenance of the operating machinery, maintenance of specified stocks of replacement parts,
2 security of the facilities, and maintenance of any buildings and grounds associated with the
3 operation and maintenance of the facilities. As presently envisioned, this O & M responsibility would
4 remain under control of the U.S. Army Corps of Engineers and would be administered under its
5 Operations mission.

6 **3.4.2.5 Real Estate Requirements**

7 Real Estate requirements for Line of Defense 4, St. Louis Bay Surge Barrier include lands,
8 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
9 construct, rock levees and an elevated gate barrier in St. Louis Bay with operating facilities located
10 on each landward bank of the barrier. The rock levees on either side of the gates will tie into the
11 LOD4 inland barrier. There will be 2 operating facilities, one located in Hancock County and the
12 other in Harrison County. Each site will be comprised of approximately 5 acres and these will be
13 acquired in fee. The real estate cost estimate will be the same for each option as they all have the
14 same requirements.

15 For those lands required for construction that lay below the mean high water mark, navigation
16 servitude will apply. Navigation servitude is the dominant right of the Government under the
17 Commerce Clause of the U.S. Constitution (U.S. CONST. Art.I,§8,cl.3) to use, control and regulate
18 the navigable waters of the United States and the submerged lands hereunder for various
19 commerce-related purposes including navigation and flood control. In tidal areas, the servitude
20 extends to all lands below the, mean high water mark. In non-tidal areas, the servitude extends to all
21 lands within the bed and banks of a navigable stream that lie below the ordinary high water mark.
22 The determination of the availability of the navigation servitude should be made on a case by case
23 basis and consists of a two -step process. First the government must determine whether the project
24 serves a purpose that has a nexus to navigation. Purposes recognized by the courts to have the
25 nexus include navigation, flood control and hydroelectric power. If determined that such a nexus
26 exists, then the second step is to determine whether the land at issue is located below the mean or
27 ordinary high water mark of a navigable watercourse. As a general rule, the Government does not
28 acquire interests in real property that it already possesses or over which its use or control is or can
29 be legally exercised. Therefore, if the navigation servitude is found to be available as a result of
30 application of the process described in subparagraph b of this paragraph, then the Government will
31 generally exercise its rights hereunder and, to the extent of such rights, will not acquire a real
32 property interest in the land to which the navigation servitude applies. Generally, it is the policy of the
33 U.S. Army Corps of Engineers (USACE) to utilize the navigation servitude in all situations where
34 available, for cost shared and full Federal projects. The determination of availability will be made
35 during PED.

36 **3.4.2.6 Utility/Facility Relocation**

37 It is probable that there will be some utility/facility relocations for this plan. Specific requirements are
38 unknown at this time but will be defined during PED. See Chapter 2 Section 2.10 for more detailed
39 discussion.

40 **3.4.2.7 Existing Projects/Studies**

41 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
42 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

1 **3.4.2.8 Environmental Impacts**

2 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
3 for a full discussion on environmental effects.

4 **3.4.2.9 Project Sponsor Responsibilities and Capabilities**

5 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
6 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
7 all alterations and relocations of facilities, structures and improvements determined by the
8 government to be necessary for construction of the Project.

9 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
10 the United States Government. Prior to advertisement of any construction contract, the NFS shall
11 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
12 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
13 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
14 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
15 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
16 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
17 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
18 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
19 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
20 Real Estate Appendix. The assessment will be made during PED phase.

21 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
22 lands it provides and the value of the relocations that are required for the project. Generally, for the
23 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
24 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
25 non-federal sponsor provided for the project as required by the Government. The NFS cannot
26 receive credit for the value of any LER, including incidental costs, which were previously provided as
27 an item of cooperation for another Federal project, including projects that preceded enactment of
28 WRDA 1986.

29 **3.4.2.10 Government Owned Property**

30 There are no known Government owned lands within the proposed project.

31 **3.4.2.11 Historical Significance**

32 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
33 on cultural and archaeological resources.

34 **3.4.2.12 Mineral Rights**

35 There are no known mineral activities within the scope of the proposed project.

36 **3.4.2.13 Hazardous, Toxic, and Radioactive Waste (HTRW)**

37 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
38 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
39 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

1 **3.4.2.14 Public Law 91-646, Relocation Assistance Benefits**

2 No relocations are expected with this alternative.

3 **3.4.2.15 Attitude of Property Owners**

4 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
5 However, numerous public meetings have been held at different locations throughout the study area
6 to inform stakeholders and property owners about the study and the protective measures under
7 consideration for the Mississippi coastal area. A number of local newspapers have published articles
8 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
9 may occur as a result of the project. Some of these articles can be found on web sites. While many
10 of the locals may welcome the benefits of the proposed project, there are some who oppose the
11 project.

12 **3.4.2.16 Acquisition Schedule**

13 An acquisition schedule will be developed when plans and specifications become available and
14 more definite information is available pertaining to the specific areas and number of parcels for
15 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
16 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
17 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
18 completed certification of lands acquired/owned by the sponsor will be necessary prior to
19 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
20 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
21 implementation/management plan.

22 **3.4.2.17 Estates for Proposed Project**

23 All lands required for the operating facilities will either be acquired in Fee Simple or are available
24 under navigation servitude.

25 **FEE.**

26 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. ____, ____ and ____),
27 subject, however, to existing easements for public roads and highways, public utilities, railroads and
28 pipelines.

29 **3.4.2.18 Real Estate Estimate**

30 The real estate estimate at Table 3.4.2.18-1 includes the land cost for acquisition of land, permits,
31 and Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
32 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
33 analysis or other requirements that may be necessary, during PED. No cost is included for a
34 temporary work area. The requirement, if any, for a temporary work area will be identified during
35 PED. If further real estate requirements are identified during PED or if there is a significant increase
36 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
37 the current estimate.

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**Table 3.4.2.18-1.
LOD4 St. Louis Bay Surge Barrier - Option A, B or C Estimate**

a. Lands and Improvements/Permits			
		Hancock	316,663
4 Ownerships, 0 Improvements		Harrison	391,310
4 Ownerships, 0 Improvements		Subtotal	707,973
b. Mineral Rights			
			0
c. Damages			
			0
d. P.L. 91-646 Relocation costs - 0 relocations			
			0
e. Administrative Cost			
			180,000
	Relocation	Acquisition	Total
Federal	0	20,000	20,000
Non-federal	0	160,000	160,000
	0	180,000	180,000
Sub-Total			887,973
Contingencies (25%)			221,993
Totals			1,109,966
Rounded			1,110,000

3.4.2.19 Summary of Potential Real Estate Issues

It is expected that navigation servitude will be exercised to construct the surge barrier in St. Louis Bay. This determination will be made during PED

It is probable that there will be some utility/facility relocations for this plan. Specific requirements are unknown at this time but will be defined during PED.

The requirement for temporary work areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements.

Should temporary work areas become a necessary real estate acquisition requirement, valuation of lands will be performed. Land costs associated with temporary work areas and administrative costs will be added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared.

Any requirement for mitigation lands will be identified during PED.

Should condemnation of any required real estate interest be necessary, it is the responsibility of the NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate Acquisition Capability. However, if the real estate interest is one that the NFS does not have authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

1 **3.4.2.20 Chart of Accounts**

2 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 3 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 4 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 5 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 6 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 7 Table 3.4.2.20-1 shows the CWBS for real estate activities.

8 **Table 3.4.2.20-1.**
 9 **Chart of Accounts - LOD4 St. Louis Bay Surge Barrier - Option A, B or C**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B4				
0	Acquisition/Review of NFS	20,000		20,000
01B2				
0	Acquisition by NFS		160,000	160,000
01BX	Contingencies (25%)	<u>5,000</u>	<u>40,000</u>	<u>45,000</u>
	Subtotal	25,000	200,000	225,000
01F	PL 91-646 Assistance			
01F20	By NFS		0	0
01FX	Contingencies (25%)		<u>0</u>	<u>0</u>
	Subtotal		0	0
01R	Real Estate Land Payments			
01R1				
B	Land Payments by NFS		707,973	707,973
01R2				
B	PL91-646 Relocation Payment by NFS		0	0
01R2				
D	Review of NFS	0		0
01RX	Contingencies (25%)	<u>0</u>	<u>176,993</u>	<u>176,993</u>
	Subtotal	0	884,966	884,966
	Totals	25,000	1,084,966	1,109,966
	Rounded			1,110,000

10
 11 **3.4.3 Harrison County Inland Barrier**

12 Harrison County is located along the coast of Mississippi Sound with Hancock County to the west
 13 and Jackson County to the east. In Harrison County, ground elevations over most of the residential
 14 and business areas vary between elevation 8-12 ft NAVD88 on the coast and rising within 1000 ft to
 15 elevation 30-36 along a ridge parallel to the coast line, then decreasing to the north.

16 Residential and business areas along the coast in Harrison County are susceptible to damage from
 17 storm surges associated with hurricanes. Earthen levees were evaluated for protection of these

1 areas. The levees were evaluated at elevations 20 ft NAVD88 and 30 ft NAVD88 and 40 ft NAVD88.
 2 The top width was assumed 15 ft with side-slopes of 1 vertical to 3 horizontal. The location of the
 3 proposed inland barrier in Harrison County is shown in Figure 3.4.3-1 extending from Biloxi Bay to
 4 Pass Christian approximately 1000 - 3000 feet north of, and parallel to, the shoreline. This alignment
 5 is evaluated in Options A through E. For Options F through J, an alternate alignment is evaluated.
 6 This alternate alignment extends from Biloxi Bay to Menge Avenue, thence northward along Menge
 7 Avenue to high ground.



8
 9 **Figure 3.4.3-1.**
 10 **Vicinity Map Harrison County, MS**

11 **3.4.3.1 Option A - Elevation 20.0 ft NAVD88**

12 This option consists of constructing a levee to elevation 20 ft NAVD88 along the coast of Harrison
 13 County along with the internal sub-basins and levee culvert/pump locations. These sites will be
 14 ditched along the levee to drain to St. Louis Bay and Biloxi Bay.

15 **3.4.3.2 Option B - Elevation 30.0 ft NAVD88**

16 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
 17 only difference between the description of this option and preceding description of Option A is the
 18 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
 19 of the levee culverts.

20 **3.4.3.3 Option C - Elevation 40.0 ft NAVD88**

21 The alignment of the levee is the same as Option A, above but with an elevation of 40.0 feet. The
 22 only difference between the description of this option and preceding description of Option A is the
 23 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
 24 of the levee culverts.

1 **3.4.3.4 Option D - Levee for Roadway, Elevation 20.0 ft NAVD88**

2 The alignment of the levee is the same as Option A, above. The difference between this option and
3 Option A is that the width of the top of the levee in Harrison County is 75 ft for Option D and 15 ft for
4 Option A. This added width will allow Highway 90 to be relocated along the top of the levee.

5 **3.4.3.5 Option E - Levee for Roadway, Elevation 30.0 ft NAVD88**

6 The alignment of the levee is the same as option A, above. The difference between this option and
7 Option A is that the width of the top of the levee in Harrison County is 75 ft for Option A. In addition,
8 the height of the levee is at 30 ft NAVD88 for Option E and 20 ft NAVD88 for Option A. This added
9 width will allow Highway 90 to be relocated along the top of the levee.

10 **3.4.3.6 Option F - Menge Avenue Alternate Route, Elevation 20.0 ft NAVD88**

11 The alignment of the levee is the same as Option A on the east side of Harrison County but extends
12 to the north along Menge Avenue instead of continuing westward.

13 **3.4.3.7 Option G - Menge Avenue Alternate Route, Elevation 30.0 ft NAVD88**

14 The alignment of the levee is the same as Option F. The primary difference between this option and
15 Option F is the height of the levee. Option F levee height is elevation 20 ft NAVD88 and Option G
16 levee height is elevation 30 ft NAVD88.

17 **3.4.3.8 Option H - Menge Avenue Alternate Route, Elevation 40.0 ft NAVD88**

18 The alignment of the levee is the same as Option F. The primary difference between this option and
19 Option F is the height of the levee. Option F levee height is elevation 20ft NAVD88 and Option H
20 levee height is elevation 40 ft NAVD88.

21 **3.4.3.9 Option I - Levee for Roadway with Menge Avenue Alternate, Route
22 Elevation 20.0 ft NAVD88**

23 The alignment of the levee is the same as Option F. The primary difference between this option and
24 Option F is the top width of the east-west leg of the levee (Biloxi Bay to Menge Avenue). The east-
25 west leg of Option F barrier top width is 15 ft and the east-west leg of Option I barrier top width is
26 75 ft. This will allow Highway 90 to be relocated along the top of the levee.

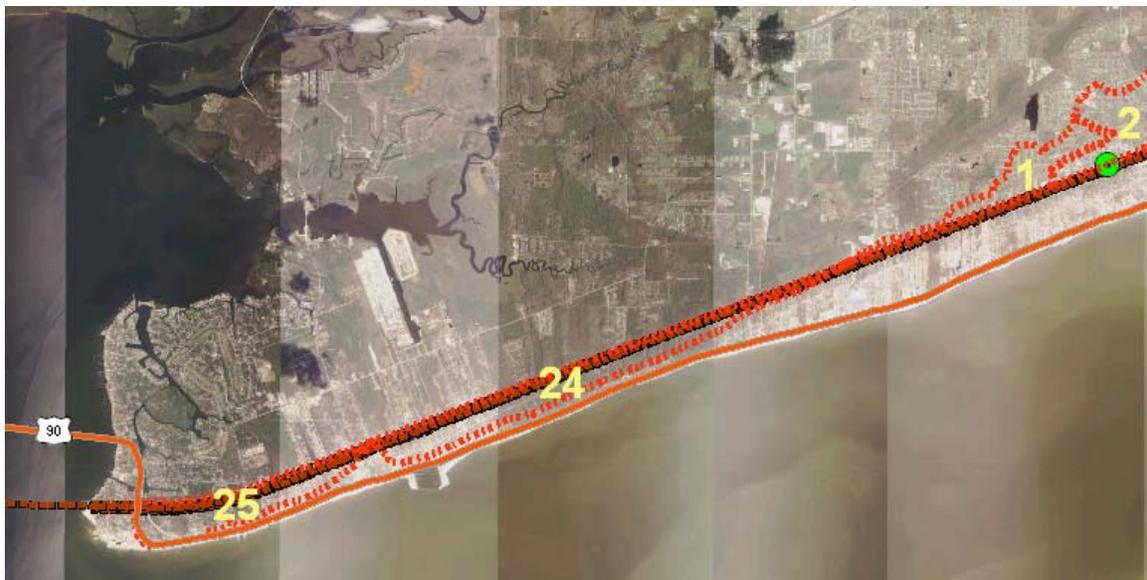
27 **3.4.3.10 Option J - Levee for Roadway with Menge Avenue Alternate, Route
28 Elevation 30.0 ft NAVD88**

29 The alignment of the levee is the same as Option F. The primary difference between this option and
30 Option F is the top width of the east-west leg of the levee (Biloxi Bay to Menge Avenue). The east-
31 west leg of Option F barrier top width is 15ft and the east-west leg of Option J barrier top width is
32 75 ft. This will allow Highway 90 to be relocated along the top of the levee. In addition, the height of
33 this Option J is at elevation 30 ft NAVD88.

34 **3.4.3.11 Project Description**

35 The location of the proposed project is shown above in Figure 3.4.3-1. As described, the levee will
36 be an earthen levee constructed either at elevation 20.0 feet, 30.0 or 40.0 feet along with the internal
37 sub-basins and levee culvert/pump locations. Drainage on the interior of the ring levee would be
38 collected at the levee and channeled to culverts placed in the levee. The culverts would have flap

1 gates on the seaward ends to prevent backflow when the water in Mississippi Sound is high. An
2 additional closure gate would also be provided at every culvert in the levee for control in the event
3 the flap gate malfunctions. In addition, pumps would be constructed near the outflow points to
4 remove water from the interior during storm events occurring when the culverts are closed because
5 of high water in the sound. Drainage ditches along the toe of the levee will be required to assure that
6 smaller basins can be drained to a culvert/pump site. Figures 3.4.3.11-1 through 3.4.3.11-3 show the
7 proposed locations of the pump/culvert sites for Options A through E. Figures 3.4.3.11-4 through
8 3.4.3.11-6 show the Menge Avenue alternate route. During some hurricane events, when the gates
9 are shut, and rainfall exceeds the average 10-yr intensity over the basin, some ponding from rainfall
10 will occur. Further studies will detail the requirement for the appropriate ponding areas, pump sizes,
11 or buyouts in the affected areas. In order to prevent hurricane surges from circumventing the levee,
12 surge barrier gates would be constructed across both Biloxi Bay and St. Louis Bay. In the event of
13 an imminent hurricane, the gates across the Back Bay of Biloxi and St. Louis Bay would be closed,
14 and flow from the rivers feeding these bays, as well as local runoff would pond behind the gates.



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Figure 3.4.3.11-1.
Pump/Culvert/Sub-basin Site Locations, Options A-E

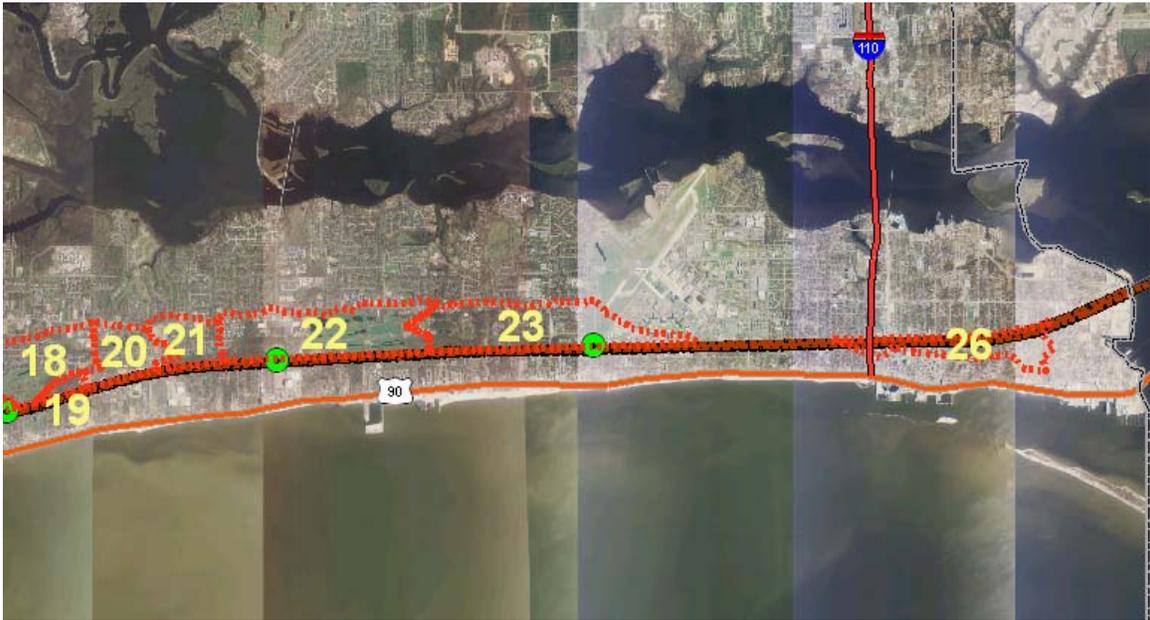


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Figure 3.4.3.11-2.
Pump/Culvert/Sub-basin Site Locations, Options A-E

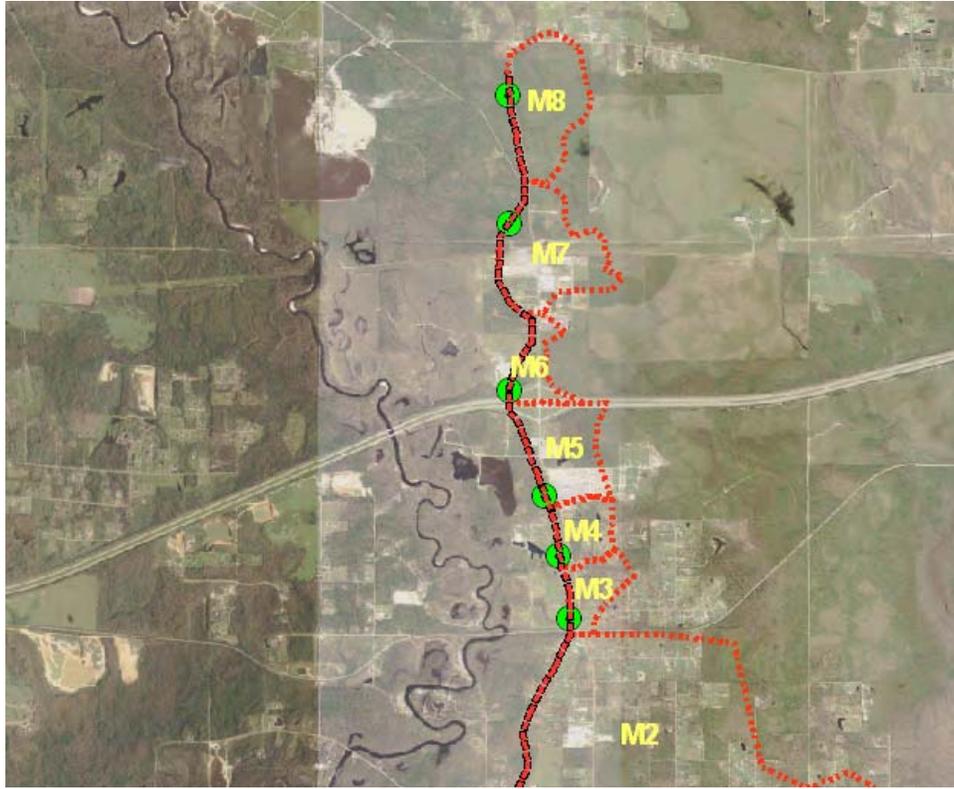


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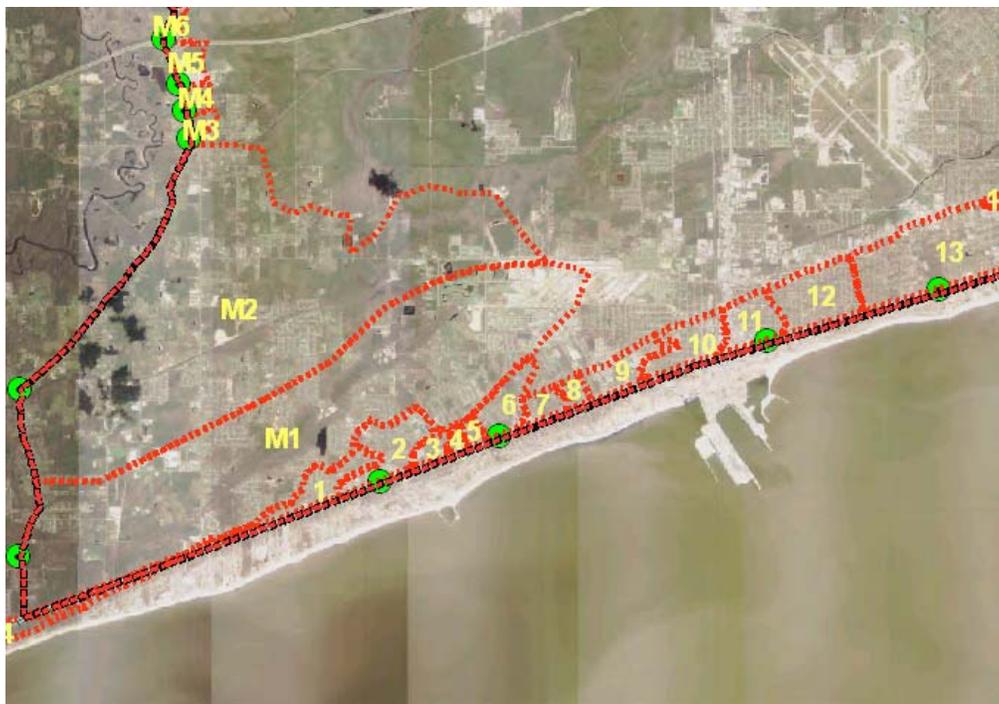
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Figure 3.4.3.11-3.
Pump/Culvert/Sub-basin Site Locations, Options A-E



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**Figure 3.4.3.11-4.
Menge Avenue Alternate Route, Pump/Culvert, Sub-basin
Site Locations, Options F-J**



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Figure 3.4.3.11-5.
Menge Avenue Alternate Route, Pump/Culvert, Sub-basin Site Locations, Options F-J



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Figure 3.4.3.11-6.
Menge Avenue Alternate Route, Pump/Culvert, Sub-basin Site Locations, Options F-J

9 The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a
10 fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and

1 surface organics and all existing foundations, streets, utilities, etc. will be removed and the
 2 subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials
 3 obtained from off site commercial sources, and trucked to the work area. The final surface will be
 4 armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion
 5 protection during an event that overtops the levee. The armoring will be anchored on the front face
 6 by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front
 7 side of the levee and all non critical surface areas will be subsequently covered by grassing. In order
 8 to maintain the natural runoff patterns culverts would be inserted through the protection line at
 9 appropriate locations. Pump facilities would be required at 7 - 14 locations varying with the option.

10 Road crossings will incorporate small gate structures or ramping over the embankment where the
 11 surface elevation is near that of the crest elevation. The elevation relationship of the crest and the
 12 adjacent railroad will be a governing factor. At each point where a roadway crosses the protection
 13 line the decision must be made whether to maintain this artery and adapt the protection line to
 14 accommodate it, or to terminate the artery at the protection line and divert traffic to cross the
 15 protection line at another location. For this study it was assumed that all roadways and railways
 16 crossing the levee alignment would be retained except where it was very evident that traffic could be
 17 combined without undue congestion. Once the decision has been made to retain a particular
 18 roadway, it must then be determined how best to configure the artery to conduct traffic across the
 19 protection line. The simplest means of passing roadway traffic is to ramp the roadway over the
 20 protection line. This alternative is not always viable because of severe right-of-way restraints caused
 21 by extreme levee height, urban congestion, etc. In such instances other methods can be used
 22 including partial ramping in combination with low profile roller gates. In more restricted areas full
 23 height gates which would leave the roadway virtually unaltered might be preferable, even though this
 24 alternative would usually be more costly than ramping. In some extreme circumstances where high
 25 levees are required to pass through very congested areas, installation of tunnels with closure gates
 26 may be required.

27 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
 28 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
 29 alternatives would include gated pass through structures. Because of the vertical clearance
 30 requirements of railroad traffic all railroad pass through structures for this study were configured
 31 having vertical walls on either side of the railway with double swing gates extending to the full height
 32 of the levee.

33 Table 3.4.3.11-1 summarizes the number of roadway/railway intersections impacted by the various
 34 options. The number of roller gate, swing gate and railroad gate structures are listed for each option.

35 **Table 3.4.3.11-1.**
 36 **Levee and Roadway/Railway Intersections**

Option	Roadway/Railway			Railroad Gates
	Intersections	Roller Gates	Swing Gates	
Option A	45	18	27	
Option B	30	158	78	2
Option C	161	1	158	2
Option D	42	18	48	
Option E	140	82	112	2
Option F	21	17	4	
Option G	125	86	37	2
Option H	157	3	152	2
Option I	20	16	4	
Option J	123	86	35	2

1 The features that require periodic operations will be the exercising of the pumps and emergency
2 generators at the various pump stations, the testing of the gate structures at the various road
3 crossings, grass cutting of the levee slopes and toe areas and the filling of rilled areas within the
4 embankment due to surface erosion. Scheduled maintenance should include periodic greasing of all
5 gears and coupled joints, maintaining any battery backup systems, and replacement of standby fuel
6 supplies.

7 **3.4.3.12 Real Estate Requirements**

8 Real Estate requirements for Line of Defense 4, Harrison County Levee include lands, easements,
9 rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to construct an
10 earthen levee, drainage ditches, and culvert/pump station facilities.

11 Based on the footprint of the Option A, 20.0 foot elevation, it was determined that approximately
12 1512 parcels and 756 structures would be impacted. The acreage to be acquired for the levee is
13 unknown. It is known that the 7 pump stations will require approximately 0.23 of an acre each for a
14 total of 1.61 acres. Lands required for construction of the levee will be acquired in fee simple
15 interest, and lands for the drainage ditches that will be constructed outside the levee footprint will be
16 acquired either in easement or fee as necessary. Based on the number of structures being
17 impacted, the assumption is that there will be 756 relocations.

18 Based on the footprint of the Option B, 30.0 foot elevation, it was determined that 1688 parcels and
19 835 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
20 that the 7 pump stations will require approximately 0.23 of an acre each for a total of 1.61 acres.
21 Lands required for construction of the levee will be acquired in fee simple interest, and lands for the
22 drainage ditches that will be constructed outside the levee footprint will be acquired either in
23 easement or fee as necessary. Based on the number of structures being impacted, the assumption
24 is that there will be 835 relocations.

25 Based on the footprint of the Option C, 40.0 foot elevation, it was determined that 1927 parcels and
26 938 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
27 that the 7 pump stations will require approximately 0.23 of an acre each for a total of 1.161 acres.
28 Lands required for construction of the levee will be acquired in fee simple interest, and lands for the
29 drainage ditches that will be constructed outside the levee footprint will be acquired either in
30 easement or fee as necessary. Based on the number of structures being impacted, the assumption
31 is that there will be 938 relocations.

32 Based on the footprint of the Option D, 20.0 foot elevation, it was determined that 568 parcels and
33 174 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
34 that the 7 pump stations will require approximately 0.23 of an acre each for a total of 1.61 acres.
35 Lands required for construction of the levee will be acquired in fee simple interest, and lands for the
36 drainage ditches that will be constructed outside the levee footprint will be acquired either in
37 easement or fee as necessary. Based on the number of structures being impacted, the assumption
38 is that there will be 174 relocations.

39 Based on the footprint of the Option E, 30.0 foot elevation, it was determined that 1916 parcels and
40 1172 structures would be impacted. The acreage to be acquired for the levee is unknown. It is
41 known that the 7 pump stations will require approximately 0.23 of an acre each for a total of
42 1.61 acres. Lands required for construction of the levee will be acquired in fee simple interest, and
43 lands for the drainage ditches that will be constructed outside the levee footprint will be acquired
44 either in easement or fee as necessary. Based on the number of structures being impacted, the
45 assumption is that there will be 1172 relocations.

1 Based on the footprint of the Option F, 20.0 foot elevation, it was determined that 76 parcels and
2 38 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
3 that the 9 pump stations will require approximately 0.23 of an acre each for a total of 2.07 acres.
4 Lands required for construction of the levee will be acquired in fee simple interest. Footprints of the
5 drainage ditches for this option appear to be within the footprint of the lands being acquired for the
6 levee. Based on the number of structures being impacted, the assumption is that there will be
7 38 relocations.

8 Based on the footprint of the Option G 30.0 foot elevation, it was determined that 189 parcels and
9 104 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
10 that the 9 pump stations will require approximately 0.23 of an acre each for a total of 2.07 acres.
11 Lands required for construction of the levee will be acquired in fee simple interest. Footprints of the
12 drainage ditches for this option appear to be within the footprint of the lands being acquired for the
13 levee. Based on the number of structures being impacted, the assumption is that there will be
14 38 relocations.

15 Based on the footprint of the Option H 40.0 foot elevation, it was determined that 209 parcels and
16 101 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
17 that the 14 pump stations will require approximately 0.23 of an acre each for a total of 3.22 acres.
18 Lands required for construction of the levee will be acquired in fee simple interest. Footprints of the
19 drainage ditches for this option appear to be within the footprint of the lands being acquired for the
20 levee. Based on the number of structures being impacted, the assumption is that there will be
21 101 relocations.

22 Based on the footprint of the Option I 20.0 foot elevation, it was determined that 225 parcels and
23 122 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
24 that the 9 pump stations will require approximately 0.23 of an acre each for a total of 2.07 acres.
25 Lands required for construction of the levee will be acquired in fee simple interest. Footprints of the
26 drainage ditches for this option appear to be within the footprint of the lands being acquired for the
27 levee. Based on the number of structures being impacted, the assumption is that there will be
28 122 relocations.

29 Based on the footprint of the Option J 30.0 foot elevation, it was determined that 171 parcels and
30 92 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
31 that the 9 pump stations will require approximately 0.23 of an acre each for a total of 2.07 acres.
32 Lands required for construction of the levee will be acquired in fee simple interest. Footprints of the
33 drainage ditches for this option appear to be within the footprint of the lands being acquired for the
34 levee. Based on the number of structures being impacted, the assumption is that there will be
35 92 relocations.

36 An assumption is made that excavated materials from clearing, snagging, and construction of
37 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
38 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
39 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
40 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
41 the cost of using a commercial landfill and make a determination which method is most cost
42 effective.

43 The recommended plan proposes to use material from an inventory of upland borrow sites to
44 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
45 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
46 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
47 borrow site with the cost of using a commercial borrow site and make a determination which method
48 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands

1 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
2 further defined during PED.

3 Table 3.4.3.12-1 below summarizes the real estate requirements for the various alternatives.

4 **Table 3.4.3.12-1.**
5 **Real Estate Requirements - LOD4 Harrison County**

Option	Impacted Parcels	Impacted Structures	# Pump Stations/AC	Relocations
Option A	1,512	756	7 1.16 AC	756
Option B	1,688	835	7 1.16 AC	835
Option C	1,927	938	7 1.16 AC	938
Option D	568	174	7 1.16 AC	174
Option E	1,916	1,172	7 1.16 AC	1,172
Option F	76	38	9 2.07 AC	38
Option G	189	104	9 2.07 AC	104
Option H	209	101	14 3.22 AC	101
Option I	225	122	14 3.22 AC	122
Option J	171	92	9 2.07 AC	92

6
7 Any modifications to the roadways and utilities will most probably need to be accomplished through
8 a relocation contract. This will be further investigated and confirmed during PED.

9 The recommended plan proposes to use material from an inventory of upland borrow sites to
10 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
11 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
12 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
13 borrow site with the cost of using a commercial borrow site and make a determination which method
14 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
15 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
16 further defined during PED.

17 **3.4.3.13 Utility/Facility Relocation**

18 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities and
19 Highway 90. An assumption is made that this work will be accomplished through a relocation
20 contract. This will be further investigated and confirmed during PED. See Chapter 2 Section 2.10 for
21 more detailed discussion.

1 **3.4.3.14 Existing Projects/Studies**

2 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
3 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

4 **3.4.3.15 Environmental Impacts**

5 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
6 for a full discussion on environmental effects.

7 **3.4.3.16 Project Sponsor Responsibilities and Capabilities**

8 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
9 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
10 all alterations and relocations of facilities, structures and improvements determined by the
11 government to be necessary for construction of the Project.

12 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
13 the United States Government. Prior to advertisement of any construction contract, the NFS shall
14 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
15 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
16 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
17 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
18 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
19 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
20 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
21 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
22 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
23 Real Estate Appendix. The assessment will be made during PED phase.

24 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
25 lands it provides and the value of the relocations that are required for the project. Generally, for the
26 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
27 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
28 non-federal sponsor provided for the project as required by the Government. The NFS cannot
29 receive credit for the value of any LER, including incidental costs, which were previously provided as
30 an item of cooperation for another Federal project, including projects that preceded enactment of
31 WRDA 1986.

32 **3.4.3.17 Government Owned Property**

33 There are 1-5 Government owned parcels within the footprint of the project that will be impacted
34 depending on the option recommended for construction. In viewing the footprint, it is noted that the
35 parcels will be impacted where they abut Highway 90. The parcels may be impacted by
36 approximately 20-30%. Land and structure values are not listed in the public records. Ownership is
37 listed in public records as US Govt, US Veterans Hospital and United States of America. Specific
38 impacts to Government owned lands will be determined during PED.

39 **3.4.3.18 Historical Significance**

40 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
41 on cultural and archaeological resources.

1 **3.4.3.19 Mineral Rights**

2 There are no known mineral activities within the scope of the proposed project.

3 **3.4.3.20 Hazardous, Toxic, and Radioactive Waste (HTRW)**

4 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
5 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
6 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

7 **3.4.3.21 Public Law 91-646, Relocation Assistance Benefits**

8 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
9 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
10 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
11 result of programs designed for the benefits of the public as a whole. A qualified displaced person
12 may be entitled to certain relocation assistance benefits which include reimbursement of moving
13 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
14 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
15 types - purchase supplement, rental assistance and down payment. All replacement housing must
16 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

17 Table 3.4.3.21-1 shows the number of expected relocations for each Option. No relocation plan has
18 been completed nor has a relocation survey been done. All estimates are based on information from
19 county public records. The number of business relocations as compared to residential relocations is
20 unknown. In order to accomplish the relocation activity in a timely manner, the plan set forth in
21 Chapter 2. Section 2.5 can be used.

22
23

**Table 3.4.3.21-1.
PL 91-646 - Relocation Assistance**

Option	Number of Relocations
Option A	756
Option B	835
Option C	938
Option D	174
Option E	1,172
Option F	38
Option G	104
Option H	101
Option I	122
Option J	92

24

25 **3.4.3.22 Attitude of Property Owners**

26 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
27 However, numerous public meetings have been held at different locations throughout the study area
28 to inform stakeholders and property owners about the study and the protective measures under
29 consideration for the Mississippi coastal area. A number of local newspapers have published articles
30 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that

1 may occur as a result of the project. Some of these articles can be found on web sites. While many
2 of the locals may welcome the benefits of the proposed project, there are some who oppose the
3 project.

4 **3.4.3.23 Acquisition Schedule**

5 An acquisition schedule will be developed when plans and specifications become available and
6 more definite information is available pertaining to the specific areas and number of parcels for
7 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
8 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
9 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
10 completed certification of lands acquired/owned by the sponsor will be necessary prior to
11 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
12 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
13 implementation/management plan.

14 **3.4.3.24 Estates for Proposed Project**

15 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
16 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
17 temporary work areas, and for drainage ditches constructed outside the footprint of the levee, fee or
18 the Drainage Ditch Easement will be used as appropriate. The estates recommended are standard
19 estates.

20 **FEE.**

21 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
22 subject, however, to existing easements for public roads and highways, public utilities, railroads and
23 pipelines.

24 **BORROW EASEMENT.**

25 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
26 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
27 _____ and _____); subject, however, to existing easements for public roads and highways, public
28 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
29 such rights and privileges in said land as may be used without interfering with or abridging the rights
30 and easement hereby acquired.

31 **TEMPORARY WORK AREA EASEMENT.**

32 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
33 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
34 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
35 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
36 backfill, move, store and remove equipment and supplies, and erect and remove temporary
37 structures on the land and to perform any other work necessary and incident to the construction of
38 the _____ Project, together with the right to trim, cut, fell and remove there from
39 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
40 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
41 rights and privileges as may be used without interfering with or abridging the rights and easement
42 hereby acquired; subject, however, to existing easements for public roads and highways, public
43 utilities, railroads and pipelines.

1 **DRAINAGE DITCH EASEMENT.**

2 A perpetual and assignable easement and right-of-way in, over and across (the land described in
3 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
4 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
5 and privileges in the land as may be used without interfering with or abridging the rights and
6 easement hereby acquired; subject, however, to existing easements for public roads and highways,
7 public utilities, railroads and pipelines.

8 **3.4.3.25 Real Estate Estimate**

9 A summary of the cost for each option is at Table 3.4.3.25-1. The real estate cost estimates at
10 Tables 3.4.3.25-2 through 3.4.3.25-11 include the land cost for acquisition of land, relocation
11 benefits to include a replacement housing payment and fixed rate move expenses, and Federal and
12 non-Federal administrative costs. Administrative costs are those costs incurred for verifying
13 ownership of lands, certification of those lands required for project purposes, legal opinions, analysis
14 or other requirements that may be necessary, during PED. No cost is included for a borrow site or
15 temporary work area. The requirement, if any, for a borrow site or temporary work area will be
16 identified during PED. If further real estate requirements are identified during PED or if there is a
17 significant increase in cost, a supplement to the Real Estate Appendix will be prepared. A 25%
18 contingency is applied to the current estimate.

19
20

**Table 3.4.3.25-1.
Real Estate Cost Summary**

Option	Impacted Parcels	Relocations	Total Cost
Option A - 20.0	1,512	756	253,268,000
Option B - 30.0	1,688	835	271,797,000
Option C - 40.0	1,927	938	300,446,000
Option D - 20.0	568	174	58,266,000
Option E - 30.0	1,916	1172	298,748,000
Option F - 20.0	76	38	8,917,000
Option G - 30.0	189	104	20,801,000
Option H - 40.0	209	101	28,271,000
Option I - 20.0	225	122	23,938,000
Option J - 30.0	171	92	25,351,000

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**Table 3.4.3.25-2.
LOD4 Harrison County Inland Barrier - Option A 20.0 Estimate**

a. Lands and Improvements/Permits				
				131,791,462
				9,827,564
				126,002
			Subtotal	141,745,028
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 756 relocations				21,179,200
e. Administrative Cost				39,690,000
		Relocation	Acquisition	Total
	Federal	1,134,000	3,780,000	4,914,000
	Non-Federal	4,536,000	30,240,000	34,776,000
		<hr/>	<hr/>	<hr/>
		5,670,000	34,020,000	39,690,000
Sub-Total				202,614,228
Contingencies (25%)				50,653,557
<hr/>				
Totals				253,267,785
Rounded				253,268,000
<hr/>				

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**Table 3.4.3.25-3.
LOD4 Harrison County Inland Barrier - Option B 30.0 Estimate**

a. Lands and Improvements/Permits				
				139,799,904
				9,827,564
				126,002
			Subtotal	149,753,470
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 835 relocations				23,441,600
e. Administrative Cost				44,242,500
		Relocation	Acquisition	Total
	Federal	1,252,500	4,220,000	5,472,500
	Non-Federal	5,010,000	33,760,000	38,770,000
		<hr/>	<hr/>	<hr/>
		6,262,500	37,980,000	44,242,500
Sub-Total				217,437,570
Contingencies (25%)				54,359,393
<hr/>				
Totals				271,796,963
Rounded				271,797,000
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**Table 3.4.3.25-4.
LOD4 Harrison County Inland Barrier - Option C 40.0 Estimate**

a. Lands and Improvements/Permits				
				153,724,698
				9,827,564
				126,002
			subtotal	163,678,264
b. Mineral Rights				
c. Damages				
d. P.L. 91-646 Relocation costs - 938 relocations				
e. Administrative Cost				
				50,392,500
		Relocation	Acquisition	Total
	Federal	1,407,000	4,817,500	6,224,500
	Non- Federal	5,628,000	38,540,000	44,168,000
		<u>7,035,000</u>	<u>43,357,500</u>	<u>50,392,500</u>
Sub-Total				
Contingencies (25%)				
Totals				300,446,455
Rounded				300,446,000

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**Table 3.4.3.25-5.
Option D - Levee for Roadway - Elevation 20.0 Estimate**

a. Lands and Improvements/Permits				
				18,486,170
				9,827,564
				126,002
			Subtotal	28,439,736
b. Mineral Rights				
c. Damages				
d. P.L. 91-646 Relocation costs - 174 relocations				
e. Administrative Cost				
				14,085,000
		Relocation	Acquisition	Total
	Federal	261,000	1,420,000	1,681,000
	Non- Federal	1,044,000	11,360,000	12,404,000
		<u>1,305,000</u>	<u>12,780,000</u>	<u>14,085,000</u>
Sub-Total				
Contingencies (25%)				
Totals				58,265,920
Rounded				58,266,000

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**Table 3.4.3.25-6.
Option E - Levee for Roadway - Elevation 30.0 Estimate**

a. Lands and Improvements/Permits				
				150,701,678
				9,827,564
				126,002
			Subtotal	160,655,244
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 1,172 relocations				26,443,200
e. Administrative Cost				51,900,000
		Relocation	Acquisition	Total
	Federal	1,758,000	4,790,000	6,548,000
	Non-Federal	7,032,000	38,320,000	45,352,000
		<hr/>	<hr/>	<hr/>
		8,790,000	43,110,000	51,900,000
Sub-Total				238,998,444
Contingencies (25%)				59,749,611
				<hr/>
Totals				298,748,055
Rounded				298,748,000
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**Table 3.4.3.25-7.
Option F - Menge Avenue Alternate Route - Elevation 20.0 Estimate**

a. Lands and Improvements/Permits				
				4,125,356
				162,002
			Subtotal	4,287,358
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 38 relocations				851,200
e. Administrative Cost				1,995,000
		Relocation	Acquisition	Total
	Federal	57,000	190,000	247,000
	Non-Federal	228,000	1,520,000	1,748,000
		<hr/>	<hr/>	<hr/>
		285,000	1,710,000	1,995,000
Sub-Total				7,133,558
Contingencies (25%)				1,783,390
				<hr/>
Totals				8,916,948
Rounded				8,917,000
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**Table 3.4.3.25-8.
Option G - Minge Avenue Alternate Route - Elevation 30.0 Estimate**

a. Lands and Improvements/Permits				
180 Ownerships for Levee, 104 Improvements				9,116,968
<u>9 Pump Stations</u>				162,002
189 Ownerships				Subtotal 9,278,970
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 104 relocations				2,329,600
e. Administrative Cost				5,032,500
		Relocation	Acquisition	Total
	Federal	156,000	472,500	628,500
	Non-Federal	624,000	3,780,000	4,404,000
		<hr/>	<hr/>	<hr/>
		780,000	4,252,500	5,032,500
Sub-Total				16,641,070
Contingencies (25%)				4,160,268
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Totals				20,801,338
Rounded				20,801,000
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**Table 3.4.3.25-9.
Option H - Minge Avenue Alternate Route - Elevation 40.0 Estimate**

a. Lands and Improvements/Permits				
195 Ownerships for Levee, 101 Improvements				14,642,288
<u>14 Pump Stations</u>				252,004
209 Ownerships				Subtotal 14,894,292
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 101 relocations				2,262,400
e. Administrative Cost				5,460,000
		Relocation	Acquisition	Total
	Federal	151,500	522,500	674,000
	Non-Federal	606,000	4,180,000	4,786,000
		<hr/>	<hr/>	<hr/>
		757,500	4,702,500	5,460,000
Sub-Total				22,616,692
Contingencies (25%)				5,654,173
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Totals				28,270,865
Rounded				28,271,000
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Table 3.4.3.25-10.
Option I - Levee for Roadway with Menge Avenue Alternate - Route Elevation 20.0
Estimate

a. Lands and Improvements/Permits				
216 Ownerships for Levee, 122 Improvements				10,277,860
<u>9 Pump Stations</u>				162,002
225 Ownerships				Subtotal 10,439,862
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 122 relocations				2,732,800
e. Administrative Cost				5,977,500
		Relocation	Acquisition	Total
	Federal	183,000	562,500	745,500
	Non-Federal	732,000	4,500,000	5,232,000
		915,000	5,062,500	5,977,500
Sub-Total				19,150,162
Contingencies (25%)				4,787,541
Totals				23,937,703
Rounded				23,938,000

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Table 3.4.3.25-11.
Option J - Levee for Roadway with Menge Avenue Alternate - Route Elevation 30.0
Estimate

a. Lands and Improvements/Permits				
162 Ownerships for Levee, 92 Improvements				13,520,366
<u>9 Pump Stations</u>				162,002
171 Ownerships				Subtotal 13,682,368
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs - 92 relocations				2,060,800
e. Administrative Cost				4,537,500
		Relocation	Acquisition	Total
	Federal	138,000	427,500	565,500
	Non-Federal	552,000	3,420,000	3,972,000
		690,000	3,847,500	4,537,500
Sub-Total				20,280,668
Contingencies (25%)				5,070,167
Totals				25,350,835
Rounded				25,351,000

1 **3.4.3.26 Summary of Potential Real Estate Issues**

2 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
3 these areas be required, these would be considered as part of the LERRD requirements. Typically if
4 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
5 the cost of acquiring an these sites with the cost of using a commercial sites and make a
6 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

7 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
8 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
9 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
10 estate requirements are identified during PED or if there is a significant increase in cost, a
11 supplement to the Real Estate Appendix will be prepared.

12 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
13 completed during PED.

14 Any requirement for mitigation lands will be identified during PED.

15 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
16 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
17 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
18 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

19 A relocation plan will need to be completed during PED to address potential relocation activity under
20 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
21 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
22 housing replacement payments, are very likely due to the size of the project and the lack of available
23 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
24 schedule is the cost of business relocations. Depending on the type of business and the operation,
25 this could involve moving equipment and machinery to new locations. It is necessary to interview
26 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
27 determine the requirements for relocation and to estimate a cost for the relocation.

28 **3.4.3.27 Chart of Accounts**

29 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
30 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
31 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
32 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
33 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
34 Tables 3.4.3.27-1 through 3.4.3.27-10 shows the CWBS for real estate activities.

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**Table 3.4.3.27-1.
Chart of Accounts - LOD4 Harrison County Inland Barrier - Option A 20.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	3,780,000		3,780,000
01B20	Acquisition by NFS		30,240,000	30,240,000
01BX	Contingencies (25%)	<u>945,000</u>	<u>7,560,000</u>	<u>8,505,000</u>
	Subtotal	4,725,000	37,800,000	42,525,000
01F	PL 91-646 Assistance			
01F20	By NFS		4,536,000	4,536,000
01FX	Contingencies (25%)		<u>1,134,000</u>	<u>1,134,000</u>
	Subtotal		5,670,000	5,670,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		141,745,028	141,745,028
01R2B	PL91-646 Relocation Payment by NFS		21,179,200	21,179,200
01R2D	Review of NFS	1,134,000		1,134,000
01RX	Contingencies (25%)	<u>283,500</u>	<u>40,731,057</u>	<u>41,014,557</u>
	Subtotal	1,417,500	203,655,285	205,072,785
	Totals	6,142,500	247,125,285	253,267,785
	Rounded			253,268,000

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**Table 3.4.3.27-2.
Chart of Accounts - LOD4 Harrison County Inland Barrier - Option B 30.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	4,220,000		4,220,000
01B20	Acquisition by NFS		33,760,000	33,760,000
01BX	Contingencies (25%)	<u>1,055,000</u>	<u>8,440,000</u>	<u>9,495,000</u>
	Subtotal	5,275,000	42,200,000	47,475,000
01F	PL 91-646 Assistance			
01F20	By NFS		5,010,000	5,010,000
01FX	Contingencies (25%)		<u>1,252,500</u>	<u>1,252,500</u>
	Subtotal		6,262,500	6,262,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		149,753,470	149,753,470
01R2B	PL91-646 Relocation Payment by NFS		23,441,600	23,441,600
01R2D	Review of NFS	1,252,500		1,252,500
01RX	Contingencies (25%)	<u>313,125</u>	<u>43,298,768</u>	<u>43,611,893</u>
	Subtotal	1,565,625	216,493,838	218,059,463
	Totals	6,840,625	264,956,338	271,796,963
	Rounded			271,797,000

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**Table 3.4.3.27-3.
Chart of Accounts - LOD4 Harrison County Inland Barrier - Option C 40.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	4,817,500		4,817,500
01B20	Acquisition by NFS		38,540,000	38,540,000
01BX	Contingencies (25%)	<u>1,204,375</u>	<u>9,635,000</u>	<u>10,839,375</u>
	Subtotal	<u>6,021,875</u>	<u>48,175,000</u>	<u>54,196,875</u>
01F	PL 91-646 Assistance			
01F20	By NFS		5,628,000	5,628,000
01FX	Contingencies (25%)		<u>1,407,000</u>	<u>1,407,000</u>
	Subtotal		<u>7,035,000</u>	<u>7,035,000</u>
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		163,678,264	163,678,264
01R2B	PL91-646 Relocation Payment by NFS		26,286,400	26,286,400
01R2D	Review of NFS	1,407,000		1,407,000
01RX	Contingencies (25%)	<u>351,750</u>	<u>47,491,166</u>	<u>47,842,916</u>
	Subtotal	<u>1,758,750</u>	<u>237,455,830</u>	<u>239,214,580</u>
	Totals	7,780,625	292,665,830	300,446,455
	Rounded			300,446,000

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**Table 3.4.3.27-4.
Chart of Accounts - LOD 4 Harrison County Inland Barrier Option D 20.0 - Levee
for Roadway**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	1,420,000		1,420,000
01B20	Acquisition by NFS		11,360,000	11,360,000
01BX	Contingencies (25%)	<u>355,000</u>	<u>2,840,000</u>	<u>3,195,000</u>
	Subtotal	1,775,000	14,200,000	15,975,000
01F	PL 91-646 Assistance			
01F20	By NFS		1,044,000	1,044,000
01FX	Contingencies (25%)		<u>261,000</u>	<u>261,000</u>
	Subtotal		1,305,000	1,305,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		28,439,736	28,439,736
01R2B	PL91-646 Relocation Payment by NFS		4,088,000	4,088,000
01R2D	Review of NFS	261,000		261,000
01RX	Contingencies (25%)	<u>65,250</u>	<u>8,131,934</u>	<u>8,197,184</u>
	Subtotal	326,250	40,659,670	40,985,920
	Totals	2,101,250	56,164,670	58,265,920
	Rounded			58,266,000

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**Table 3.4.3.27-5.
Chart of Accounts - LOD 4 Harrison County Inland Barrier Option E 30.0 - Levee
for Roadway**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	4,790,000		4,790,000
01B20	Acquisition by NFS		38,320,000	38,320,000
01BX	Contingencies (25%)	<u>1,197,500</u>	<u>9,580,000</u>	<u>10,777,500</u>
	Subtotal	5,987,500	47,900,000	53,887,500
01F	PL 91-646 Assistance			
01F20	By NFS		7,032,000	7,032,000
01FX	Contingencies (25%)		<u>1,758,000</u>	<u>1,758,000</u>
	Subtotal		8,790,000	8,790,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		160,655,244	160,655,244
01R2B	PL91-646 Relocation Payment by NFS		26,443,200	26,443,200
01R2D	Review of NFS	1,758,000		1,758,000
01RX	Contingencies (25%)	<u>439,500</u>	<u>46,774,611</u>	<u>47,214,111</u>
	Subtotal	2,197,500	233,873,055	236,070,555
	Totals	8,185,000	290,563,055	298,748,055
	Rounded			298,748,000

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**Table 3.4.3.27-6.
Chart of Accounts - LOD4 Harrison County Inland Barrier Option F 20.0 - Menge
Avenue Alternate Route**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	190,000		190,000
01B20	Acquisition by NFS		1,520,000	1,520,000
01BX	Contingencies (25%)	<u>47,500</u>	<u>380,000</u>	<u>427,500</u>
	Subtotal	237,500	1,900,000	2,137,500
01F	PL 91-646 Assistance			
01F20	By NFS		228,000	228,000
01FX	Contingencies (25%)		<u>57,000</u>	<u>57,000</u>
	Subtotal		285,000	285,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		4,287,358	4,287,358
01R2B	PL91-646 Relocation Payment by NFS		851,200	851,200
01R2D	Review of NFS	57,000		57,000
01RX	Contingencies (25%)	<u>14,250</u>	<u>1,284,640</u>	<u>1,298,890</u>
	Subtotal	71,250	6,423,198	6,494,448
	Totals	308,750	8,608,198	8,916,948
	Rounded			8,917,000

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**Table 3.4.3.27-7.
Chart of Accounts - LOD4 Harrison County Inland Barrier Option G 30.0 - Menge
Avenue Alternate Route**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	472,500		472,500
01B20	Acquisition by NFS		3,780,000	3,780,000
01BX	Contingencies (25%)	<u>118,125</u>	<u>945,000</u>	<u>1,063,125</u>
	Subtotal	590,625	4,725,000	5,315,625
01F	PL 91-646 Assistance			
01F20	By NFS		624,000	624,000
01FX	Contingencies (25%)		<u>156,000</u>	<u>156,000</u>
	Subtotal		780,000	780,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		9,278,970	9,278,970
01R2B	PL91-646 Relocation Payment by NFS		2,329,600	2,329,600
01R2D	Review of NFS	156,000		156,000
01RX	Contingencies (25%)	<u>39,000</u>	<u>2,902,143</u>	<u>2,941,143</u>
	Subtotal	195,000	14,510,713	14,705,713
	Totals	785,625	20,015,713	20,801,338
	Rounded			20,801,000

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**Table 3.4.3.27-8.
Chart of Accounts - LOD4 Harrison County Inland Barrier Option H 40.0 - Menge
Avenue Alternate Route**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	522,500		522,500
01B20	Acquisition by NFS		4,180,000	4,180,000
01BX	Contingencies (25%)	<u>130,625</u>	<u>1,045,000</u>	<u>1,175,625</u>
	Subtotal	653,125	5,225,000	5,878,125
01F	PL 91-646 Assistance			
01F20	By NFS		606,000	606,000
01FX	Contingencies (25%)		<u>151,500</u>	<u>151,500</u>
	Subtotal		757,500	757,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		14,894,292	14,894,292
01R2B	PL91-646 Relocation Payment by NFS		2,262,400	2,262,400
01R2D	Review of NFS	151,500		151,500
01RX	Contingencies (25%)	<u>37,875</u>	<u>4,289,173</u>	<u>4,327,048</u>
	Subtotal	189,375	21,445,865	21,635,240
	Totals	842,500	27,428,365	28,270,865
	Rounded			28,271,000

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Table 3.4.3.27-9.
Chart of Accounts - LOD4 Harrison County Inland Barrier Option I 20.0 - Levee for Roadway with Menge Avenue Alternate Route

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	562,500		562,500
01B20	Acquisition by NFS		4,500,000	4,500,000
01BX	Contingencies (25%)	<u>140,625</u>	<u>1,125,000</u>	<u>1,265,625</u>
	Subtotal	703,125	5,625,000	6,328,125
01F	PL 91-646 Assistance			
01F20	By NFS		732,000	732,000
01FX	Contingencies (25%)		<u>183,000</u>	<u>183,000</u>
	Subtotal		915,000	915,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		10,439,862	10,439,862
01R2B	PL91-646 Relocation Payment by NFS		2,732,800	2,732,800
01R2D	Review of NFS	183,000		183,000
01RX	Contingencies (25%)	<u>45,750</u>	<u>3,293,166</u>	<u>3,338,916</u>
	Subtotal	228,750	16,465,828	16,694,578
	Totals	931,875	23,005,828	23,937,703
	Rounded			23,938,000

1 **Table 3.4.3.27-10.**
 2 **Chart of Accounts - LOD4 Harrison County Inland Barrier Option J 30.0 - Levee**
 3 **for Roadway with Menge Avenue Alternate Route**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation			
	Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	427,500		427,500
01B20	Acquisition by NFS		3,420,000	3,420,000
01BX	Contingencies (25%)	<u>106,875</u>	<u>855,000</u>	<u>961,875</u>
	Subtotal	534,375	4,275,000	4,809,375
01F	PL 91-646 Assistance			
01F20	By NFS		552,000	552,000
01FX	Contingencies (25%)		<u>138,000</u>	<u>138,000</u>
	Subtotal		690,000	690,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		13,682,368	13,682,368
01R2B	PL91-646 Relocation Payment by NFS		2,060,800	2,060,800
01R2D	Review of NFS	138,000		138,000
01RX	Contingencies (25%)	<u>34,500</u>	<u>3,935,792</u>	<u>3,970,292</u>
	Subtotal	172,500	19,678,960	19,851,460
	Totals	706,875	24,643,960	25,350,835
	Rounded			25,351,000

4
 5 **3.4.4 Back Bay of Biloxi Surge Barrier**

6 In order to protect the properties surrounding Biloxi Bay and along the lower portions of the various
 7 rivers and streams flowing into the bay, a barrier would be required at some point to block storm
 8 waters during major storm events. A search of other similar facilities constructed world wide revealed
 9 that the structure model best satisfying both the engineering and socio-ecological necessities of this
 10 site was that used for the Thames River Barrier in London, UK. The structure tentatively investigated
 11 for incorporation into this work was patterned after the Thames River Barrier with certain minor
 12 modifications to adapt to the site and environment specific conditions. A photograph of the Thames
 13 River Gates is at Figure 3.4.4-1. The Biloxi Bay watershed covers approximately 640 square miles
 14 and is comprised of six sub-basins that stretch across Harrison, Hancock, Stone and Jackson
 15 County, MS.



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Figure 3.4.4-1.
Thames River Gates, London, UK

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In the event of an imminent hurricane, the gates across the Back Bay of Biloxi would be closed, and flow from the rivers feeding these bays, as well as local runoff would pond behind the gates. The tentative location of the barrier chosen for this study is shown below in Figure 3.4.4-2. The alternatives for this proposed measure are identified as Option A, Option B and Option C.

1 barrier would be approximately 6,100 feet in length from water's edge to water's edge, and would
2 consist of rock fill levees extending from the overland levee at each bank for some distance into the
3 bay and enveloping the mass concrete non-overflow wall sections leading to each end of the gated
4 structure.

5 The points at which the barrier would come ashore in Jackson County on the east and Harrison
6 County on the west, are in urban areas with extensive residential and commercial development.
7 Several structures would need to be relocated and it is uncertain the extent to which existing utilities
8 might have to be relocated to clear the way for this facility.

9 Structurally, the Barrier as configured for this study would consist of a series of 25 large stainless
10 steel clad, structural steel framed gates called rising sector gates. Each of these would be supported
11 on reinforced concrete piers resting on large continuous concrete sills with pile foundations. The
12 tentative layout used to estimate the scope of the structure was configured having gates 132 feet
13 long mounted on 28-foot wide piers. The number of gates was determined by the extent of water
14 having depth sufficient to support their operation. To facilitate as nearly as possible the normal ebb
15 and flow of tide waters through the barrier, the concrete connector wall and rock fill portions of the
16 barrier either side of the gated structure would be fitted with a series of closely spaced low level
17 gated culverts. The gate and pier heights were varied to accommodate the "level of protection" under
18 consideration. The three elevations selected for this study were 20, 30, and 40 NAVD88. In each
19 instance the gate heights were set to match the protection level elevations with pier heights set
20 approximately 3 feet higher to provide minor wave clearance for protection of operating equipment.
21 Atop each pier an operating machinery block would be mounted to house the operating equipment.
22 Operating and utility access would be provided through two continuous tunnels passing through the
23 sill section and the rock fill, to operating facilities located on each bank.

24 In order to assure proper functioning of the facilities once they are placed in service a program of
25 Operations and Maintenance would be developed by the U.S. Army Corps of Engineers, in
26 conjunction and cooperation with the affected state and local entities. This O & M Plan would
27 address specific responsibilities as to daily operation of the facilities, the periodic testing and
28 maintenance of the operating machinery, maintenance of specified stocks of replacement parts,
29 security of the facilities, and maintenance of any buildings and grounds associated with the
30 operation and maintenance of the facilities. As presently envisioned, this O & M responsibility would
31 remain under control of the U.S. Army Corps of Engineers and would be administered under its
32 Operations mission.

33 **3.4.4.5 Real Estate Requirements**

34 Real Estate requirements for Line of Defense 4, Back Bay of Biloxi Surge Barrier include lands,
35 easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to
36 construct, rock levees and an elevated gate barrier in the Back Bay of Biloxi with operating facilities
37 located on each landward bank of the barrier. The rock levees on either side of the gates will tie into
38 the LOD4 inland barrier. There will be 2 operating facilities, one located in Jackson County and the
39 other in Harrison County. Each site will be comprised of approximately 5 acres and these will be
40 acquired in fee. The real estate cost estimate will be the same for each option as they all have the
41 same requirements.

42 For those lands required for construction that lay below the mean high water mark, navigation
43 servitude will apply. Navigation servitude is the dominant right of the Government under the
44 Commerce Clause of the U.S. Constitution (U.S. CONST. Art.I,§8,cl.3) to use, control and regulate
45 the navigable waters of the United States and the submerged lands hereunder for various
46 commerce-related purposes including navigation and flood control. In tidal areas, the servitude
47 extends to all lands below the, mean high water mark. In non-tidal areas, the servitude extends to all

1 lands within the bed and banks of a navigable stream that lie below the ordinary high water mark.
2 The determination of the availability of the navigation servitude should be made on a case by case
3 basis and consists of a two -step process. First the government must determine whether the project
4 serves a purpose that has a nexus to navigation. Purposes recognized by the courts to have the
5 nexus include navigation, flood control and hydroelectric power. If determined that such a nexus
6 exists, then the second step is to determine whether the land at issue is located below the mean or
7 ordinary high water mark of a navigable watercourse. As a general rule, the Government does not
8 acquire interests in real property that it already possesses or over which its use or control is or can
9 be legally exercised. Therefore, if the navigation servitude is found to be available as a result of
10 application of the process described in subparagraph b of this paragraph, then the Government will
11 generally exercise its rights hereunder and, to the extent of such rights, will not acquire a real
12 property interest in the land to which the navigation servitude applies. Generally, it is the policy of the
13 U.S. Army Corps of Engineers (USACE) to utilize the navigation servitude in all situations where
14 available, for cost shared and full Federal projects. The determination of availability will be made
15 during PED.

16 **3.4.4.6 Utility/Facility Relocation**

17 It is probable that there will be some utility/facility relocations for this plan. Specific requirements are
18 unknown at this time but will be defined during PED. See Chapter 2 Section 2.10 for more detailed
19 discussion.

20 **3.4.4.7 Existing Projects/Studies**

21 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
22 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

23 **3.4.4.8 Environmental Impacts**

24 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
25 for a full discussion on environmental effects.

26 **3.4.4.9 Project Sponsor Responsibilities and Capabilities**

27 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
28 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
29 all alterations and relocations of facilities, structures and improvements determined by the
30 government to be necessary for construction of the Project.

31 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
32 the United States Government. Prior to advertisement of any construction contract, the NFS shall
33 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
34 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
35 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
36 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
37 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
38 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
39 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
40 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
41 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
42 Real Estate Appendix. The assessment will be made during PED phase.

1 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
2 lands it provides and the value of the relocations that are required for the project. Generally, for the
3 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
4 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
5 non-federal sponsor provided for the project as required by the Government. The NFS cannot
6 receive credit for the value of any LER, including incidental costs, which were previously provided as
7 an item of cooperation for another Federal project, including projects that preceded enactment of
8 WRDA 1986.

9 **3.4.4.10 Government Owned Property**

10 There are no known Government owned lands within the proposed project.

11 **3.4.4.11 Historical Significance**

12 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
13 on cultural and archaeological resources.

14 **3.4.4.12 Mineral Rights**

15 There are no known mineral activities within the scope of the proposed project.

16 **3.4.4.13 Hazardous, Toxic, and Radioactive Waste (HTRW)**

17 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
18 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
19 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

20 **3.4.4.14 Public Law 91-646, Relocation Assistance Benefits**

21 No relocations are expected with this alternative.

22 **3.4.4.15 Attitude of Property Owners**

23 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
24 However, numerous public meetings have been held at different locations throughout the study area
25 to inform stakeholders and property owners about the study and the protective measures under
26 consideration for the Mississippi coastal area. A number of local newspapers have published articles
27 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
28 may occur as a result of the project. Some of these articles can be found on web sites. While many
29 of the locals may welcome the benefits of the proposed project, there are some who oppose the
30 project.

31 **3.4.4.16 Acquisition Schedule**

32 An acquisition schedule will be developed when plans and specifications become available and
33 more definite information is available pertaining to the specific areas and number of parcels for
34 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
35 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
36 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
37 completed certification of lands acquired/owned by the sponsor will be necessary prior to
38 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60

1 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
 2 implementation/management plan.

3 **3.4.4.17 Estates for Proposed Project**

4 All lands required for the operating facilities will be acquired in Fee Simple.

5 **FEE.**

6 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
 7 subject, however, to existing easements for public roads and highways, public utilities, railroads and
 8 pipelines.

9 **3.4.4.18 Real Estate Estimate**

10 The real estate cost estimate at Table 3.4.4.18-1 includes the land cost for acquisition of land,
 11 permits, and Federal and non-Federal administrative costs. Administrative costs are those costs
 12 incurred for verifying ownership of lands, certification of those lands required for project purposes,
 13 legal opinions, analysis or other requirements that may be necessary, during PED. No cost is
 14 included for a temporary work area. The requirement, if any, for a temporary work area will be
 15 identified during PED. If further real estate requirements are identified during PED or if there is a
 16 significant increase in cost, a supplement to the Real Estate Appendix will be prepared. A 25%
 17 contingency is applied to the current estimate.

18 **Table 3.4.4.18-1.**
 19 **LOD4 Back Bay of Biloxi Surge Barrier - Option A, B or C Estimate**

a. Lands and Improvements/Permits				
			Hancock	842,573
			Harrison	391,310
			Subtotal	1,233,883
b. Mineral Rights				
				0
c. Damages				
				0
d. P.L. 91-646 Relocation costs - 0 relocations				
				0
e. Administrative Cost				
				180,000
		Relocation	Acquisition	Total
Federal		0	20,000	20,000
Non-Federal		0	160,000	160,000
		0	180,000	180,000
Sub-Total				1,413,883
Contingencies (25%)				353,471
Totals				1,767,354
Rounded				1,767,000

20

3.4.4.19 Summary of Potential Real Estate Issues

It is expected that navigation servitude will be exercised to construct the surge barrier in the Back Bay of Biloxi. This determination will be made during PED.

It is probable that there will be some utility/facility relocations for this plan. Specific requirements are unknown at this time but will be defined during PED.

The requirement for temporary work areas has not been identified. Should these areas be required, these would be considered as part of the LERRD requirements.

Should temporary work areas become a necessary real estate acquisition requirement, valuation of lands will be performed. Land costs associated with temporary work areas and administrative costs will be added to the Real Estate Cost Estimate. If further real estate requirements are identified during PED or if there is a significant increase in cost, a supplement to the Real Estate Appendix will be prepared.

Any requirement for mitigation lands will be identified during PED.

Should condemnation of any required real estate interest be necessary, it is the responsibility of the NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate Acquisition Capability. However, if the real estate interest is one that the NFS does not have authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

3.4.4.20 Chart of Accounts

The cost estimate for all Federal and non-Federal real estate activities necessary for implementation of the project after completion of the feasibility study for land acquisition, construction, LERRD, and other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate cost estimate is then incorporated into the Total Current Working Estimate utilizing the Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at Table 3.4.4.20-1 shows the CWBS for real estate activities.

**Table 3.4.4.20-1.
Chart of Accounts - LOD4 Back Bay of Biloxi Surge Barrier - Option A, B or C**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	20,000		20,000
01B20	Acquisition by NFS		160,000	160,000
01BX	Contingencies (25%)	<u>5,000</u>	<u>40,000</u>	<u>45,000</u>
	Subtotal	25,000	200,000	225,000
01F	PL 91-646 Assistance			
01F20	By NFS		0	0
01FX	Contingencies (25%)		<u>0</u>	<u>0</u>
	Subtotal		0	0

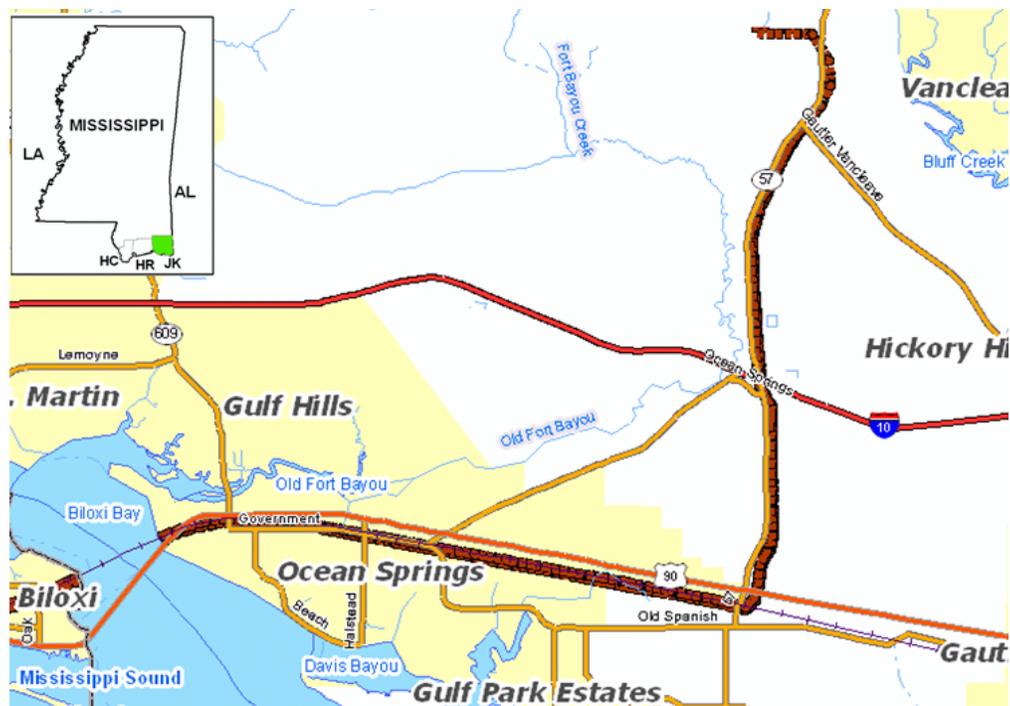
01A	Project Planning	Federal	Non-Federal	Totals
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		1,233,883	1,233,883
01R2B	PL91-646 Relocation Payment by NFS		0	0
01R2D	Review of NFS	0		0
01RX	Contingencies (25%)	0	308,471	308,471
	Subtotal	0	1,542,354	1,542,354
	Totals	25,000	1,742,354	1,767,354
	Rounded			1,767,000

1

2 **3.4.5 Jackson County Inland Barrier**

3 Residential and business areas along the coast in Jackson County are susceptible to damage from
4 storm surges associated with hurricanes. Earthen levees were evaluated for protection of these
5 areas. The levees were evaluated at elevations 20 ft NAVD88 and 30 ft NAVD88 and 40 ft NAVD88.
6 The top width was assumed 15 ft with side-slopes of 1 vertical to 3 horizontal. These alternatives are
7 Identified as Option A, Option B and Option C. The location of the proposed project in Jackson
8 County is shown in Figures 3.4.5-1. The levee will be constructed parallel to the CSX Railroad,
9 Highway 57 and Highway 90.

10 Jackson County is located on the east side of the Mississippi at the Mississippi Sound coast. The
11 main residential and business area is at Ocean Springs, which is mostly south of the proposed
12 levee. Ground elevations over the areas behind the proposed levee vary between elevations 10-20 ft
13 NAVD88 at low areas to as high as 50 ft NAVD88. The area is drained by Old Fort Bayou.



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Figure 3.4.5-1.
Vicinity Map Jackson County, MS

1 **3.4.5.1 Option A - Elevation 20.0 ft NAVD88**

2 This option consists of constructing a levee to elevation 20 ft NAVD88 parallel to Highway 90 along
3 with the internal sub-basins and levee culvert/pump locations. The levee will be located mostly along
4 high ground so ponding at the levee would be minimal. Ponding will occur on the outside of the levee
5 which would require ditching to other drainage basins.

6 **3.4.5.2 Option B - Elevation 30.0 ft NAVD88**

7 The alignment of the levee is the same as Option A, above but with an elevation of 30.0 feet. The
8 only difference between the description of this option and preceding description of Option A is the
9 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
10 of the levee culverts.

11 **3.4.5.3 Option C - Elevation 40.0 ft NAVD88**

12 The alignment of the levee is the same as Option A, above but with an elevation of 40.0 feet. The
13 only difference between the description of this option and preceding description of Option A is the
14 height of the levee, pumping facilities, number of roadway and railroad intersections, and the length
15 of the levee culverts.

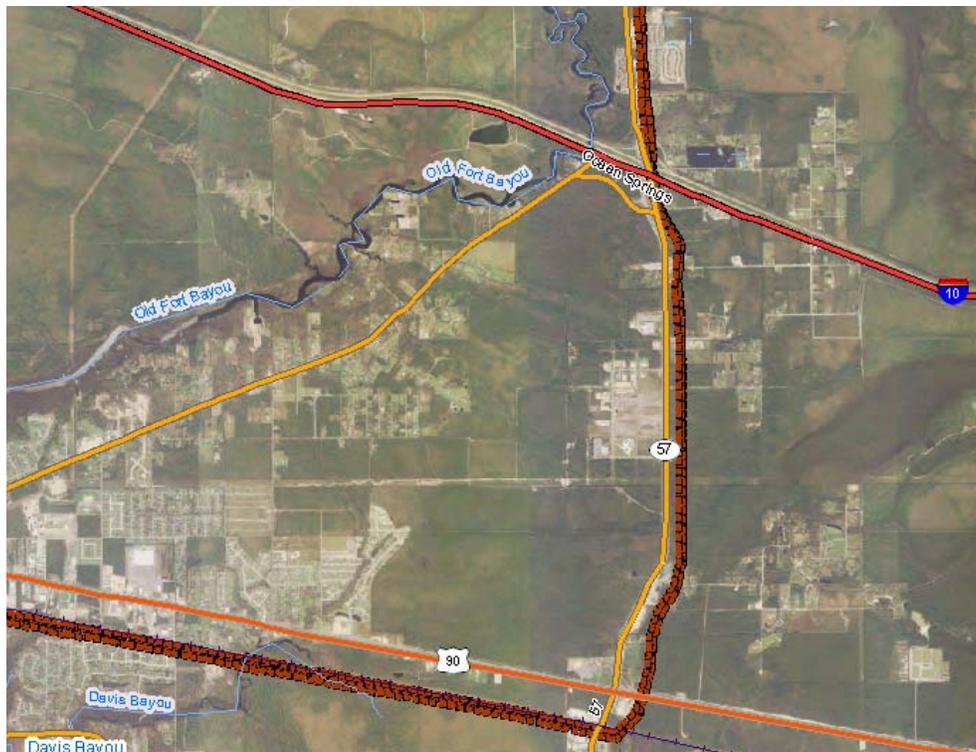
16 **3.4.5.4 Project Description**

17 The location of the proposed levee project is shown in Figures 3.4.5.4-1 through 3.4.5.4-3. As
18 described, the levee will be an earthen berm constructed either at elevation 20.0 feet, 30.0 or 40.0
19 feet along with the internal sub-basins and levee culvert/pump locations. Drainage on the interior of
20 the ring levee would be collected at the levee and channeled to culverts placed in the levee. The
21 culverts would have flap gates on the seaward ends to prevent backflow when the water in
22 Mississippi Sound is high. An additional closure gate would also be provided at every culvert in the
23 levee for control in the event the flap gate malfunctions. In addition, pumps would be constructed
24 near the outflow points to remove water from the interior during storm events occurring when the
25 culverts are closed because of high water in the sound. Drainage ditches along the toe of the levee
26 will be required to assure that smaller basins can be drained to a culvert/pump site. Figure 3.4.5.4-4
27 shows the proposed locations of the pump/culvert sites. During some hurricane events, when the
28 gates are shut, and rainfall exceeds the average 10-yr intensity over the basin, some ponding from
29 rainfall will occur. Further studies will detail the requirement for the appropriate ponding areas, pump
30 sizes, or buyouts in the affected areas. In order to prevent hurricane surges from circumventing the
31 levee, surge barrier gates would be constructed across both Biloxi Bay and St. Louis Bay. In the
32 event of an imminent hurricane, barrier gates across the Back Bay of Biloxi would be closed, and
33 flow from the Biloxi and Tchoutacabouffa Rivers, as well as local runoff would pond behind the
34 gates.



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Figure 3.4.5.4-1.
Jackson County Inland Barrier



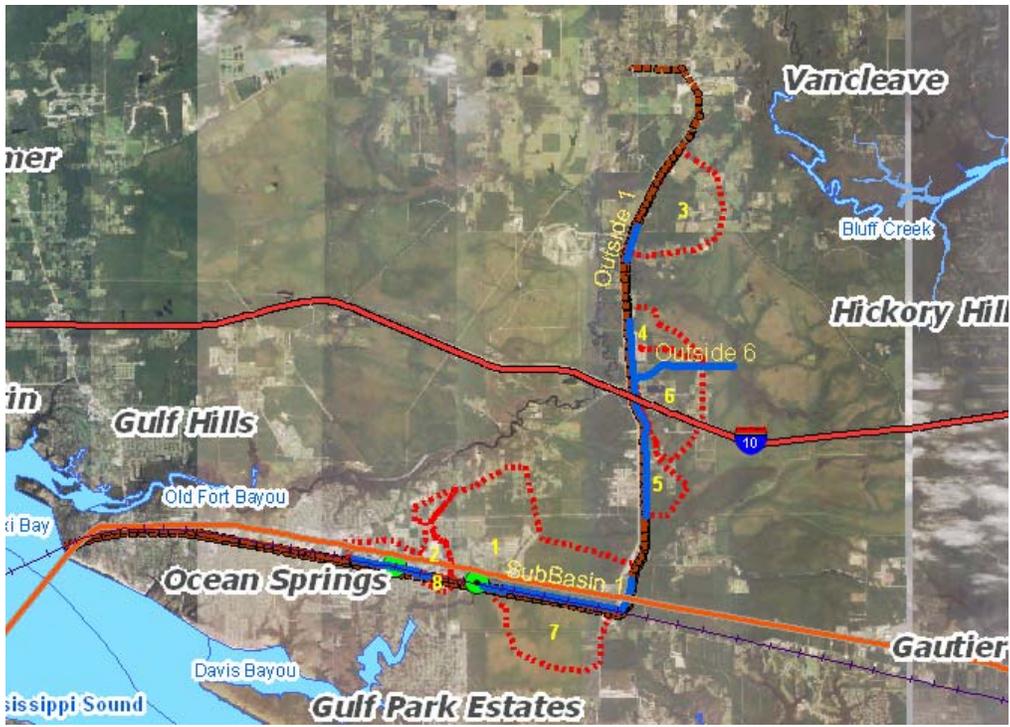
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Figure 3.4.5.4-2.
Jackson County Inland Barrier



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**Figure 3.4.5.4-3.
Jackson County Inland Barrier**



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**Figure 3.4.5.4-4.
Pump/Culvert/Sub-basin Site Locations**

1 The inland barrier earthen levee section will have one vertical to three horizontal side slopes with a
2 fifteen foot crest width. All work areas to receive fill shall be cleared and grubbed of all trees and
3 surface organics and all existing foundations, streets, utilities, etc. will be removed and the
4 subsequent cavities backfilled and compacted. The levee will be constructed of sand clay materials
5 obtained from off site commercial sources, and trucked to the work area. The final surface will be
6 armored by the placement of 24 inch thick gabion mattress filled with small stone for erosion
7 protection during an event that overtops the levee. The armoring will be anchored on the front face
8 by trenching and extend across the downstream slope and a 25 foot area beyond the toe. The front
9 side of the levee and all non critical surface areas will be subsequently covered by grassing. In order
10 to maintain the natural runoff patterns culverts would be inserted through the protection line at
11 appropriate locations. For Options A, B, and C, drainage features would be required at 2 locations
12 with the culvert requirement ranging from seven 7' wide by 3' high, to eleven 10' wide by 4; high
13 water passages. Each water passage would be fitted with both a flap gate at the outlet end and a
14 sluice gate placed near the center of the culvert with a vertical operator stem extending through an
15 access shaft to the top of levee elevation.

16 Road crossings will incorporate small gate structures or ramping over the embankment where the
17 surface elevation is near that of the crest elevation. The elevation relationship of the crest and the
18 adjacent railroad will be a governing factor. At each point where a roadway crosses the protection
19 line the decision must be made whether to maintain this artery and adapt the protection line to
20 accommodate it, or to terminate the artery at the protection line and divert traffic to cross the
21 protection line at another location. For this study it was assumed that all roadways and railways
22 crossing the levee alignment would be retained except where it was very evident that traffic could be
23 combined without undue congestion. Once the decision has been made to retain a particular
24 roadway, it must then be determined how best to configure the artery to conduct traffic across the
25 protection line. The simplest means of passing roadway traffic is to ramp the roadway over the
26 protection line. This alternative is not always viable because of severe right-of-way restraints caused
27 by extreme levee height, urban congestion, etc. In such instances other methods can be used
28 including partial ramping in combination with low profile roller gates. In more restricted areas full
29 height gates which would leave the roadway virtually unaltered might be preferable, even though this
30 alternative would usually be more costly than ramping. In some extreme circumstances where high
31 levees are required to pass through very congested areas, installation of tunnels with closure gates
32 may be required.

33 Because of the extreme gradient restrictions necessarily placed on railway construction, it is
34 practically never acceptable to elevate a railway up and over a levee. Therefore, the available
35 alternatives would include gated pass through structures. Because of the vertical clearance
36 requirements of railroad traffic all railroad pass through structures for this study were configured
37 having vertical walls on either side of the railway with double swing gates extending to the full height
38 of the levee. Roadway and railway intersections are not applicable to Option A, 20.0 and Option B,
39 30.0. At Option C, elevation 40.0, 3 roadway intersections would have to be accommodated. It was
40 determined that roller gate structures would suffice for all three of these locations.

41 There are two sites in Jackson County that would require special flood protection with the flood
42 protection level set at elevation 40, the court facilities located immediately south of the protection line
43 in downtown Biloxi and similar governmental facilities in downtown Moss Point. The Biloxi facilities
44 would require a three sided Tee Wall structure approximately 1410 feet long originating and
45 terminating in the levee at its northwest and northeast ends. It would be fitted with four face sealing
46 roller gates to close off the required street and driveway access points in time of flood. The Moss
47 Point Tee Wall would be similarly configured and would extend approximately 1552 feet. It would
48 require two roadway closure gates.

1 The features that require periodic operations will be the exercising of the pumps and emergency
2 generators at the various pump stations, the testing of the gate structures at the various road
3 crossings, grass cutting of the levee slopes and toe areas and the filling of rilled areas within the
4 embankment due to surface erosion. Scheduled maintenance should include periodic greasing of all
5 gears and coupled joints, maintaining any battery backup systems, and replacement of standby fuel
6 supplies.

7 **3.4.5.5 Real Estate Requirements**

8 Real Estate requirements for Line of Defense 4, Jackson County Levee include lands, easements,
9 rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to construct an
10 earthen levee, drainage ditches and 2 pump station facilities.

11 Based on the footprint of the Option A, 20.0 foot elevation, it was determined that approximately 323
12 parcels and 171 structures would be impacted. The acreage to be acquired for the levee is unknown.
13 It is known that the 2 pump stations will require approximately 0.23 of an acre each for a total of 0.46
14 of an acre. Lands required for construction of the levee will be acquired in fee simple interest. Based
15 on the number of structures being impacted, the assumption is that there will be 171 relocations.

16 Based on the footprint of the Option B, 30.0 foot elevation, it was determined that 361 parcels and
17 191 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
18 that the 2 pump stations will require approximately 0.23 of an acre each for a total of 0.46 of an acre.
19 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
20 number of structures being impacted, the assumption is that there will be 191 relocations.

21 Based on the footprint of the Option C, 40.0 foot elevation, it was determined that 404 parcels and
22 217 structures would be impacted. The acreage to be acquired for the levee is unknown. It is known
23 that the 2 pump stations will require approximately 0.23 of an acre each for a total of 0.46 of an acre.
24 Lands required for construction of the levee will be acquired in fee simple interest. Based on the
25 number of structures being impacted, the assumption is that there will be 217 relocations.

26 Any modifications to the roadways and utilities will most probably need to be accomplished through
27 a relocation contract. This will be further investigated and confirmed during PED.

28 Footprints for drainage ditches are not available at time of this report. However, from the figures it
29 appears that acquisition of additional lands for drainage ditches outside the footprint of the levee will
30 be minimal. Until final plans and specifications are completed, land requirements for drainage
31 ditches are assumed to be covered by contingency. This additional requirement will be determined
32 during PED.

33 During the formulation of the nonstructural (NS) measures and alternative plans, the NS PDT
34 became aware of local efforts by the leadership of Moss Point, MS to relocate several public
35 buildings out of the hurricane surge zone to a higher elevation within the municipal area. A series of
36 meetings with the Mayor of Moss Point and other city officials followed to work toward development
37 of a plan to relocate these facilities that are critical to the safety and continued operations of the local
38 government. As a result of the meetings the NS PDT developed a Pilot Relocations Project for Moss
39 Point, MS. The public buildings included in the pilot project are the city hall, police station, fire station
40 and community recreation center. As these structures are owned and operated by the City of Moss
41 Point and are considered essential to the operation of the city, they would therefore be eligible for
42 facility relocation. The description of the relocations measure, eligible facilities and costs are
43 included in the Nonstructural Appendix at Section 4.3.9.6 Pilot Moss Point Public Buildings
44 Relocations Project. Any substitute facilities relocations will be performed under a Real Estate
45 Relocation Contract. The cost for these relocations is captured in the Nonstructural Appendix but
46 final crediting would be considered as part of the LERRD credit.

1 An assumption is made that excavated materials from clearing, snagging, and construction of
2 ditches, etc. will be disposed of in county owned or commercial landfills. However, In the event that
3 the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if
4 disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate
5 would provide an analysis during PED to compare the cost of acquiring an upland disposal site with
6 the cost of using a commercial landfill and make a determination which method is most cost
7 effective.

8 The recommended plan proposes to use material from an inventory of upland borrow sites to
9 construct the levee. A specific site has not been identified or confirmed for use at time of this report.
10 Typically if borrow sites are required, this would be considered a part of the LERRD requirement.
11 Real Estate would provide an analysis during PED to compare the cost of acquiring an upland
12 borrow site with the cost of using a commercial borrow site and make a determination which method
13 is most cost effective. The requirement for temporary work areas is unknown. Sponsor owned lands
14 will be used if available. Otherwise, this may be an additional real estate requirement, and will be
15 further defined during PED.

16 **3.4.5.6 Utility/Facility Relocation**

17 The plan calls for roads to be ramped over the proposed levee and possible relocation of utilities. An
18 assumption is made that this work will be accomplished through a relocation contract. This will be
19 further investigated and confirmed during PED. As discussed above any municipal buildings
20 designated as essential to the operation of the city could be relocated as substitute facilities
21 relocations See Chapter 2 Section 2.10 for more detailed discussion, and the Nonstructural
22 Appendix at Section 4.3.9.6.

23 **3.4.5.7 Existing Projects/Studies**

24 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
25 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

26 **3.4.5.8 Environmental Impacts**

27 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix for
28 a full discussion on environmental effects.

29 **3.4.5.9 Project Sponsor Responsibilities and Capabilities**

30 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
31 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
32 all alterations and relocations of facilities, structures and improvements determined by the
33 government to be necessary for construction of the Project.

34 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
35 the United States Government. Prior to advertisement of any construction contract, the NFS shall
36 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
37 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
38 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
39 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
40 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
41 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
42 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
43 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the

1 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
2 Real Estate Appendix. The assessment will be made during PED phase.

3 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
4 lands it provides and the value of the relocations that are required for the project. Generally, for the
5 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
6 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
7 non-federal sponsor provided for the project as required by the Government. The NFS cannot
8 receive credit for the value of any LER, including incidental costs, which were previously provided as
9 an item of cooperation for another Federal project, including projects that preceded enactment of
10 WRDA 1986.

11 **3.4.5.10 Government Owned Property**

12 There are 7-8 Government owned parcels within the footprint of the project that will be impacted
13 depending on the option recommended for construction. In viewing the footprint, it is noted that the
14 parcels will be impacted where they abut Highway 90 and Highway 57. The parcels may be
15 impacted by approximately 10-30%. Land values are listed in the public records, but no improvement
16 values are listed. Ownership is listed in public records as United States of America and USA Dept of
17 the Navy. Specific impacts to Government owned lands will be determined during PED.

18 **3.4.5.11 Historical Significance**

19 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
20 on cultural and archaeological resources.

21 **3.4.5.12 Mineral Rights**

22 There are no known mineral activities within the scope of the proposed project.

23 **3.4.5.13 Hazardous, Toxic, and Radioactive Waste (HTRW)**

24 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
25 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
26 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

27 **3.4.5.14 Public Law 91-646, Relocation Assistance Benefits**

28 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
29 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
30 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
31 result of programs designed for the benefits of the public as a whole. A qualified displaced person
32 may be entitled to certain relocation assistance benefits which include reimbursement of moving
33 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
34 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
35 types - purchase supplement, rental assistance and down payment. All replacement housing must
36 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

37 It is estimated that there are approximately 171 relocations in Option A, approximately 191
38 relocations in Option B, and approximately 217 relocations in Option C. No relocation plan has been
39 completed nor has a relocation survey been done. All estimates are based on information from
40 county public records. The number of business relocations as compared to residential relocations is

1 unknown. In order to accomplish the relocation activity in a timely manner, the plan set forth in
2 Chapter 2. Section 2.5 can be used.

3 **3.4.5.15 Attitude of Property Owners**

4 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
5 However, numerous public meetings have been held at different locations throughout the study area
6 to inform stakeholders and property owners about the study and the protective measures under
7 consideration for the Mississippi coastal area. A number of local newspapers have published articles
8 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
9 may occur as a result of the project. Some of these articles can be found on web sites. While many
10 of the locals may welcome the benefits of the proposed project, there are some who oppose the
11 project.

12 **3.4.5.16 Acquisition Schedule**

13 An acquisition schedule will be developed when plans and specifications become available and
14 more definite information is available pertaining to the specific areas and number of parcels for
15 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
16 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
17 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
18 completed certification of lands acquired/owned by the sponsor will be necessary prior to
19 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
20 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
21 implementation/management plan.

22 **3.4.5.17 Estates for Proposed Project**

23 All lands required for the levee will be acquired in Fee Simple. Should a borrow site be required, the
24 Borrow Easement will be used. The Temporary Work Area Easement will be used for staging or
25 temporary work areas, and the Drainage Ditch Easement will be used for construction of any
26 drainage ditches outside the footprint of the levee as required. The estates recommended are
27 standard estates.

28 **FEE.**

29 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
30 subject, however, to existing easements for public roads and highways, public utilities, railroads and
31 pipelines.

32 **BORROW EASEMENT.**

33 A (temporary) (perpetual and assignable) right and easement to clear, borrow, excavate and remove
34 sand, soil, dirt, and other materials from (the land described in Schedule A) (Tracts Nos. _____,
35 _____ and _____); subject, however, to existing easements for public roads and highways, public
36 utilities, railroads and pipelines; reserving, however, to the landowners, their heirs and assigns, all
37 such rights and privileges in said land as may be used without interfering with or abridging the rights
38 and easement hereby acquired.

39

40 **TEMPORARY WORK AREA EASEMENT.**

1 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
 2 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
 3 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
 4 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
 5 backfill, move, store and remove equipment and supplies, and erect and remove temporary
 6 structures on the land and to perform any other work necessary and incident to the construction of
 7 the _____ Project, together with the right to trim, cut, fell and remove there from
 8 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
 9 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
 10 rights and privileges as may be used without interfering with or abridging the rights and easement
 11 hereby acquired; subject, however, to existing easements for public roads and highways, public
 12 utilities, railroads and pipelines.

13 **DRAINAGE DITCH EASEMENT.**

14 A perpetual and assignable easement and right-of-way in, over and across (the land described in
 15 Schedule A) (Tracts Nos. _____, _____ and _____) to construct, maintain, repair, operate, patrol and
 16 replace a drainage ditch, reserving, however, to the owners, their heirs and assigns, all such rights
 17 and privileges in the land as may be used without interfering with or abridging the rights and
 18 easement hereby acquired; subject, however, to existing easements for public roads and highways,
 19 public utilities, railroads and pipelines.

20 **3.4.5.18 Real Estate Estimate**

21 A summary of the cost for each option is at Table 3.4.5.18-1. The real estate estimates at Tables
 22 3.4.5.18-2 through 3.4.5.18-4 include the land cost for acquisition of land, relocation benefits to
 23 include a replacement housing payment and fixed rate move expenses, and Federal and non-
 24 Federal administrative costs. Administrative costs are those costs incurred for verifying ownership of
 25 lands, certification of those lands required for project purposes, legal opinions, analysis or other
 26 requirements that may be necessary, during PED. No cost is included for a borrow site or temporary
 27 work area. The requirement, if any, for a borrow site or temporary work area will be identified during
 28 PED. If further real estate requirements are identified during PED or if there is a significant increase
 29 in cost, a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to
 30 the current estimate.

31 **Table 3.4.5.18-1.**
 32 **Real Estate Cost Summary**

Option	Impacted Parcels	Relocations	Total Cost
Option A - 20.0	323	171	58,506,00 0
Option B - 30.0	361	191	66,571,00 0
Option C - 40.0	404	217	76,231,00 0

33

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**Table 3.4.5.18-2.
LOD4 Jackson County Inland Barrier - Option A 20.0 Estimate**

a. Lands and Improvements/Permits				
321 Ownerships for Levee, 171 Improvements				33,383,509
2 Pump Stations				77,517
323 Ownerships			Subtotal	33,461,026
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 171 relocations				4,793,600
e. Administrative Cost				8,550,000
		Relocation	Acquisition	Total
	Federal	256,500	807,500	1,064,000
	Non-Federal	1,026,000	6,460,000	7,486,000
		<u>1,282,500</u>	<u>7,267,500</u>	8,550,000
Subtotal				46,804,626
Contingencies (25%)				11,701,157
		Totals		58,505,783
		Rounded		58,506,000

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4

**Table 3.4.5.18-3.
LOD4 Jackson County Inland Barrier - Option B 30.0 Estimate**

a. Lands and Improvements/Permits				
359 Ownerships for Levee, 191 Improvements				38,270,710
<u>2 Pump Stations</u>				77,517
361 ownerships			Subtotal	38,348,227
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 191 relocations				5,353,600
e. Administrative Cost				9,555,000
		Relocation	Acquisition	Total
	Federal	286,500	902,500	1,189,000
	Non-Federal	1,146,000	7,220,000	8,366,000
		<u>1,432,500</u>	<u>8,122,500</u>	9,555,000
Subtotal				53,256,827
Contingencies (25%)				13,314,207
		Totals		66,571,034
		Rounded		66,571,000

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**Table 3.4.5.18-4.
LOD4 Jackson County Inland Barrier - Option C 40.0 Estimate**

a. Lands and Improvements/Permits				
	402 Ownerships for Levee, 217 Improvements			44,096,883
	<u>2 Pump Stations</u>			77,517
	404 Ownerships		Subtotal	44,174,400
b. Mineral Rights				
c. Damages				
d. P.L. 91-646 Relocation costs – 217 relocations				
e. Administrative Cost				
		Relocation	Acquisition	Total
	Federal	325,500	1,010,000	1,335,500
	Non-Federal	1,302,000	8,080,000	9,382,000
		1,627,500	9,090,000	10,717,500
Subtotal				60,984,700
Contingencies (25%)				15,246,175
Totals				76,230,875
Rounded				76,231,000

3

4 **3.4.5.19 Summary of Potential Real Estate Issues**

5 The requirement for temporary work areas, disposal or borrow areas has not been identified. Should
6 these areas be required, these would be considered as part of the LERRD requirements. Typically if
7 disposal or borrow sites are required, Real estate would provide an analysis during PED to compare
8 the cost of acquiring an these sites with the cost of using a commercial sites and make a
9 determination which method is most cost effective. See Section 2.8 Borrow Areas on page 5.

10 Should drainage ditches, temporary work areas, disposal or borrow areas become a necessary real
11 estate acquisition requirement, valuation of lands will be performed. Land costs associated with
12 these areas, and administrative costs will be added to the Real Estate Cost Estimate. If further real
13 estate requirements are identified during PED or if there is a significant increase in cost, a
14 supplement to the Real Estate Appendix will be prepared.

15 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
16 completed during PED.

17 Any requirement for mitigation lands will be identified during PED.

18 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
19 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
20 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
21 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

22 A relocation plan will need to be completed during PED to address potential relocation activity under
23 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both

1 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 2 housing replacement payments, are very likely due to the size of the project and the lack of available
 3 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 4 schedule is the cost of business relocations. Depending on the type of business and the operation,
 5 this could involve moving equipment and machinery to new locations. It is necessary to interview
 6 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 7 determine the requirements for relocation and to estimate a cost for the relocation.

8 **3.4.5.20 Chart of Accounts**

9 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 10 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 11 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 12 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 13 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 14 Tables 3.4.5.20-1 through 3.4.5.20-3 shows the CWBS for real estate activities.

15 **Table 3.4.5.20-1.**
 16 **Chart of Accounts LOD4 Jackson County Inland Barrier - Option A 20.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	807,500		807,500
01B20	Acquisition by NFS		6,460,000	6,460,000
01BX	Contingencies (25%)	<u>201,875</u>	<u>1,615,000</u>	<u>1,816,875</u>
	Subtotal	1,009,375	8,075,000	9,084,375
01F	PL 91-646 Assistance			
01F20	By NFS		1,026,000	1,026,000
01FX	Contingencies (25%)		<u>256,500</u>	<u>256,500</u>
	Subtotal		1,282,500	1,282,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		33,461,026	33,461,026
01R2B	PL91-646 Relocation Payment by NFS		4,793,600	4,793,600
01R2D	Review of NFS	256,500		256,500
01RX	Contingencies (25%)	<u>64,125</u>	<u>9,563,657</u>	<u>9,627,782</u>
	Subtotal	320,625	47,818,283	48,138,908
	Totals	1,330,000	57,175,783	58,505,783
	Rounded			58,506,000

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**Table 3.4.5.20-2.
Chart of Accounts LOD4 Jackson County Inland Barrier - Option B 30.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	902,500		902,500
01B20	Acquisition by NFS		7,220,000	7,220,000
01BX	Contingencies (25%)	<u>225,625</u>	<u>1,805,000</u>	<u>2,030,625</u>
	Subtotal	1,128,125	9,025,000	10,153,125
01F	PL 91-646 Assistance			
01F20	By NFS		1,146,000	1,146,000
01FX	Contingencies (25%)		<u>286,500</u>	<u>286,500</u>
	Subtotal		1,432,500	1,432,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		38,348,227	38,348,227
01R2B	PL91-646 Relocation Payment by NFS		5,353,600	5,353,600
01R2D	Review of NFS	286,500		286,500
01RX	Contingencies (25%)	<u>71,625</u>	<u>10,925,457</u>	<u>10,997,082</u>
	Subtotal	358,125	54,627,284	54,985,409
	Totals	1,486,250	65,084,784	66,571,034
	Rounded			66,571,000

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**Table 3.4.5.20-3.
Chart of Accounts LOD4 Jackson County Inland Barrier - Option C 40.0**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	1,010,000		1,010,000
01B20	Acquisition by NFS		8,080,000	8,080,000
01BX	Contingencies (25%)	<u>252,500</u>	<u>2,020,000</u>	<u>2,272,500</u>
	Subtotal	1,262,500	10,100,000	11,362,500
01F	PL 91-646 Assistance			
01F20	By NFS		1,302,000	1,302,000
01FX	Contingencies (25%)		<u>325,500</u>	<u>325,500</u>
	Subtotal		1,627,500	1,627,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		44,174,400	44,174,400
01R2B	PL91-646 Relocation Payment by NFS		6,092,800	6,092,800
01R2D	Review of NFS	325,500		325,500
01RX	Contingencies (25%)	<u>81,375</u>	<u>12,566,800</u>	<u>12,648,175</u>
	Subtotal	406,875	62,834,000	63,240,875
	Totals	1,669,375	74,561,500	76,230,875
	Rounded			76,231,000

3

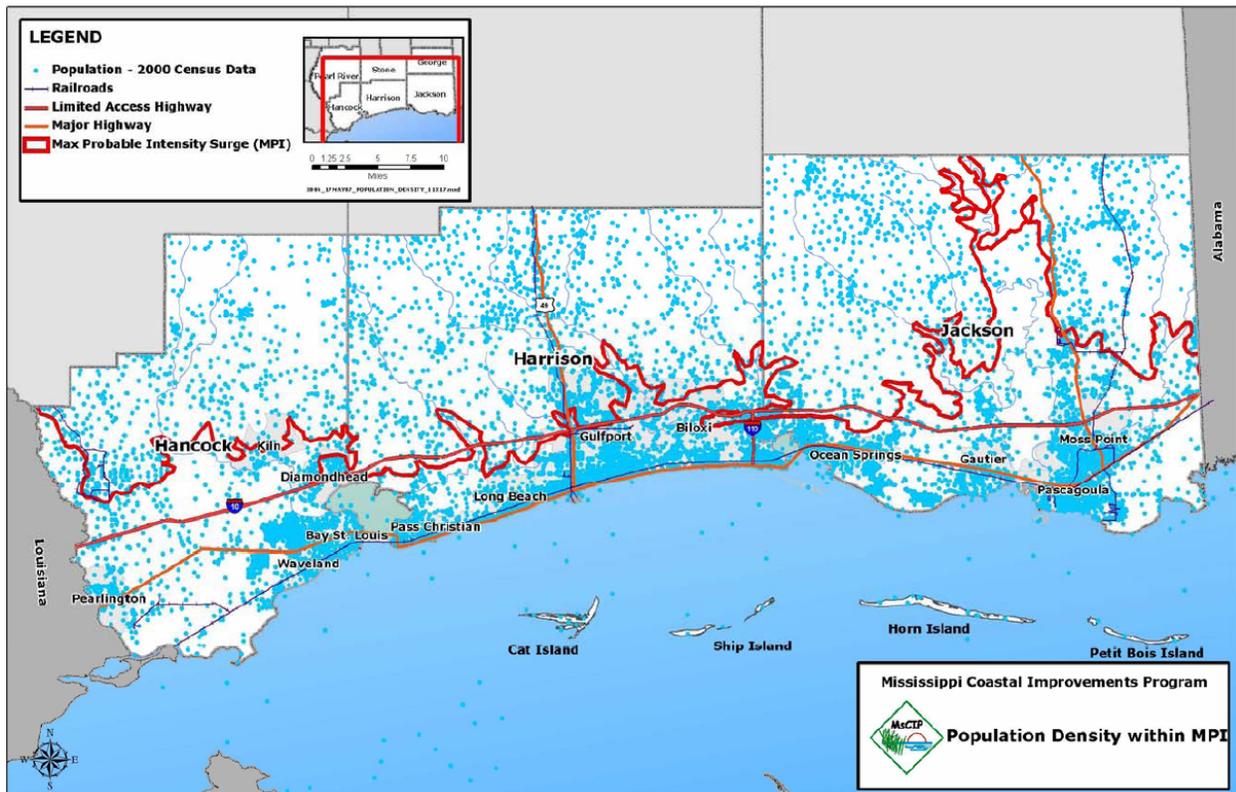
4 **3.5 Line of Defense 5 - Retreat and/or Relocation of Critical**
5 **Facilities**

6 Hurricanes are a naturally occurring phenomena that wreak havoc on natural and man-made
7 environments through three different but related mechanisms: torrential rainfall, high winds, and
8 storm surge. While each of these can produce costly outcomes in their own right, storm surge is
9 typically the most damaging and particularly deadly. It is also the most difficult and costly to provide
10 enduring and confident protection against. However, if one cannot be reached by storm surge by
11 virtue of being on ground at elevation higher than any storm surge might reach, one cannot be
12 directly damaged by it. The limit of storm surge represents the first line of avoidance to hurricane
13 related damages. It therefore makes sense to identify the potential inland limit of storm surge so that
14 prudent choices might be made by any and all regarding their exposure to damage by storm surge.

15 The primary measures identified for the project area include permanent acquisitions, flood proofing
16 by elevation and other means, relocations of public buildings, flood preparedness and evacuation
17 planning, public education, changes in the current municipal and county NFIP and building codes,
18 implementation of either a transfer of development rights or purchase of development rights
19 program, potential changes in zoning ordinances, development impact fees, and redirection of new
20 development. These measures have been combined into several plans that can be implemented by
21 either agencies of the Federal government or collaboratively by those agencies and state, county
22 and local governmental units. In several cases, only local jurisdictions can implement some of the
23 measures identified.

1 Computer simulations have predicted how far inland storm surge will extend if the worse-case
 2 hurricane or maximum possible intensity (MPI) event hits the Mississippi coast.

3 This line of defense is shown in Figure 3.5-1. This line represents a line of safety where homes,
 4 facilities or transportation routes north of this line should not be directly damaged by storm surge.
 5 This would be an area where hospitals, schools, emergency response and management facilities,
 6 power stations, water supply facilities, or other critical infrastructure might be located. It would also
 7 represent an area whereby future development (commercial, industrial, or residential) might be
 8 redirected. The maximum water level along the Mississippi coastline was determined to be
 9 approximately 30 ft along the entire western half of the state and east of Pascagoula. The landward
 10 extent of the inundation indicates the storm surge reaches Interstate 10 for much of the western
 11 portion of the state. Lower peaks near Biloxi and Mobile Bay (24-27 ft) may be attributed to the
 12 protection afforded by the barrier islands. The line of defense accordingly approximates the 24 to
 13 30 ft. (NAVD '88 datum) contours.



14
 15 **Figure 3.5-1.**
 16 **Maximum Probable Intensity Storm Surge Limits**

17 The area seaward of the line of defense is occupied by natural, rural, suburban, and urban
 18 environments and residential, commercial, and industrial development. Approximately 1/3 (visually
 19 estimated) of the coastal county areas fall within the estimated surge limits. With the exceptions of
 20 seawalls fronting Harrison County, Bay St. Louis, and the city of Pascagoula, there are no hurricane
 21 storm damage reduction structures in place. These structures provide little inundation protection
 22 over what the natural ground elevation would provide for and do not provide hurricane protection for
 23 surge events approaching or exceeding the 1 in 100 annual chance event.

1 There are no alternative alignments to this line of defense. The line of defense alignment could be
2 changed or modified due to any of the following: (a) revised hydrodynamic modeling results; (b) the
3 construction of storm damage reduction measures, such as levees and/or storm surge barriers;
4 (c) sea level rise; (d) construction of other infrastructure (e.g. roadway embankments) that might
5 materially obstruct or alter surge flow pathways.

6 A thorough discussion of non-structural alternative measures is provided in the Non-Structural
7 Measures Plan Formulation Appendix.

8 No real estate plan has been prepared for this line of defense as specific sites for relocation of
9 facilities have not been identified. A plan will be prepared during PED should this plan be approve for
10 implementation.

11

CHAPTER 4. NONSTRUCTURAL

Flood damage reduction measures are divided into two distinct components: structural and nonstructural. Application of nonstructural measures or those measures directly associated with modifying the location, construction or operation of property, structures, and facilities located in hazard areas is one method of reducing storm/hurricane-related damages and saving lives that are at-risk. There are numerous nonstructural methods, but the Real Estate Appendix focuses on permanent evacuation of the hazard areas.

Permanent acquisition of coastal properties is an effective way to reduce flood damages and loss of life due to hurricane surge drowning. Existing properties with or without structures can be purchased under the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646). Permanent acquisition furthers the objectives of migrating the population northward and away from the coast. This nonstructural measure would be applied to a quilt-like, land use pattern of residential, commercial, and institutional uses as well as both occupied and vacant parcels. The purpose of purchasing vacant parcels is to prevent future building on those parcels. Post-acquisition use of the land could include wetland habitat restoration, recreation or open space uses that would not result in re-establishment of damageable property,

4.1 Hancock County Acquisition

4.1.1 Project Description

High Hazard Zones: The nonstructural project delivery team (PDT) identified several zones within the project area, where due to extreme forces generated by storms and hurricanes, other measures such as elevation of an existing or rebuilt structure would not be prudent and may endanger the future occupants. Within these zones, successful emergency evacuation during a storm event would be highly improbable and dangerous for the responders, elevated structures may be prone to foundation failures due to waves and surge, elevation by placed fill material is prohibited or infeasible, and non-elevated structures would likely suffer total or significant losses. Each of these zones was graphically identified using GIS mapping and FEMA database information. There are three identified zones where permanent acquisition and evacuation of the property is the preferred nonstructural treatment. Those zones are:

The FEMA-identified V/VE Zone displayed on the National Flood Insurance Rate Maps (FIRM) within the project area. This “Velocity” water zone features high-energy wave action that was responsible for much of the building damages during the Katrina event and makes elevating structures or otherwise flood-proofing structures in-place very dangerous.

The FEMA-identified “catastrophic damages zone” which was identified in a “post-Katrina” damage assessment of FEMA insured structures within the project area. This zone included a preponderance of insured structures that had received damages in excess of 50% of the structure’s value. Field observations by the nonstructural PDT confirmed that most of those structures in the zone had been totally destroyed or severely damaged (major structural damages). This area includes the V/VE zone within its boundaries.

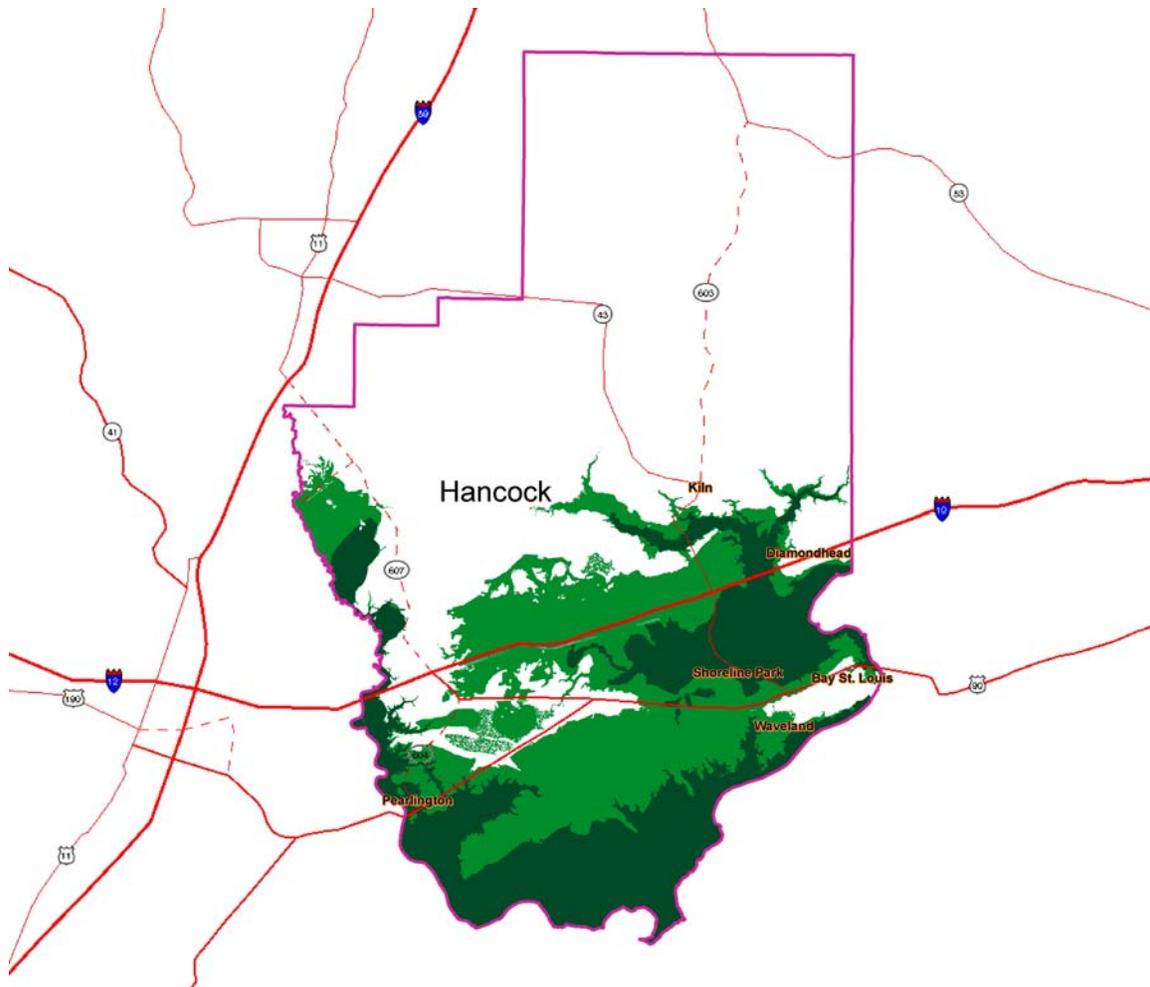
A flood damage zone was delineated extending 800 feet back from the beachfront within portions of Jackson County. The aforementioned “catastrophic damage zone” established by FEMA was based upon the Katrina event only and therefore did not account for the area of damages that could be expected along Jackson County should a Katrina-like storm strike at that location. The 800 feet zone approximated the spatial extent of observed total structure loss and severe structural damages

1 observed within Hancock and Harrison counties located closer to the Katrina landfall. Modifications
2 of this zone's extent from the waterline could be made to account for intervening topography that
3 would limit the impacts of surge and waves.

4 The preferred nonstructural measure in these three high-hazard zones would be permanent
5 acquisition of the property under the general provisions of the Uniform Act. Relocations assistance
6 would be provided to residential landowners and/or tenants of the property to locate and secure
7 suitable replacement housing. Remaining structures, pavements, foundations and utilities on the
8 acquired parcel would be demolished and removed to approved landfills. The acquired property
9 could be reused for ecosystem restoration (wetlands), recreation or other purposes that would be in
10 keeping with the identified flood hazards, the National Flood Insurance Program (NFIP) and the
11 provisions of the Project Cooperation Agreement (PCA). The acquired property would be transferred
12 to a local project sponsor for future Operations, Maintenance, Repair, Replacement, and
13 Rehabilitation (OMRR&R).

14 A High Hazard Area Risk Reduction Plan (HARP) is currently being considered as a component of
15 the comprehensive plan to address hurricane and storm damage reduction for certain areas within
16 the Advisory Base Flood Elevation (ABFE) zones along the coast defined as high hazard areas. This
17 plan which is supported by the State of Mississippi contemplates acquisitions in identified areas
18 within Hancock, Harrison and Jackson Counties that should be considered for acquisition anticipated
19 to begin in FY 2010 to facilitate relocation of homeowners outside the ABFE prior to their rebuilding.
20 The plan under consideration is not specifically reflected in the nonstructural portion of the Real
21 Estate Appendix. However, the HARP is incorporated in the report at Exhibit "C" to the Real Estate
22 Appendix. Should the plan be authorized, significant adjustments will have to be made to the real
23 estate costs for the acquisition areas initially identified in the MsCIP report.

24 **Non-Flood-proofing Zones:** The nonstructural PDT also identified one additional zone within the
25 project area where the preferred method of flood damage reduction would be permanent acquisition
26 and evacuation of the property. This zone is located where water depths at the individual structure
27 location occurring during the specified inundation event would exceed the maximum height of
28 elevation prescribed by FEMA's 550 Guidelines for structure elevation. Those guidelines indicate
29 that elevating structures more than 15 feet from the ground surface in hurricane areas would place
30 the elevated structure in high-velocity hurricane force winds resulting in significant damages to the
31 building. Any structure that would be required to be elevated more than 15 feet to place the first
32 habitable or sales floor above the specified inundation level would be acquired. Using GIS software,
33 a zone of inundation deeper than 13 feet (plus 2 feet of freeboard equals 15 feet) was identified
34 within the project area where permanent acquisition would be the preferred method of nonstructural
35 protection. The area for which permanent acquisition is recommended in Hancock County is shown
36 in Figure 4.1.1-1. The acquisition area is shaded in dark green.



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**Figure 4.1.1-1.
Location of Acquisition Areas in Hancock County (dark green)**

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4.1.2 Real Estate Requirements

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Real Estate requirements for the Nonstructural Acquisition in Hancock County include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to acquire in fee simple approximately 17,845 impacted parcels and 10,192 structures. The project is divided into 9 reaches. The reaches are identified below in Table 4.1.2-1. Based on the number of structures being impacted, the assumption is that there will be 10,192 relocations to include residences and businesses. The plan calls to use an “approved landfill” for disposal of the demolished structures. An assumption is made that the excavated material will be disposed of in commercial or county landfills. In the event that the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an upland disposal site with the cost of using a commercial landfill and make a determination which method is most cost effective.

**Table 4.1.2-1.
Hancock County Acquisition Reaches**

Reach	Impacted Parcels	Impacted Structures
1	997	268
2	9,911	7,133
3	2,202	1,326
4	922	373
5	2,714	447
6	567	540
7	450	79
36	32	2
38	50	24
Total	17,845	10,192

4.1.3 Utility/Facility Relocation

Specific information about relocation of utilities/facilities is unknown at this time. An assumption is made that if required, this work will be accomplished through a relocation contract. This will be further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

4.1.4 Existing Projects/Studies

Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation and Section 1.7, Prior and On-Going Studies, Reports and Programs.

4.1.5 Environmental Impacts

See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix, for a full discussion on environmental effects.

4.1.6 Project Sponsor Responsibilities and Capabilities

The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish all alterations and relocations of facilities, structures and improvements determined by the government to be necessary for construction of the Project.

Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to the United States Government. Prior to advertisement of any construction contract, the NFS shall furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the Real Estate Appendix. The assessment will be made during PED phase.

1 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
2 lands it provides and the value of the relocations that are required for the project. Generally, for the
3 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
4 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
5 non-federal sponsor provided for the project as required by the Government. The NFS cannot
6 receive credit for the value of any LER, including incidental costs, which were previously provided as
7 an item of cooperation for another Federal project, including projects that preceded enactment of
8 WRDA 1986.

9 **4.1.7 Government Owned Property**

10 There are approximately 35 Government owned parcels within the footprint of the project proposed
11 for acquisition in Hancock County. These lands are in the vicinity of the John C. Stennis Space
12 Center, or within lands shown as NASA Restricted Area on a state map. Land and structure values
13 are not listed in the public records. Ownership is listed in public records as USA. Specific impacts to
14 Government owned lands and/or structures will be determined during PED.

15 **4.1.8 Historical Significance**

16 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
17 on cultural and archaeological resources.

18 **4.1.9 Mineral Rights**

19 There are no known mineral activities within the scope of the proposed project.

20 **4.1.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

21 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
22 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
23 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

24 **4.1.11 Public Law 91-646, Relocation Assistance Benefits**

25 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
26 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
27 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
28 result of programs designed for the benefits of the public as a whole. A qualified displaced person
29 may be entitled to certain relocation assistance benefits which include reimbursement of moving
30 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
31 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
32 types - purchase supplement, rental assistance and down payment. All replacement housing must
33 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

34 It is estimated that there are approximately 10,192 relocations in Hancock County. No relocation
35 plan has been completed nor has a relocation survey been done. All estimates are based on
36 information from county public records. The number of business relocations as compared to
37 residential relocations is unknown. The availability of decent safe and sanitary housing is a potential
38 problem. Large scale construction of new residences will most likely be required. In order to
39 accomplish the relocation activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can
40 be used.

1 **4.1.12 Attitude of Property Owners**

2 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
3 However, numerous public meetings have been held at different locations throughout the study area
4 to inform stakeholders and property owners about the study and the protective measures under
5 consideration for the Mississippi coastal area. A number of local newspapers have published articles
6 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
7 may occur as a result of the project. Some of these articles can be found on web sites. While many
8 of the locals may welcome the benefits of the proposed project, there are some who oppose the
9 project.

10 **4.1.13 Acquisition Schedule**

11 An acquisition schedule will be developed when plans and specifications become available and
12 more definite information is available pertaining to the specific areas and number of parcels for
13 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
14 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
15 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
16 completed certification of lands acquired/owned by the sponsor will be necessary prior to
17 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
18 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
19 implementation/management plan.

20 **4.1.14 Estates for Proposed Project**

21 All lands acquired in the buy-out area will be acquired in Fee Simple. The Temporary Work Area
22 Easement will be used for a disposal site if required. The estates recommended are standard
23 estates.

24 **FEE.**

25 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
26 subject, however, to existing easements for public roads and highways, public utilities, railroads and
27 pipelines.

28 **TEMPORARY WORK AREA EASEMENT.**

29 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
30 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
31 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
32 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
33 backfill, move, store and remove equipment and supplies, and erect and remove temporary
34 structures on the land and to perform any other work necessary and incident to the construction of
35 the _____ Project, together with the right to trim, cut, fell and remove there from
36 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
37 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
38 rights and privileges as may be used without interfering with or abridging the rights and easement
39 hereby acquired; subject, however, to existing easements for public roads and highways, public
40 utilities, railroads and pipelines.

1 **4.1.15 Real Estate Estimate**

2 The real estate cost estimate at Table 4.1.15-1 includes the land cost for acquisition of land,
 3 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
 4 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
 5 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
 6 analysis or other requirements that may be necessary, during PED. No cost is included for a
 7 disposal site. The requirement, if any, for a disposal site will be identified during PED. If further real
 8 estate requirements are identified during PED or if there is a significant increase in cost, a
 9 supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to the
 10 current estimate.

11 **Table 4.1.15-1.**
 12 **Hancock County Acquisitions Estimate**

a. Lands and Improvements/Permits				
				2,630,117,775
				0
			Subtotal	2,630,117,775
b. Mineral Rights				
				0
c. Damages				
				0
d. P.L. 91-646 Relocation costs – 10,192 relocations				
				285,376,000
e. Administrative Cost				
				477,952,500
		Relocation	Acquisition	Total
Federal		15,288,000	44,612,500	59,900,500
Non-Federal		61,152,000	356,900,000	418,052,000
			0	
		76,440,000	401,512,500	477,952,500
			0	
Subtotal				
				3,393,446,275
Contingencies (25%)				
				848,361,569
Totals				4,241,807,844
Rounded				4,241,808,000

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 14 **4.1.16 Summary of Potential Real Estate Issues**

15 In the event that the excavated material is not suitable for a landfill a disposal site will have to be
 16 acquired. Typically if disposal sites are required, this would be considered as part of the LERRD
 17 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
 18 upland disposal site with the cost of using a commercial landfill and make a determination which
 19 method is most cost effective.

1 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
2 completed during PED.

3 If the nonstructural acquisition measure is approved, additional time would need to be allowed for
4 staffing up to handle the increased workload for the large number of acquisitions.

5 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
6 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
7 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
8 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

9 A relocation plan will need to be completed during PED to address potential relocation activity under
10 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
11 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
12 housing replacement payments, are very likely due to the size of the project and the lack of available
13 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
14 schedule is the cost of business relocations. Depending on the type of business and the operation,
15 this could involve moving equipment and machinery to new locations. It is necessary to interview
16 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
17 determine the requirements for relocation and to estimate a cost for the relocation.

18 The availability of decent safe and sanitary housing is a potential problem. Large scale construction
19 of new residences will most likely be required.

20 **4.1.17 Chart of Accounts**

21 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
22 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
23 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
24 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
25 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
26 Table 4.1.17-1 shows the CWBS for real estate activities.

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**Table 4.1.17-1.
Chart of Accounts - Hancock County Acquisitions**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	44,612,500		44,612,500
01B20	Acquisition by NFS		356,900,000	356,900,000
01BX	Contingencies (25%)	<u>11,153,125</u>	<u>89,225,000</u>	<u>100,378,125</u>
	Subtotal	55,765,625	446,125,000	501,890,625
01F	PL 91-646 Assistance			
01F20	By NFS		61,152,000	61,152,000
01FX	Contingencies (25%)		<u>15,288,000</u>	<u>15,288,000</u>
	Subtotal		76,440,000	76,440,000
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		2,630,117,775	2,630,117,775
01R2B	PL91-646 Relocation Payment by NFS		285,376,000	285,376,000
01R2D	Review of NFS	15,288,000		15,288,000
01RX	Contingencies (25%)	<u>3,822,000</u>	<u>728,873,444</u>	<u>732,695,444</u>
	Subtotal	19,110,000	3,644,367,219	3,663,477,219
	Totals	74,875,625	4,166,932,219	4,241,807,844
	Rounded			4,241,808,000

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4.2 Harrison County Acquisition

4.2.1 Project Description

High Hazard Zones: The nonstructural project delivery team (PDT) identified several zones within the project area, where due to extreme forces generated by storms and hurricanes, other measures such as elevation of an existing or rebuilt structure would not be prudent and may endanger the future occupants. Within these zones, successful emergency evacuation during a storm event would be highly improbable and dangerous for the responders, elevated structures may be prone to foundation failures due to waves and surge, elevation by placed fill material is prohibited or infeasible, and non-elevated structures would likely suffer total or significant losses. Each of these zones was graphically identified using GIS mapping and FEMA database information. There are three identified zones where permanent acquisition and evacuation of the property is the preferred nonstructural treatment. Those zones are:

The FEMA-identified V/VE Zone displayed on the National Flood Insurance Rate Maps (FIRM) within the project area. This “Velocity” water zone features high-energy wave action that was responsible for much of the building damages during the Katrina event and makes elevating structures or otherwise flood-proofing structures in-place very dangerous.

The FEMA-identified “catastrophic damages zone” which was identified in a “post-Katrina” damage assessment of FEMA insured structures within the project area. This zone included a preponderance of insured structures that had received damages in excess of 50% of the structure’s value. Field

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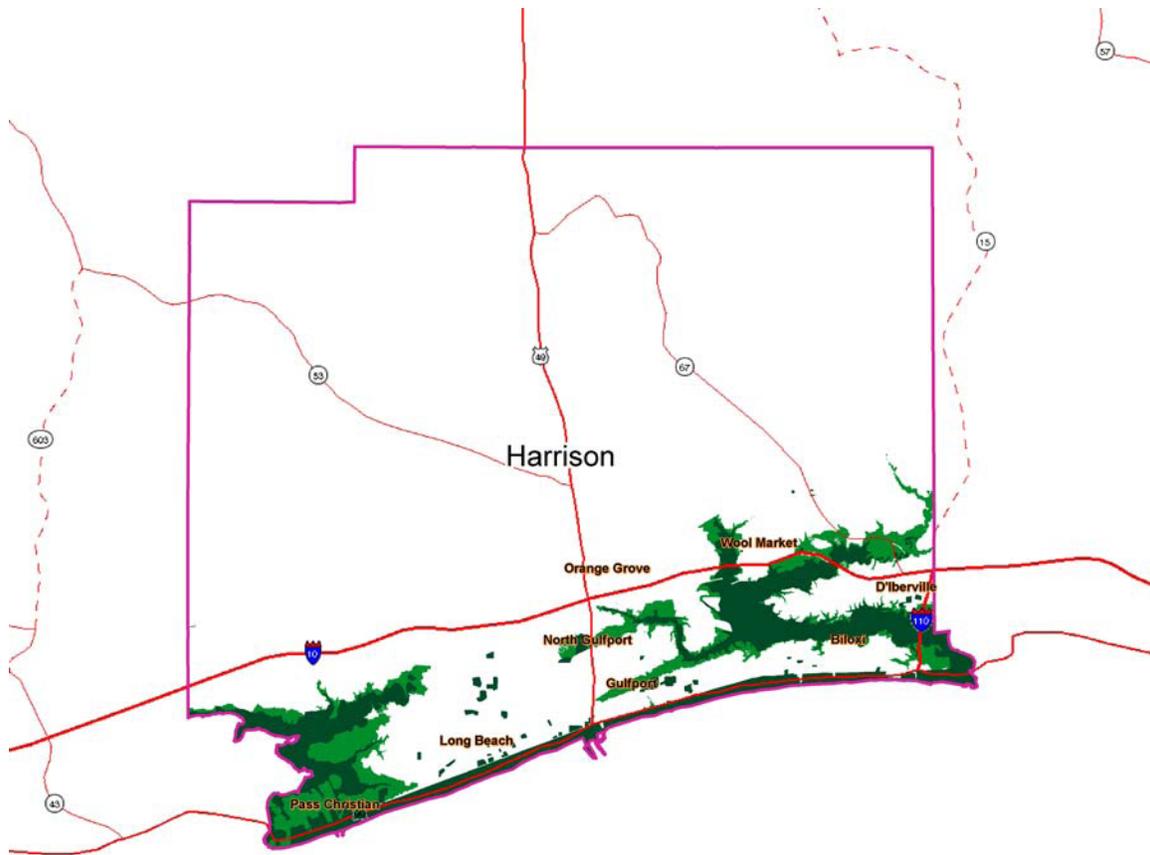
1 observations by the nonstructural PDT confirmed that most of those structures in the zone had been
2 totally destroyed or severely damaged (major structural damages). This area includes the V/VE zone
3 within its boundaries.

4 A flood damage zone was delineated extending 800 feet back from the beachfront within portions of
5 Jackson County. The aforementioned "catastrophic damage zone" established by FEMA was based
6 upon the Katrina event only and therefore did not account for the area of damages that could be
7 expected along Jackson County were a Katrina-like storm to strike at that location. The 800 feet
8 zone approximated the spatial extent of observed total structure loss and severe structural damages
9 observed within Hancock and Harrison counties located closer to the Katrina landfall. Modifications
10 of this zone's extent from the waterline could be made to account for intervening topography that
11 would limit the impacts of surge and waves.

12 The preferred nonstructural measure in these three high-hazard zones would be permanent
13 acquisition of the property under the general provisions of the Uniform Act. Relocations assistance
14 would be provided to residential landowners and/or tenants of the property to locate and secure
15 suitable replacement housing. Remaining structures, pavements, foundations and utilities on the
16 acquired parcel would be demolished and removed to approved landfills. The acquired property
17 could be reused for ecosystem restoration (wetlands), recreation or other purposes that would be in
18 keeping with the identified flood hazards, the NFIP and the provisions of the PCA. The acquired
19 property would be transferred to a local project sponsor for future OMRR&R.

20 A High Hazard Area Risk Reduction Plan (HARP) is currently being considered as a component of
21 the comprehensive plan to address hurricane and storm damage reduction for certain areas within
22 the Advisory Base Flood Elevation (ABFE) zones along the coast defined as high hazard areas. This
23 plan which is supported by the State of Mississippi contemplates acquisitions in identified areas
24 within Hancock, Harrison and Jackson Counties that should be considered for acquisition anticipated
25 to begin in FY 2010 to facilitate relocation of homeowners outside the ABFE prior to their rebuilding.
26 The plan under consideration is not specifically reflected in the nonstructural portion of the Real
27 Estate Appendix. However, the HARP is incorporated in the report at Exhibit "C" to the Real Estate
28 Appendix. Should the plan be authorized, significant adjustments will have to be made to the real
29 estate costs for the acquisition areas initially identified in the MsCIP report.

30 **Non-Flood-proofing Zones:** The nonstructural PDT also identified one additional zone within the
31 project area where the preferred method of flood damage reduction would be permanent acquisition
32 and evacuation of the property. This zone is located where water depths at the individual structure
33 location occurring during the specified inundation event would exceed the maximum height of
34 elevation prescribed by FEMA's 550 Guidelines for structure elevation. Those guidelines indicate
35 that elevating structures more than 15 feet from the ground surface in hurricane areas would place
36 the elevated structure in high-velocity hurricane force winds resulting in significant damages to the
37 building. Any structure that would be required to be elevated more that 15 feet to place the first
38 habitable or sales floor above the specified inundation level would be acquired. Using GIS software,
39 a zone of inundation deeper than 13 feet (plus 2 feet of freeboard equals 15 feet) was identified
40 within the project area where permanent acquisition would be the preferred method of nonstructural
41 protection. The area for which permanent acquisition is recommended in Harrison County is shown
42 in Figure 4.2.1-1. The acquisition area is shaded in dark green.



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Figure 4.2.1-1.
Location of Acquisition Area in Harrison County (dark green)

4.2.2 Real Estate Requirements

Real Estate requirements for the Nonstructural Acquisition in Harrison County include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to acquire in fee simple approximately 10,912 impacted parcels and 5,911 structures. The project is divided into 11 reaches. The reaches are identified below in Table 4.2.2-1. Based on the number of structures being impacted, the assumption is that there will be 5,911 relocations to include residences and businesses. The plan calls to use an “approved landfill” for disposal of the demolished structures. An assumption is made that the excavated material will be disposed of in commercial or county landfills. In the event that the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an upland disposal site with the cost of using a commercial landfill and make a determination which method is most cost effective.

**Table 4.2.2-1.
Harrison County Acquisition Reaches**

Reach	Impacted Parcels	Impacted Structures
8	3,623	1,819
9	44	9
10	1,945	1,157
12	1,047	469
13	650	412
15	85	47
16	78	19
18	1,502	984
19	46	4
20	1,397	851
50	495	140
Total	10,912	5,911

4.2.3 Utility/Facility Relocation

Specific information about relocation of utilities/facilities is unknown at this time. An assumption is made that if required, this work will be accomplished through a relocation contract. This will be further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

4.2.4 Existing Projects/Studies

Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation and Section 1.7, Prior and On-Going Studies, Reports and Programs.

4.2.5 Environmental Impacts

See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix, for a full discussion on environmental effects.

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The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish all alterations and relocations of facilities, structures and improvements determined by the government to be necessary for construction of the Project.

Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to the United States Government. Prior to advertisement of any construction contract, the NFS shall furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the

1 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
2 Real Estate Appendix. The assessment will be made during PED phase.

3 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
4 lands it provides and the value of the relocations that are required for the project. Generally, for the
5 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
6 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
7 non-federal sponsor provided for the project as required by the Government. The NFS cannot
8 receive credit for the value of any LER, including incidental costs, which were previously provided as
9 an item of cooperation for another Federal project, including projects that preceded enactment of
10 WRDA 1986.

11 **4.2.7 Government Owned Property**

12 There are approximately 11 Government owned parcels within the footprint of the project proposed
13 for acquisition in Harrison County. Some of these lands are associated with Keesler AFB and the US
14 Coast Guard. Land and structure values are not listed in the public records. Ownership is listed in
15 public records as US Govt, US Govt-Keesler AFB, US of America, US of America (USCG) and US
16 Veterans Hospital. Specific impacts to Government owned lands and/or structures will be
17 determined during PED.

18 **4.2.8 Historical Significance**

19 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
20 on cultural and archaeological resources.

21 **4.2.9 Mineral Rights**

22 There are no known mineral activities within the scope of the proposed project.

23 **4.2.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

24 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
25 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
26 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

27 **4.2.11 Public Law 91-646, Relocation Assistance Benefits**

28 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
29 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
30 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
31 result of programs designed for the benefits of the public as a whole. A qualified displaced person
32 may be entitled to certain relocation assistance benefits which include reimbursement of moving
33 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
34 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
35 types - purchase supplement, rental assistance and down payment. All replacement housing must
36 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

37 It is estimated that there are approximately 5,911 relocations in Harrison County. No relocation plan
38 has been completed nor has a relocation survey been done. All estimates are based on information
39 from county public records. The number of business relocations as compared to residential
40 relocations is unknown. The availability of decent safe and sanitary housing is a potential problem.

1 Large scale construction of new residences will most likely be required. In order to accomplish the
2 relocation activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

3 **4.2.12 Attitude of Property Owners**

4 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
5 However, numerous public meetings have been held at different locations throughout the study area
6 to inform stakeholders and property owners about the study and the protective measures under
7 consideration for the Mississippi coastal area. A number of local newspapers have published articles
8 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
9 may occur as a result of the project. Some of these articles can be found on web sites. While many
10 of the locals may welcome the benefits of the proposed project, there are some who oppose the
11 project.

12 **4.2.13 Acquisition Schedule**

13 An acquisition schedule will be developed when plans and specifications become available and
14 more definite information is available pertaining to the specific areas and number of parcels for
15 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
16 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
17 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
18 completed certification of lands acquired/owned by the sponsor will be necessary prior to
19 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
20 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
21 implementation/management plan.

22 **4.2.14 Estates for Proposed Project**

23 All lands acquired in the buy-out area will be acquired in Fee Simple. The Temporary Work Area
24 Easement will be used for a disposal site if required. The estates recommended are standard
25 estates.

26 **FEE.**

27 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
28 subject, however, to existing easements for public roads and highways, public utilities, railroads and
29 pipelines.

30 **TEMPORARY WORK AREA EASEMENT.**

31 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
32 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
33 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
34 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
35 backfill, move, store and remove equipment and supplies, and erect and remove temporary
36 structures on the land and to perform any other work necessary and incident to the construction of
37 the _____ Project, together with the right to trim, cut, fell and remove there from
38 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
39 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
40 rights and privileges as may be used without interfering with or abridging the rights and easement
41 hereby acquired; subject, however, to existing easements for public roads and highways, public
42 utilities, railroads and pipelines.

1 **4.2.15 Real Estate Estimate**

2 The real estate cost estimate at Table 4.2.15-1 includes the land cost for acquisition of land,
 3 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
 4 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
 5 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
 6 analysis or other requirements that may be necessary, during PED. No cost is included for a
 7 disposal site. The requirement, if any, for a disposal site will be identified during PED. If further real
 8 estate requirements are identified during PED or if there is a significant increase in cost, a
 9 supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to the
 10 current estimate.

11 **Table 4.2.15-1.**
 12 **Harrison County Acquisitions Estimate**

<hr/>				
a. Lands and Improvements/Permits				
10,912 Ownerships & 5,911 Improvements				1,722,841,076
				0
			Subtotal	1,722,841,076
b. Mineral Rights				
				0
c. Damages				
				0
d. P.L. 91-646 Relocation costs – 5,911 relocations				
				165,508,000
e. Administrative Cost				
				289,852,500
		Relocation	Acquisition	Total
Federal		8,866,500	27,280,000	36,146,500
Non-Federal		35,466,000	218,240,000	253,706,000
			0	
		44,332,500	245,520,000	289,852,500
			0	
Subtotal				2,178,201,576
Contingencies (25%)				544,550,394
<hr/>				
Totals				2,722,751,970
Rounded				2,722,752,000
<hr/>				

13
 14 **4.2.16 Summary of Potential Real Estate Issues**

15 In the event that the excavated material is not suitable for a landfill a disposal site will have to be
 16 acquired. Typically if disposal sites are required, this would be considered as part of the LERRD
 17 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
 18 upland disposal site with the cost of using a commercial landfill and make a determination which
 19 method is most cost effective.

1 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
2 completed during PED.

3 If the nonstructural acquisition measure is approved, additional time would need to be allowed for
4 staffing up to handle the increased workload for the large number of acquisitions.

5 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
6 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
7 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
8 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

9 A relocation plan will need to be completed during PED to address potential relocation activity under
10 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
11 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
12 housing replacement payments, are very likely due to the size of the project and the lack of available
13 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
14 schedule is the cost of business relocations. Depending on the type of business and the operation,
15 this could involve moving equipment and machinery to new locations. It is necessary to interview
16 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
17 determine the requirements for relocation and to estimate a cost for the relocation.

18 The availability of decent safe and sanitary housing is a potential problem. Large scale construction
19 of new residences will most likely be required.

20 **4.2.17 Chart of Accounts**

21 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
22 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
23 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
24 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
25 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
26 Table 4.2.17-1 shows the CWBS for real estate activities.

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**Table 4.2.17-1.
Chart of Accounts - Harrison County Acquisitions**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	27,280,000		27,280,000
01B20	Acquisition by NFS		218,240,000	218,240,000
01BX	Contingencies (25%)	<u>6,820,000</u>	<u>54,560,000</u>	<u>61,380,000</u>
	Subtotal	34,100,000	272,800,000	306,900,000
01F	PL 91-646 Assistance			
01F20	By NFS		35,466,000	35,466,000
01FX	Contingencies (25%)		<u>8,866,500</u>	<u>8,866,500</u>
	Subtotal		44,332,500	44,332,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		1,722,841,076	1,722,841,076
01R2B	PL91-646 Relocation Payment by NFS		165,508,000	165,508,000
01R2D	Review of NFS	8,866,500		8,866,500
01RX	Contingencies (25%)	<u>2,216,625</u>	<u>472,087,269</u>	<u>474,303,894</u>
	Subtotal	11,083,125	2,360,436,345	2,371,519,470
	Totals	45,183,125	2,677,568,845	2,722,751,970
	Rounded			2,722,752,000

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4.3 Jackson County Acquisition

4.3.1 Project Description

High Hazard Zones: The nonstructural project delivery team (PDT) identified several zones within the project area, where due to extreme forces generated by storms and hurricanes, other measures such as elevation of an existing or rebuilt structure would not be prudent and may endanger the future occupants. Within these zones, successful emergency evacuation during a storm event would be highly improbable and dangerous for the responders, elevated structures may be prone to foundation failures due to waves and surge, elevation by placed fill material is prohibited or infeasible, and non-elevated structures would likely suffer total or significant losses. Each of these zones was graphically identified using GIS mapping and FEMA database information. There are three identified zones where permanent acquisition and evacuation of the property is the preferred nonstructural treatment. Those zones are:

The FEMA-identified V/VE Zone displayed on the National Flood Insurance Rate Maps (FIRM) within the project area. This “Velocity” water zone features high-energy wave action that was responsible for much of the building damages during the Katrina event and makes elevating structures or otherwise flood-proofing structures in-place very dangerous.

The FEMA-identified “catastrophic damages zone” which was identified in a “post-Katrina” damage assessment of FEMA insured structures within the project area. This zone included a preponderance of insured structures that had received damages in excess of 50% of the structure’s value. Field

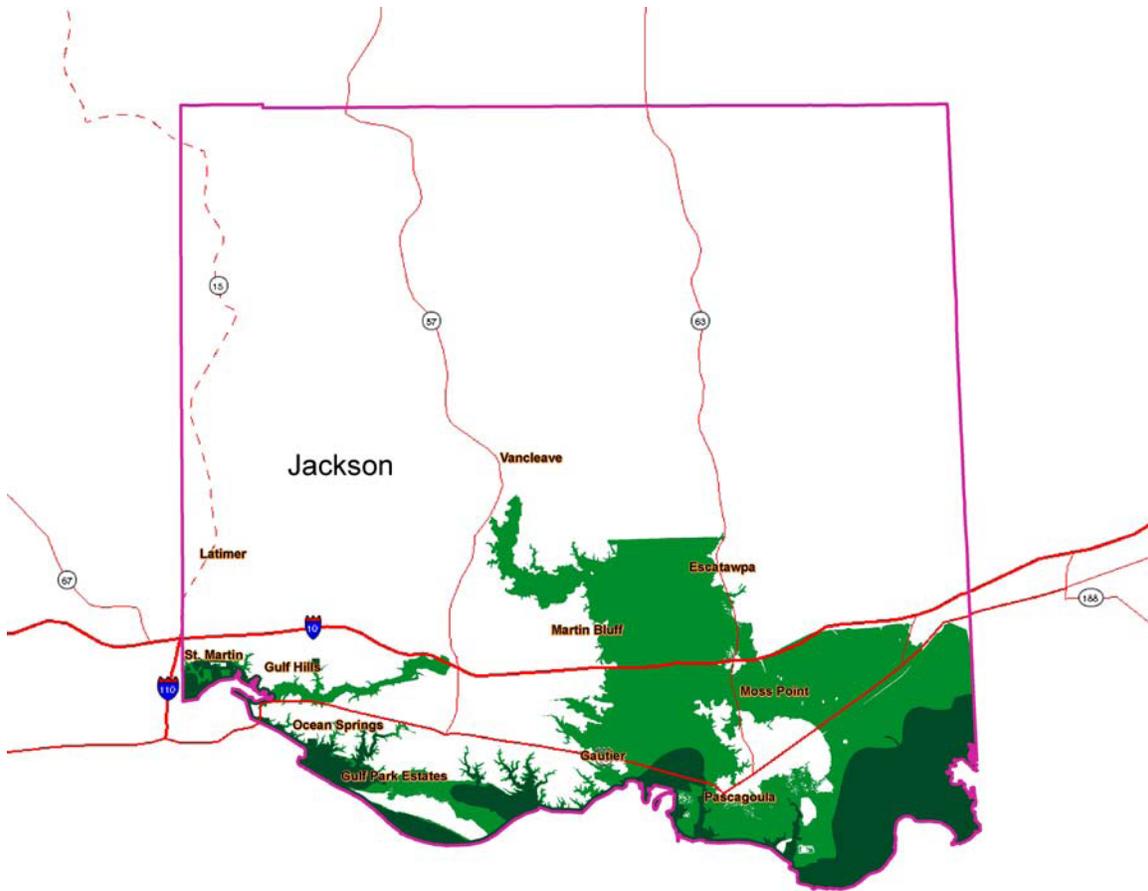
1 observations by the nonstructural PDT confirmed that most of those structures in the zone had been
2 totally destroyed or severely damaged (major structural damages). This area includes the V/VE zone
3 within its boundaries.

4 A flood damage zone was delineated extending 800 feet back from the beachfront within portions of
5 Jackson County. The aforementioned "catastrophic damage zone" established by FEMA was based
6 upon the Katrina event only and therefore did not account for the area of damages that could be
7 expected along Jackson County were a Katrina-like storm to strike at that location. The 800 feet
8 zone approximated the spatial extent of observed total structure loss and severe structural damages
9 observed within Hancock and Harrison counties located closer to the Katrina landfall. Modifications
10 of this zone's extent from the waterline could be made to account for intervening topography that
11 would limit the impacts of surge and waves.

12 The preferred nonstructural measure in these three high-hazard zones would be permanent
13 acquisition of the property under the general provisions of the Uniform Act. Relocations assistance
14 would be provided to residential landowners and/or tenants of the property to locate and secure
15 suitable replacement housing. Remaining structures, pavements, foundations and utilities on the
16 acquired parcel would be demolished and removed to approved landfills. The vacated property could
17 be reused for ecosystem restoration (wetlands), recreation or other purposes that would be in
18 keeping with the identified flood hazards, the National Flood Insurance Program (NFIP) and the
19 provisions of the Project Cooperation Agreement (PCA). The vacated property would be transferred
20 to a local project sponsor for future OMRR&R.

21 A High Hazard Area Risk Reduction Plan is currently being considered as a component of the
22 comprehensive plan to address hurricane and storm damage reduction for certain areas within the
23 Advisory Base Flood Elevation (ABFE) zones along the coast defined as high hazard areas. This
24 plan which is supported by the State of Mississippi contemplates acquisitions in identified areas
25 within Hancock, Harrison and Jackson Counties that should be considered for acquisition anticipated
26 to begin in FY 2010 to facilitate relocation of homeowners outside the ABFE prior to their rebuilding.
27 The plan under consideration is not specifically reflected in the nonstructural portion of the Real
28 Estate Appendix. However, the HARP is incorporated in the report at Exhibit "C" to the Real Estate
29 Appendix. Should the plan be authorized, significant adjustments will have to be made to the real
30 estate costs for the acquisition areas initially identified in the MsCIP report.
31

32 **Non-Flood-proofing Zones:** The nonstructural PDT also identified one additional zone within the
33 project area where the preferred method of flood damage reduction would be permanent acquisition
34 and evacuation of the property. This zone is located where water depths at the individual structure
35 location occurring during the specified inundation event would exceed the maximum height of
36 elevation prescribed by FEMA's 550 Guidelines for structure elevation. Those guidelines indicate
37 that elevating structures more than 15 feet from the ground surface in hurricane areas would place
38 the elevated structure in high-velocity hurricane force winds resulting in significant damages to the
39 building. Any structure that would be required to be elevated more that 15 feet to place the first
40 habitable or sales floor above the specified inundation level would be acquired. Using GIS software,
41 a zone of inundation deeper than 13 feet (plus 2 feet of freeboard equals 15 feet) was identified
42 within the project area where permanent acquisition would be the preferred method of nonstructural
43 protection. The area for which permanent acquisition is recommended for Jackson County is shown
44 in Figure 4.3.1-1. The acquisition area is shaded in dark green.



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Figure 4.3.1-1.
Location of Acquisition Areas in Jackson County (dark green)

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4.3.2 Real Estate Requirements

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Real Estate requirements for the Nonstructural Acquisition in Jackson County include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and the right to acquire in fee simple approximately 4,434 impacted parcels and 1,047 structures. The project is divided into 14 reaches. The reaches are identified below in Table 4.3.2-1. Based on the number of structures being impacted, the assumption is that there will be 1,047 relocations to include residences and businesses. The plan calls to use an “approved landfill” for disposal of the demolished structures. An assumption is made that the excavated material will be disposed of in commercial or county landfills. In the event that the excavated material is not suitable for a landfill a disposal site will have to be acquired. Typically if disposal sites are required, this would be considered as part of the LERRD requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an upland disposal site with the cost of using a commercial landfill and make a determination which method is most cost effective.

**Table 4.3.2-1.
Jackson County Acquisition Reaches**

Reach	Impacted Parcels	Impacted Structures
21	2,108	378
22	61	50
24	220	45
26	37	35
27	53	32
28	961	57
29	147	46
30	90	66
31	51	19
32	1	0
35	12	2
52	285	146
53	399	169
54	9	2
Total	4,434	1,047

4.3.3 Utility/Facility Relocation

Specific information about relocation of utilities/facilities is unknown at this time. An assumption is made that if required, this work will be accomplished through a relocation contract. This will be further investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

4.3.4 Existing Projects/Studies

Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation and Section 1.7, Prior and On-Going Studies, Reports and Programs.

4.3.5 Environmental Impacts

See the Main Report, Chapter 6. Environmental Effects of Plans, and the Environmental Appendix, for a full discussion on environmental effects.

4.3.6 Project Sponsor Responsibilities and Capabilities

The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish all alterations and relocations of facilities, structures and improvements determined by the government to be necessary for construction of the Project.

Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to the United States Government. Prior to advertisement of any construction contract, the NFS shall furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by

1 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
2 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
3 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
4 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
5 Real Estate Appendix. The assessment will be made during PED phase.

6 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
7 lands it provides and the value of the relocations that are required for the project. Generally, for the
8 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
9 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
10 non-federal sponsor provided for the project as required by the Government. The NFS cannot
11 receive credit for the value of any LER, including incidental costs, which were previously provided as
12 an item of cooperation for another Federal project, including projects that preceded enactment of
13 WRDA 1986.

14 **4.3.7 Government Owned Property**

15 There are approximately 34 Government owned parcels within the footprint of the project proposed
16 for acquisition in Jackson County. Most of these lands are within wildlife preserves. Three parcels
17 appear to have improvements. Ownership is listed in public records as United States of America.
18 Specific impacts to Government owned lands and/or structures will be determined during PED.

19 **4.3.8 Historical Significance**

20 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
21 on cultural and archaeological resources.

22 **4.3.9 Mineral Rights**

23 There are no known mineral activities within the scope of the proposed project.

24 **4.3.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

25 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
26 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
27 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

28 **4.3.11 Public Law 91-646, Relocation Assistance Benefits**

29 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
30 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
31 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
32 result of programs designed for the benefits of the public as a whole. A qualified displaced person
33 may be entitled to certain relocation assistance benefits which include reimbursement of moving
34 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
35 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
36 types - purchase supplement, rental assistance and down payment. All replacement housing must
37 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

38 It is estimated that there are approximately 1,047 relocations in Jackson County. No relocation plan
39 has been completed nor has a relocation survey been done. All estimates are based on information
40 from county public records. The number of business relocations as compared to residential

1 relocations is unknown. The availability of decent safe and sanitary housing is a potential problem.
2 Large scale construction of new residences will most likely be required. In order to accomplish the
3 relocation activity in a timely manner, the plan set forth in Chapter 2. Section 2.5 can be used.

4 **4.3.12 Attitude of Property Owners**

5 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
6 However, numerous public meetings have been held at different locations throughout the study area
7 to inform stakeholders and property owners about the study and the protective measures under
8 consideration for the Mississippi coastal area. A number of local newspapers have published articles
9 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
10 may occur as a result of the project. Some of these articles can be found on web sites. While many
11 of the locals may welcome the benefits of the proposed project, there are some who oppose the
12 project.

13 **4.3.13 Acquisition Schedule**

14 An acquisition schedule will be developed when plans and specifications become available and
15 more definite information is available pertaining to the specific areas and number of parcels for
16 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
17 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
18 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
19 completed certification of lands acquired/owned by the sponsor will be necessary prior to
20 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
21 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
22 implementation/management plan.

23 **4.3.14 Estates for Proposed Project**

24 All lands acquired in the buy-out area will be acquired in Fee Simple. The Temporary Work Area
25 Easement will be used for a disposal site if required. The estates recommended are standard
26 estates.

27 **FEE.**

28 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
29 subject, however, to existing easements for public roads and highways, public utilities, railroads and
30 pipelines.

31 **TEMPORARY WORK AREA EASEMENT.**

32 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
33 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
34 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
35 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
36 backfill, move, store and remove equipment and supplies, and erect and remove temporary
37 structures on the land and to perform any other work necessary and incident to the construction of
38 the _____ Project, together with the right to trim, cut, fell and remove there from
39 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
40 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
41 rights and privileges as may be used without interfering with or abridging the rights and easement
42 hereby acquired; subject, however, to existing easements for public roads and highways, public
43 utilities, railroads and pipelines.

1 **4.3.15 Real Estate Estimate**

2 The real estate cost estimate at Table 4.3.15-1 includes the land cost for acquisition of land,
 3 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
 4 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
 5 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
 6 analysis or other requirements that may be necessary, during PED. No cost is included for a
 7 disposal site. The requirement, if any, for a disposal site will be identified during PED. If further real
 8 estate requirements are identified during PED or if there is a significant increase in cost, a
 9 supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to the
 10 current estimate.

11 **Table 4.3.15-1.**
 12 **Jackson County Acquisitions Estimate**

a. Lands and Improvements/Permits 4,434 Ownerships & 1,047 Improvements				483,342,423 0
			Subtotal	483,342,423
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 1,047 relocations				29,316,000
e. Administrative Cost				107,617,500
		Relocation	Acquisition	Total
	Federal	1,570,500	11,085,000	12,655,500
	Non-Federal	6,282,000	88,680,000	94,962,000
		7,852,500	99,765,000	107,617,500
Subtotal				620,275,923
Contingencies (25%)				155,068,981
		Totals		775,344,904
		Rounded		775,345,000

13
 14 **4.3.16 Summary of Potential Real Estate Issues**

15 In the event that the excavated material is not suitable for a landfill a disposal site will have to be
 16 acquired. Typically if disposal sites are required, this would be considered as part of the LERRD
 17 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
 18 upland disposal site with the cost of using a commercial landfill and make a determination which
 19 method is most cost effective.

20 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
 21 completed during PED.

1 If the nonstructural acquisition measure is approved, additional time would need to be allowed for
2 staffing up to handle the increased workload for the large number of acquisitions.

3 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
4 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
5 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
6 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

7 A relocation plan will need to be completed during PED to address potential relocation activity under
8 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
9 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
10 housing replacement payments, are very likely due to the size of the project and the lack of available
11 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
12 schedule is the cost of business relocations. Depending on the type of business and the operation,
13 this could involve moving equipment and machinery to new locations. It is necessary to interview
14 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
15 determine the requirements for relocation and to estimate a cost for the relocation.

16 The availability of decent safe and sanitary housing is a potential problem. Large scale construction
17 of new residences will most likely be required.

18 **4.3.17 Chart of Accounts**

19 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
20 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
21 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
22 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
23 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
24 Table 4.3.17-1 shows the CWBS for real estate activities.

1
2

**Table 4.3.17-1.
Chart of Accounts - Jackson County Acquisitions**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	11,085,000		11,085,000
01B20	Acquisition by NFS		88,680,000	88,680,000
01BX	Contingencies (25%)	<u>2,771,250</u>	<u>22,170,000</u>	24,941,250
	Subtotal	13,856,250	110,850,000	124,706,250
01F	PL 91-646 Assistance			
01F20	By NFS		6,282,000	6,282,000
01FX	Contingencies (25%)		<u>1,570,500</u>	1,570,500
	Subtotal		7,852,500	7,852,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		483,342,423	483,342,423
01R2B	PL91-646 Relocation Payment by NFS		29,316,000	29,316,000
01R2D	Review of NFS	1,570,500		1,570,500
01RX	Contingencies (25%)	<u>392,625</u>	<u>128,164,606</u>	128,557,231
	Subtotal	1,963,125	640,823,029	642,786,154
	Totals	15,819,375	759,525,529	775,344,904
	Rounded			775,345,000

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CHAPTER 5. ECOSYSTEM RESTORATION

The Environmental Recommended Plan proposes the construction of two (2) pilot projects at Turkey Creek in Harrison County, and Bayou Cumbest in Jackson County. The restoration will consist of restoring emergent tidal marsh habitat and wet pine savannah habitat. These two pilot projects give a basis for future environmental restoration sites identified to be developed. The Comprehensive Plan envisions the construction of environmental restoration projects that would ensure preservation of fish and wildlife, prevent saltwater intrusion, and provide stabilization of the State of Mississippi's shorelines, in order, to reduce or eliminate coastal erosion and restore lost fish and wildlife habitat by identifying degraded critical components of the vital coastal system. It is important to note that ecosystem restoration sites were chosen in areas where environmental restoration can be performed and at the same time reduce risk of future damages to property by acquisition.

5.1 Harrison County Turkey Creek

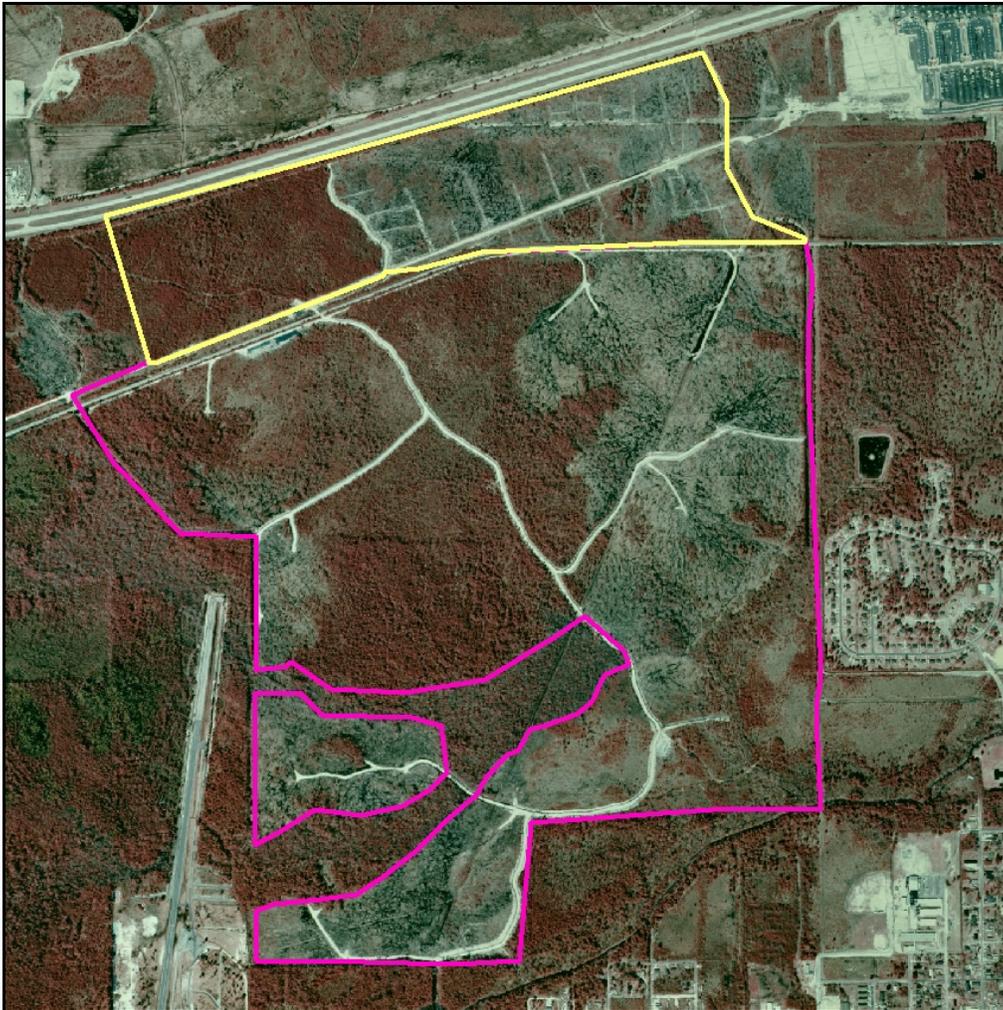
Figure 5.1-1 identifies areas recommended for environmental restoration in Harrison County. Should all proposed areas be restored, approximately 1,259 parcels with 251 structures would be impacted at a projected acquisition cost of \$223,357,000. This REP however, focuses on the pilot project at Turkey Creek.



Figure 5.1-1.
Location of Restoration Sites in Harrison County

1 **5.1.1 Project Description**

2 The project site is located north of Gulfport, Mississippi, adjacent to U.S. highway 49, a major north-
3 west thoroughfare, and within the Turkey Creek watershed. The area is becoming increasingly
4 urbanized and development pressures are resulting in increased wetland degradation and loss by
5 the direct filling. The project site as shown in Figure 5.1.1-1 is comprised of 689 acres south (pink
6 border) of the existing railway located on top of an elevated berm. Approximately 190 acres are
7 located north (yellow border) of the railway and functions separately. The combined areas are
8 referred to as Option A, the south area is referred to as Option B, and the north area is referred to as
9 Option C. The site is primarily comprised of a degraded pine savannah wetland. Several miles of
10 ditches have been excavated throughout the site. Additionally the elevated railway berm fragments
11 the wetland habitat and substantially alters the hydrology of the wetlands located to the north. As the
12 areas are undeveloped, no demolition of structures is required. Objectives are to restore native
13 vegetation, restore natural hydrology, restore fish and wildlife habitat, and provide storm water
14 storage protection. The plan calls for mandatory buy-out of lands within the area.



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Figure 5.1.1-1.
Turkey Creek, Harrison County

1 **5.1.2 Real Estate Requirements**

2 Real Estate requirements for the Turkey Creek Ecosystem Restoration Site in Harrison County
3 include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and
4 the right to acquire in fee simple approximately 13 impacted parcels for Option A, 8 parcels for
5 Option B or 5 parcels for Option C. There are no known structures. No other real estate
6 requirements are known at this time.

7 EP 1165-2-502, paragraph 7 (m.) states that as a general rule, land value should not exceed 25
8 percent of total project costs for ecosystem restoration, and that proposals consisting primarily of
9 land acquisition are not appropriate as Civil Works ecosystem restoration investments. This project
10 proposes to reduce risk from future hurricane and storm events and to restore the environment.
11 These are two major objectives of the comprehensive plan. The estimated land value is within 25
12 percent of the estimated total project cost.

13 **5.1.3 Utility/Facility Relocation**

14 Specific information about relocation of utilities/facilities is unknown at this time. An assumption is
15 made that if required, this work will be accomplished under a relocation contract. This will be further
16 investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

17 **5.1.4 Existing Projects/Studies**

18 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
19 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

20 **5.1.5 Environmental Impacts**

21 See the Main Report, Chapter 6. Environmental Effects of Plans, and the Environmental Appendix,
22 for a full discussion on environmental effects.

23 **5.1.6 Project Sponsor Responsibilities and Capabilities**

24 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
25 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
26 all alterations and relocations of facilities, structures and improvements determined by the
27 government to be necessary for construction of the Project.

28 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
29 the United States Government. Prior to advertisement of any construction contract, the NFS shall
30 furnish to the government an Authorization for Entry for Construction (Exhibit "A" to the Real Estate
31 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
32 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
33 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
34 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
35 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-
36 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
37 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
38 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
39 Real Estate Appendix. The assessment will be made during PED phase.

1 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
2 lands it provides and the value of the relocations that are required for the project. Generally, for the
3 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
4 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
5 non-federal sponsor provided for the project as required by the Government. The NFS cannot
6 receive credit for the value of any LER, including incidental costs, which were previously provided as
7 an item of cooperation for another Federal project, including projects that preceded enactment of
8 WRDA 1986.

9 **5.1.7 Government Owned Property**

10 There are no known Government owned lands within the proposed project.

11 **5.1.8 Historical Significance**

12 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
13 on cultural and archaeological resources.

14 **5.1.9 Mineral Rights**

15 There are no known mineral activities within the scope of the proposed project.

16 **5.1.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

17 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
18 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
19 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

20 **5.1.11 Public Law 91-646, Relocation Assistance Benefits**

21 Not applicable.

22 **5.1.12 Attitude of Property Owners**

23 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
24 However, numerous public meetings have been held at different locations throughout the study area
25 to inform stakeholders and property owners about the study and the protective measures under
26 consideration for the Mississippi coastal area. A number of local newspapers have published articles
27 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
28 may occur as a result of the project. Some of these articles can be found on web sites. While many
29 of the locals may welcome the benefits of the proposed project, there are some who oppose the
30 project.

31 **5.1.13 Acquisition Schedule**

32 An acquisition schedule will be developed when plans and specifications become available and
33 more definite information is available pertaining to the specific areas and number of parcels for
34 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
35 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
36 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
37 completed certification of lands acquired/owned by the sponsor will be necessary prior to

1 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
 2 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
 3 implementation/management plan.

4 **5.1.14 Estates for Proposed Project**

5 All lands acquired in the buy-out area will be acquired in Fee Simple.

6 **FEE.**

7 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. ____, ____ and ____),
 8 subject, however, to existing easements for public roads and highways, public utilities, railroads and
 9 pipelines.

10 **5.1.15 Real Estate Estimate**

11 The real estate cost estimates at Tables 5.1.15-1 through 5.1.15-3 include the land cost for
 12 acquisition of land and Federal and non-Federal administrative costs. Administrative costs are those
 13 costs incurred for verifying ownership of lands, certification of those lands required for project
 14 purposes, legal opinions, analysis or other requirements that may be necessary, during PED. If
 15 further real estate requirements are identified during PED or if there is a significant increase in cost,
 16 a supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to the
 17 current estimate.

18 **Table 5.1.15-1.**
 19 **Harrison County Turkey Creek Ecosystem Restoration Site Estimate Option A**

a. Lands and Improvements/Permits				
13 Ownerships & 0 Improvements				588,692
				0
			Subtotal	588,692
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs – 0 relocations				0
e. Administrative Cost				292,500
		Relocation	Acquisition	Total
	Federal	0	32,500	32,500
	Non-Federal	0	260,000	260,000
		0	292,500	292,500
Subtotal				881,192
Contingencies (25%)				220,298
Totals				1,101,490
Rounded				1,101,000

20

1 **5.1.16 Summary of Potential Real Estate Issues**

2 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
3 completed during PED.

4 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
5 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
6 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
7 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

8 **5.1.17 Chart of Accounts**

9 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
10 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
11 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
12 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
13 Microcomputer Aided Cost Engineering System (MCACES). The Charts of Accounts at
14 Tables 5.1.17-1 through 5.1.17-3 show the CWBS for real estate activities.

15 **Table 5.1.17-1.**
16 **Chart of Accounts - Harrison County Turkey Creek Ecosystem Restoration Site**
17 **Option A**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	32,500		32,500
01B20	Acquisition by NFS		260,000	260,000
01BX	Contingencies (25%)	<u>8,125</u>	<u>65,000</u>	<u>73,125</u>
	Subtotal	40,625	325,000	365,625
01F	PL 91-646 Assistance			
01F20	By NFS		0	0
01FX	Contingencies (25%)		<u>0</u>	<u>0</u>
	Subtotal		0	0
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		588,692	588,692
01R2B	PL91-646 Relocation Payment by NFS		0	0
01R2D	Review of NFS	0		0
01RX	Contingencies (25%)	<u>0</u>	<u>147,173</u>	<u>147,173</u>
	Subtotal	0	735,865	735,865
	Totals	40,625	1,060,865	1,101,490
	Rounded			1,101,000

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**Table 5.1.17-2.
Chart of Accounts - Harrison County Turkey Creek Ecosystem Restoration Site
Option B**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	20,000		20,000
01B20	Acquisition by NFS		160,000	160,000
01BX	Contingencies (25%)	<u>5,000</u>	<u>40,000</u>	<u>45,000</u>
	Subtotal	25,000	200,000	225,000
01F	PL 91-646 Assistance			
01F20	By NFS		0	0
01FX	Contingencies (25%)		<u>0</u>	<u>0</u>
	Subtotal		0	0
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		421,448	421,448
01R2B	PL91-646 Relocation Payment by NFS		0	0
01R2D	Review of NFS	0		0
01RX	Contingencies (25%)	<u>0</u>	<u>105,362</u>	<u>105,362</u>
	Subtotal	0	526,810	526,810
	Totals	25,000	726,810	751,810
	Rounded			752,000

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**Table 5.1.17-3.
Chart of Accounts - Harrison County Turkey Creek Ecosystem Restoration Site
Option C**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damage/Permits			
01B40	Acquisition/Review of NFS	12,500		12,500
01B20	Acquisition by NFS		100,000	100,000
01BX	Contingencies (25%)	<u>3,125</u>	<u>25,000</u>	<u>28,125</u>
	Subtotal	15,625	125,000	140,625
01F	PL 91-646 Assistance			
01F20	By NFS		0	0
01FX	Contingencies (25%)		<u>0</u>	<u>0</u>
	Subtotal		0	0
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		167,244	167,244
01R2B	PL91-646 Relocation Payment by NFS		0	0
01R2D	Review of NFS	0		0
01RX	Contingencies (25%)	<u>0</u>	<u>41,811</u>	<u>41,811</u>
	Subtotal	0	209,055	209,055
	Totals	15,625	334,055	349,680
	Rounded			350,000

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5.2 Jackson County Bayou Cumbest

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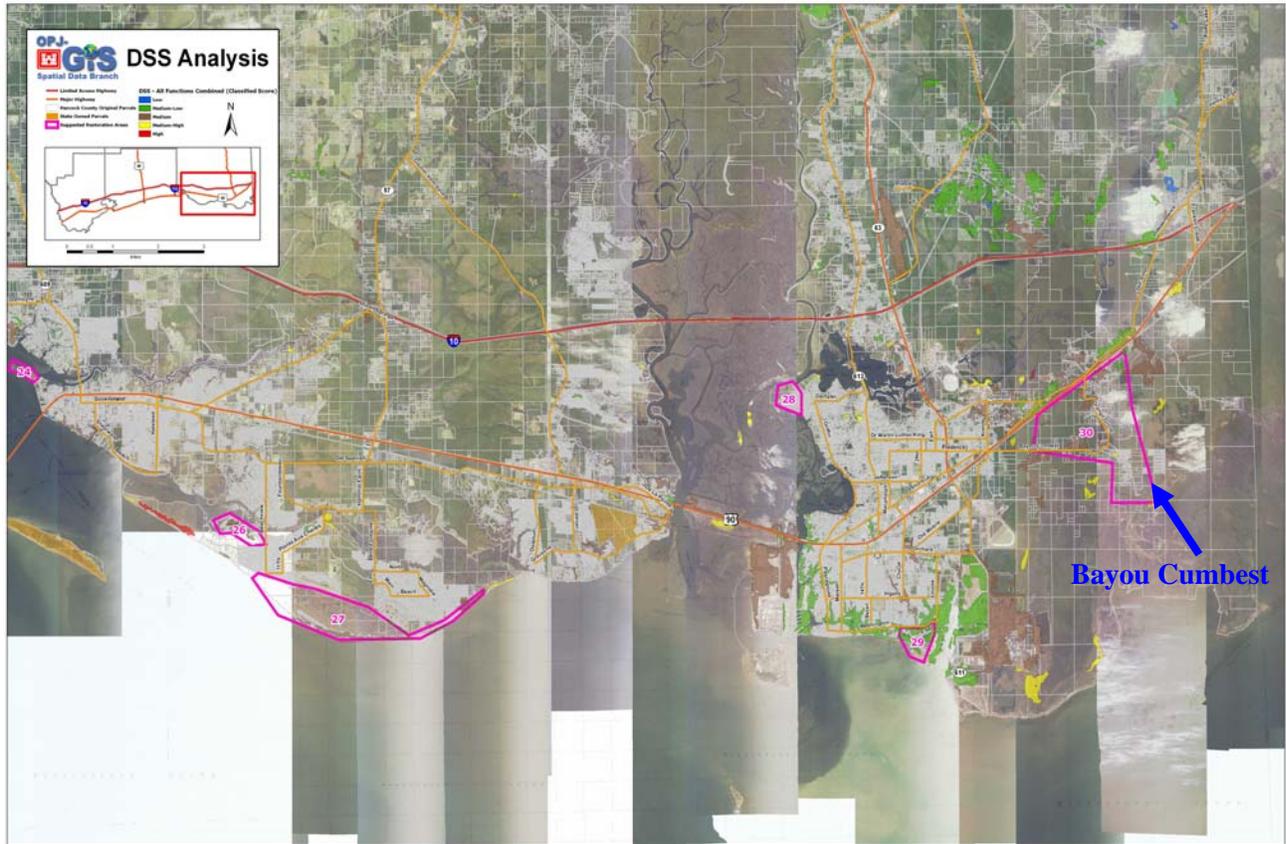
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Figure 5.2-1 identifies the areas recommended for environmental restoration in Jackson County. Should all proposed areas be restored, approximately 2,402 parcels with 658 structures would be impacted at a projected acquisition cost of \$335,009,000. This REP however, focuses on the pilot project at Bayou Cumbest. This area is subject to an ongoing Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) to Mississippi Emergency Management Agency (MEMA) and Jackson County to acquire all those repetitively flooded properties in the Bayou Cumbest community. Separate discussion with MEMA indicates they will also acquire properties that do not meet the repetitively flooded criteria to avoid a "piece-meal" acquisition pattern. This activity is currently ongoing with or without the MsCIP. Coordination with MEMA indicated that environmental restoration of the area would be an allowable activity but that FEMA would not provide resources to accomplish restoration. Figure 5.2.1-1 shows those parcels in red acquired through the HMGP. It is important to note that as per Engineer Circular 1105-2-218, paragraph 9. Real Estate Crediting Considerations, dated October 1, 2000, "Where use of lands acquired with HMGP funds for a Corps project is consistent with such policies and procedures, and such lands are provided by the non-Federal sponsor for the Corps project, the non-Federal sponsor shall not receive credit toward its required contribution for the value of such lands or any interests therein.. The non-Federal sponsor also shall not receive credit for incidental costs of acquiring lands provided for the Corps project that

1 were paid with HMGP funds. Similarly, the value of such lands, including incidental costs, shall not
2 be included as part of total project costs for cost sharing or NED plan determination."



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Figure 5.2-1.
Location of Restoration Sites in Jackson County

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5.2.1 Project Description

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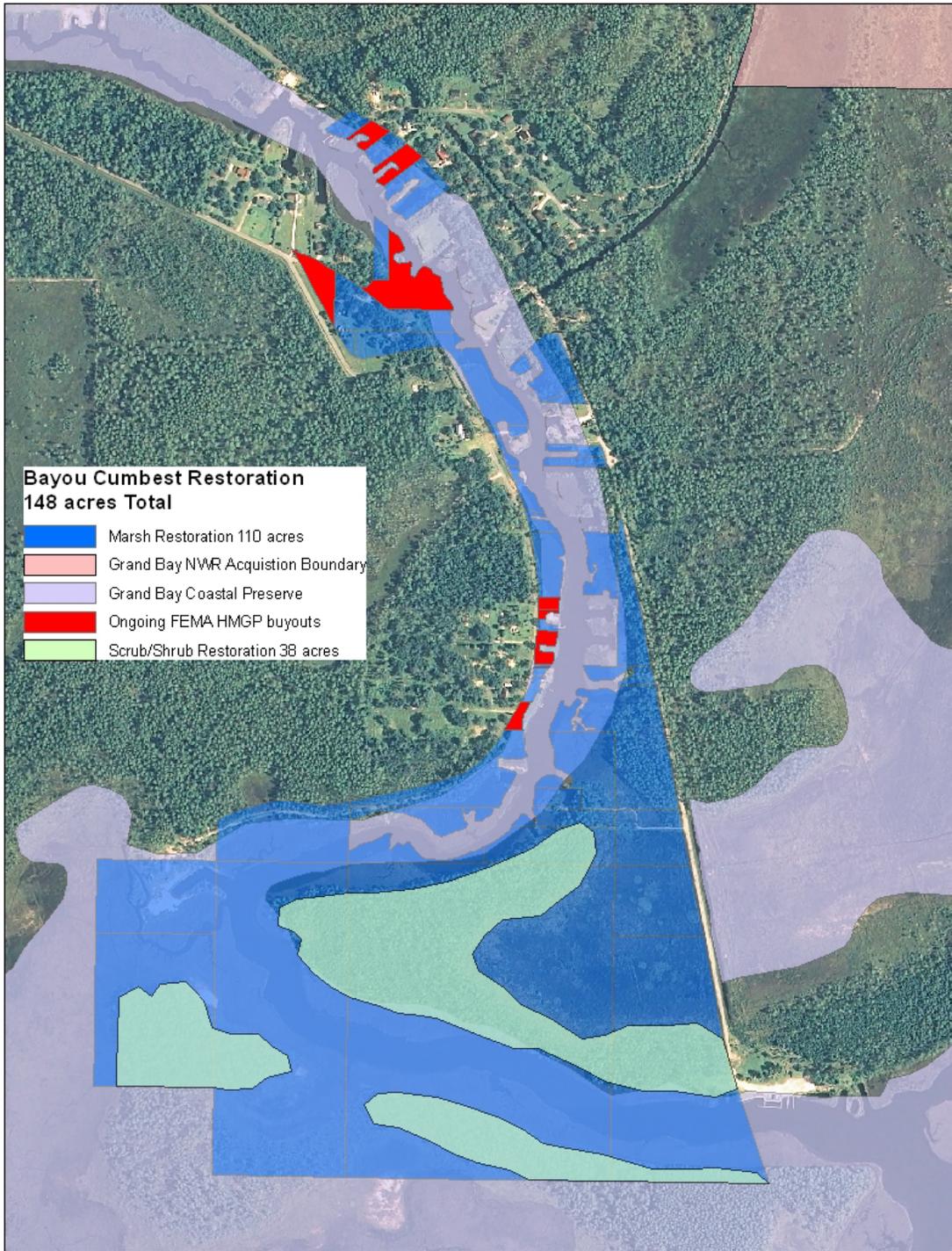
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The Bayou Cumbest restoration area contains approximately 148 acres of which 110 acres would be restored to emergent tidal marsh and the remaining 38 acres would remain scrub/shrub wetland habitat. The area is shown in Figure 5.2.1-1. The area presently consists of previously filled areas, some tidal marsh and scrub shrub. Objectives are to restore marsh to historical (pre-development ~1950's) conditions, provide storm surge protection, restore native tidal wetland plant community, provide fish and tidal wildlife habitat, and prevent saltwater intrusion. The plan calls for mandatory buy-out of land and 100% removal of existing structures in the area.



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Figure 5.2.1-1.
Bayou Cumbest Jackson County

1 **5.2.2 Real Estate Requirements**

2 Real Estate requirements for the Bayou Cumbest Ecosystem Restoration Site in Jackson County
3 include lands, easements, rights-of-way and relocations, and disposal/borrow areas (LERRD), and
4 the right to acquire in fee simple approximately 61 impacted parcels and 19 structures. Based on the
5 number of structures being impacted, the assumption is that there will be 19 relocations to include
6 residences and businesses. The plan calls to use “approved landfills” for disposal of the demolished
7 structures. An assumption is made that the excavated material will be disposed of in commercial or
8 county landfills. In the event that the excavated material is not suitable for a landfill a disposal site
9 will have to be acquired. Typically if disposal sites are required, this would be considered as part of
10 the LERRD requirement. Real Estate would provide an analysis during PED to compare the cost of
11 acquiring an upland disposal site with the cost of using a commercial landfill and make a
12 determination which method is most cost effective.

13 EP 1165-2-502, paragraph 7 (m.) states that as a general rule, land value should not exceed 25
14 percent of total project costs for ecosystem restoration, and that proposals consisting primarily of
15 land acquisition are not appropriate as Civil Works ecosystem restoration investments. This project
16 proposes to reduce risk from future hurricane and storm events and to restore the environment.
17 These are two major objectives of the comprehensive plan. The estimated land value is within 25
18 percent of the estimated total project cost.

19 **5.2.3 Utility/Facility Relocation**

20 Specific information about relocation of utilities/facilities is unknown at this time. An assumption is
21 made that if required, this work will be accomplished under a relocation contract. This will be further
22 investigated and confirmed during PED. See Chapter 2 Section 2.10 for more detailed discussion.

23 **5.2.4 Existing Projects/Studies**

24 Relevant projects and studies are found in the main report at Section 1.6, History of the Investigation
25 and Section 1.7, Prior and On-Going Studies, Reports and Programs.

26 **5.2.5 Environmental Impacts**

27 See the Main Report, Chapter 6. Environmental Effects of Plans and the Environmental Appendix,
28 for a full discussion on environmental effects.

29 **5.2.6 Project Sponsor Responsibilities and Capabilities**

30 The State of Mississippi will be the non-Federal Project Sponsor (NFS). The NFS has the
31 responsibility to acquire all real estate interests required for the Project. The NFS shall accomplish
32 all alterations and relocations of facilities, structures and improvements determined by the
33 government to be necessary for construction of the Project.

34 Title to any acquired real estate will be retained by the Project Sponsor and will not be conveyed to
35 the United States Government. Prior to advertisement of any construction contract, the NFS shall
36 furnish to the government an Authorization for Entry for Construction (Exhibit “A” to the Real Estate
37 Appendix) to all lands, easements and rights-of-way, as necessary. The NFS will also furnish to the
38 government evidence supporting their legal authority to grant rights-of-way to such lands. The NFS
39 shall comply with applicable provisions of the Uniform Relocation Assistance and Real Property
40 Acquisition Policies Act of 1970, Public Law 91-646, approved 2 January 1971, and amended by
41 Title IV of the Surface Transportation Uniform Relocation Assistance Act of 1987, Public Law 100-

1 17, effective 2 April 1989, in acquiring real estate interests for the Project, and inform all affected
2 persons of applicable benefits, policies, and procedures in connection with said Act(s). A form for the
3 Assessment of the Non-Federal Sponsor's Capability to Acquire Real Estate is at Exhibit "B" to the
4 Real Estate Appendix. The assessment will be made during PED phase.

5 The non-Federal sponsor is entitled to receive credit against its share of project costs for the value of
6 lands it provides and the value of the relocations that are required for the project. Generally, for the
7 purpose of determining the amount of credit to be afforded, the value of the LER is the fair market
8 value of the real property interest, plus certain incidental costs of acquiring those interests, that the
9 non-federal sponsor provided for the project as required by the Government. The NFS cannot
10 receive credit for the value of any LER, including incidental costs, which were previously provided as
11 an item of cooperation for another Federal project, including projects that preceded enactment of
12 WRDA 1986.

13 **5.2.7 Government Owned Property**

14 There are no known Government owned lands within the proposed project.

15 **5.2.8 Historical Significance**

16 See the Main Report, Section 3.2.9 Cultural and Archaeological Resources, for a general discussion
17 on cultural and archaeological resources.

18 **5.2.9 Mineral Rights**

19 There are no known mineral activities within the scope of the proposed project.

20 **5.2.10 Hazardous, Toxic, and Radioactive Waste (HTRW)**

21 Due to the extent of the project, no preliminary assessment was performed to identify the possibility
22 of hazardous waste on the sites. These studies will be conducted during the next phase of work. See
23 Sections 3.2.8 and 6.16 of the Main Report for a discussion on HTRW.

24 **5.2.11 Public Law 91-646, Relocation Assistance Benefits**

25 The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 establishes a
26 uniform policy for fair and equitable treatment of persons displaced as a result of federal and
27 federally assisted programs in order that such persons shall not suffer disproportionate injuries as a
28 result of programs designed for the benefits of the public as a whole. A qualified displaced person
29 may be entitled to certain relocation assistance benefits which include reimbursement of moving
30 costs and a replacement housing benefit. Moving expense can be reimbursed either based on actual
31 costs or a fixed moving cost schedule. The replacement housing payment is separated into 3 basic
32 types - purchase supplement, rental assistance and down payment. All replacement housing must
33 be decent, safe, and sanitary (DSS) before a replacement housing payment can be made.

34 It is estimated that there are approximately 19 relocations in Bayou Cumbest Ecosystem Restoration
35 Site area. No relocation plan has been completed nor has a relocation survey been done. All
36 estimates are based on information from county public records. The number of business relocations
37 as compared to residential relocations is unknown. The availability of decent safe and sanitary
38 housing may be a potential problem. In order to accomplish the relocation activity in a timely
39 manner, the plan set forth in Chapter 2. Section 2.5 can be used.

1 **5.2.12 Attitude of Property Owners**

2 Real Estate has not interviewed property owners or tenants during the study phase for the MsCIP.
3 However, numerous public meetings have been held at different locations throughout the study area
4 to inform stakeholders and property owners about the study and the protective measures under
5 consideration for the Mississippi coastal area. A number of local newspapers have published articles
6 that discuss the MsCIP study and the perceived positive effects as well as the negative impacts that
7 may occur as a result of the project. Some of these articles can be found on web sites. While many
8 of the locals may welcome the benefits of the proposed project, there are some who oppose the
9 project.

10 **5.2.13 Acquisition Schedule**

11 An acquisition schedule will be developed when plans and specifications become available and
12 more definite information is available pertaining to the specific areas and number of parcels for
13 acquisition. The acquisition schedule will be developed during PED and will be a joint effort of the
14 NFS, the project manager and Real Estate. The schedule will set forth a time line for title, survey,
15 appraisal, negotiation, preparation of documents and closing activity. After acquisition activity is
16 completed certification of lands acquired/owned by the sponsor will be necessary prior to
17 advertisement for construction. The Certification of Real Estate can be accomplished within 30 - 60
18 days after acquisition. See Chapter 2. Section 2.5. for discussion on an acquisition
19 implementation/management plan.

20 **5.2.14 Estates for Proposed Project**

21 All lands acquired in the buy-out area will be acquired in Fee Simple. The Temporary Work Area
22 Easement will be used for a disposal site if required. The estates recommended are standard
23 estates.

24 **FEE.**

25 The fee simple title to (the land described in Schedule A) I/(Tracts Nos. _____, _____ and _____),
26 subject, however, to existing easements for public roads and highways, public utilities, railroads and
27 pipelines.

28 **TEMPORARY WORK AREA EASEMENT.**

29 A temporary easement and right-of-way in, on, over and across (the land described in Schedule A)
30 (Tracts Nos. _____, _____ and _____), for a period not to exceed _____,
31 beginning with date possession of the land is granted to the Project Sponsor, for use by the Project
32 Sponsor, its representatives, agents, and contractors as a work area, including the right to deposit
33 backfill, move, store and remove equipment and supplies, and erect and remove temporary
34 structures on the land and to perform any other work necessary and incident to the construction of
35 the _____ Project, together with the right to trim, cut, fell and remove there from
36 all trees, underbrush, obstructions, and any other vegetation, structures, or obstacles within the
37 limits of the right-of-way; reserving, however, to the landowners, their heirs and assigns, all such
38 rights and privileges as may be used without interfering with or abridging the rights and easement
39 hereby acquired; subject, however, to existing easements for public roads and highways, public
40 utilities, railroads and pipelines.

1 **5.2.15 Real Estate Estimate**

2 The real estate cost estimate at Table 5.2.15-1 includes the land cost for acquisition of land,
 3 relocation benefits to include a replacement housing payment and fixed rate move expenses, and
 4 Federal and non-Federal administrative costs. Administrative costs are those costs incurred for
 5 verifying ownership of lands, certification of those lands required for project purposes, legal opinions,
 6 analysis or other requirements that may be necessary, during PED. No cost is included for a
 7 disposal site. The requirement, if any, for a disposal site will be identified during PED. If further real
 8 estate requirements are identified during PED or if there is a significant increase in cost, a
 9 supplement to the Real Estate Appendix will be prepared. A 25% contingency is applied to the
 10 current estimate.

11 **Table 5.2.15-1.**
 12 **Jackson County Bayou Cumbest Ecosystem Restoration Estimate**

a. Lands and Improvements/Permits 61 Ownerships & 19 Improvements				1,798,283
			Subtotal	1,798,283
b. Mineral Rights				0
c. Damages				0
d. P.L. 91-646 Relocation costs -19 relocations				532,000
e. Administrative Cost				1,515,000
	Federal	Relocation	Acquisition	Total
	Non-Federal	28,500	152,500	181,000
		114,000	1,220,000	1,334,000
		142,500	1,372,500	1,515,000
Sub-Total				3,845,283
Contingencies (25%)				961,321
		Totals		4,806,604
		Rounded		4,807,000

13 **5.2.16 Summary of Potential Real Estate Issues**

14 In the event that the excavated material is not suitable for a landfill a disposal site will have to be
 15 acquired. Typically if disposal sites are required, this would be considered as part of the LERRD
 16 requirement. Real Estate would provide an analysis during PED to compare the cost of acquiring an
 17 upland disposal site with the cost of using a commercial landfill and make a determination which
 18 method is most cost effective.

19 Any requirements for relocation contracts pertaining to facilities/utilities will be identified and
 20 completed during PED.

1 Should condemnation of any required real estate interest be necessary, it is the responsibility of the
 2 NFS. This issue is addressed during the Assessment of the Non-Federal Sponsor's Real Estate
 3 Acquisition Capability. However, if the real estate interest is one that the NFS does not have
 4 authority to condemn, the Federal Government can perform the condemnation on behalf of the NFS.

5 A relocation plan will need to be completed during PED to address potential relocation activity under
 6 P.L. 91-646. There are a number of factors pertaining to relocations that can impact the project both
 7 in cost and in schedule. Payments for Housing of Last Resort, which would exceed the standard
 8 housing replacement payments, are very likely due to the size of the project and the lack of available
 9 decent, safe and sanitary housing in the area. Another factor that could increase cost and impact
 10 schedule is the cost of business relocations. Depending on the type of business and the operation,
 11 this could involve moving equipment and machinery to new locations. It is necessary to interview
 12 each impacted individual and business during Pre-Construction, Engineering and Design Phase to
 13 determine the requirements for relocation and to estimate a cost for the relocation.

14 The availability of decent safe and sanitary housing may be a potential problem.

15 **5.2.17 Chart of Accounts**

16 The cost estimate for all Federal and non-Federal real estate activities necessary for implementation
 17 of the project after completion of the feasibility study for land acquisition, construction, LERRD, and
 18 other items are coded as delineated in the Cost Work Breakdown Structure (CWBS). This real estate
 19 cost estimate is then incorporated into the Total Current Working Estimate utilizing the
 20 Microcomputer Aided Cost Engineering System (MCACES). The Chart of Accounts at
 21 Table 5.2.17-1 shows the CWBS for real estate activities.

22 **Table 5.2.17-1.**
 23 **Chart of Accounts - Jackson County Bayou Cumbest Ecosystem Restoration**

01A	Project Planning	Federal	Non-Federal	Totals
	Other			
	Project Cooperation Agreement			
01AX	Contingencies (25%)			
	Subtotal			
01B	Lands and Damages/Permits			
01B40	Acquisition/Review of NFS	152,500		152,500
01B20	Acquisition by NFS		1,220,000	1,220,000
01BX	Contingencies (25%)	<u>38,125</u>	<u>305,000</u>	<u>343,125</u>
	Subtotal	190,625	1,525,000	1,715,625
01F	PL 91-646 Assistance			
01F20	By NFS		114,000	114,000
01FX	Contingencies (25%)		<u>28,500</u>	<u>28,500</u>
	Subtotal		142,500	142,500
01R	Real Estate Land Payments			
01R1B	Land Payments by NFS		1,798,283	5,083,421
01R2B	PL91-646 Relocation Payment by NFS		532,000	532,000
01R2D	Review of NFS	28,500		28,500
01RX	Contingencies (25%)	<u>7,125</u>	<u>582,571</u>	<u>589,696</u>
	Subtotal	35,625	2,912,854	2,948,479
	Totals	672,500	4,580,354	4,806,604
	Rounded			4,807,000

1 EXHIBITS

1 **AUTHORIZATION FOR ENTRY FOR CONSTRUCTION**

2
3 I _____, _____ for the
4 (Name of accountable official) (Title)

5 (Sponsor Name) _____, do hereby certify that the (Sponsor Name) has acquired the real
6 property interest required by the Department of the Army, and otherwise is vested with sufficient title
7 and interest in lands to support construction for (Project Name, Specifically identified project
8 features, etc.). Further, I hereby authorize the Department of the Army, its agents, employees and
9 contractors, to enter upon _____
10 (identify tracts)

11 to construct (Project Name, Specifically identified project features, etc.) as set forth in the plans and
12 specifications held in the U. S. Army Corps of Engineers' (district, city, state)

13
14 WITNESS my signature as _____ for the
15 (Title)

16 (Sponsor Name) this __ day of _____, 20____.

17
18
19 BY: _____
20 (Name)
21 _____
22 (Title)

23
24 **ATTORNEY'S CERTIFICATE OF AUTHORITY**

25
26 I, _____, _____ for the
27 (Name) (Title of legal officer)

28 (Sponsor Name), certify that _____ has
29 (Name of accountable official)

30 authority to grant Authorization for Entry; that said Authorization for Entry is executed by the proper
31 duly authorized officer; and that the Authorization for Entry is in sufficient form to grant the
32 authorization therein stated.

33
34 WITNESS my signature as _____ for the
35 (Title)

36 (Sponsor Name), this _____ day of _____, 20____.

37
38 BY: _____
39 (Name)
40 _____
41 (Title)

42 **Exhibit A**

1 **Assessment of Non-Federal Sponsor's**
2 **Real Estate Acquisition Capability**

3
4 I. Legal Authority:
5

- 6 a. Does the sponsor have legal authority to acquire and hold title to real property for project
7 purposes? (yes/no)
8
9 b. Does the sponsor have the power to eminent domain for this project? (yes/no)
10
11 c. Does the sponsor have "quick-take" authority for this project? (yes/no)
12
13 d. Are any of the land/interests in the land required for this project located outside the
14 sponsor's political boundary? (yes/no)
15
16 e. Are any of the lands/interests in land required for the project owned by an entity whose
17 property the sponsor cannot condemn? (yes/no)
18

19 II. Human Resource Requirements:
20

- 21 a. Will the sponsor's in-house staff require training to become familiar with the real estate
22 requirements of Federal projects including P. L. 91-646, as amended? (yes/no)
23
24 b. If the answer to II.a. is "yes", has a reasonable plan been developed to provide such
25 training? (yes/no)
26
27 c. Does the sponsor's in-house staff have sufficient real estate acquisition experience to
28 meet its responsibilities for the project? (yes/no)
29
30 d. Is the sponsor's projected in-house staffing level sufficient considering its other work
31 load, if any, and the project schedule? (yes/no)
32
33 e. Can the sponsor obtain contractor support, if required in a timely fashion? (yes/no)
34
35 f. Will the sponsor likely request USACE assistance in acquiring real estate? (yes/no)
36

37 III. Other Project Variables:
38

- 39 a. Will the sponsor's staff be located within reasonable proximity to the project site?
40 (yes/no)
41
42 b. Has the sponsor approved the project/real estate schedule/milestones? (yes/no)
43
44
45
46

Exhibit B
1st page

1 IV. Overall Assessment:

- 2
- 3 a. Has the sponsor performed satisfactory on other USACE projects?
- 4 (yes/no/not applicable)
- 5
- 6 b. With regard to the project, the sponsor is anticipated to be: highly capable/fully
- 7 capable/moderately capable marginally capable/insufficiently capable.
- 8

9 V. Coordination:

- 10
- 11 a. Has this assessment been coordinated with the sponsor? (yes/no)
- 12
- 13 b. Does the sponsor concur with this assessment? (yes/no) (If “no”, provide explanation)
- 14
- 15
- 16
- 17

18 Prepared by:

19

20

21

22

23

24 _____

25 Realty Specialist

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27 Reviewed and approved by:

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33 _____

34 Chief, Real Estate Division

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Exhibit B
2nd page

**MISSISSIPPI COASTAL IMPROVEMENT
PROGRAM (MsCIP)**

***High Hazard Area Risk Reduction Plan
(HARP)***



Real Estate Summary

The MsCIP Study includes a set of structural, nonstructural and environmental features for reduction of risk to life, property, infrastructure and the environment of coastal Mississippi with the goal of reconstructing the project area as a disaster-resilient community. This report recommends a nonstructural component of the study referred to as the High Hazard Area Risk Reduction Plan (HARP) for the purchase of approximately 2,000 parcels interspersed within the high hazard zone of the three coastal counties of Mississippi. The high hazard zone is defined in the MsCIP plan as the combination of the FEMA V and VE zones established by the publication of Flood Insurance Rate Maps and the FEMA designated "catastrophic damages zone" established after Katrina. This zone is shown on Figures 1 - 4. Acquisition of parcels within the high hazard zone to prevent future habitation was determined to be the most cost effective alternative to reduce loss of life and future damages from storms and hurricanes.

The total estimated residential, commercial, and municipal parcels located within the high hazard zone are estimated to be 15,000. The current HARP is proposed as a short term five-year project to begin upon execution of the Project Partnership Agreement for the HARP. In order to maximize benefits under the HARP, it would be implemented first in the most high risk areas and initially with owners who are still displaced and willing to sell. However, eminent domain may be used when necessary to implement the HARP. Acquisition of the remaining parcels within the high hazard zone will be evaluated in further studies with the comprehensive long-term risk reduction plan to be coordinated among HUD, FEMA and the Corps.

The majority of the parcels located within the high hazard zone were occupied by residences that were destroyed by Hurricane Katrina in August 2005. Recent site surveys and data collected indicate that many of these previously occupied parcels have either been rebuilt or are in the process of being rebuilt with the eastern areas of the Mississippi coast showing more development than the western areas. Current estimates of rebuilding within the high hazard zone range from 15% - 25% with many structures being elevated according to the current local floodplain management ordinances. The proposed HARP acquisition for approximately 2,000 parcels over a five year period in lieu of acquiring 15,000 was determined to be a more realistic and a reasonable number of acquisitions to expect after considering impacts to the local county tax base, time allowances for acquisitions, social disruption and project costs. Another major influence in making this determination was based on comments received from other Federal and State agencies, and comments received from owners who voiced their support for an acquisition program.

CONTENTS

1. STUDY AUTHORITY/BACKGROUND	1
2. ADVANTAGES	1
3. SCHEDULE	2
4. DESCRIPTION OF PARCELS.....	2
5. ACQUISITION COSTS	4
6. APPLICATION OF THE UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICY ACT OF 1970, AS AMENDED (URA)	6
7. REPLACEMENT HOUSING PAYMENT (RHP) UNDER THE URA	6
8. ACQUISITION IMPLEMENTATION AND MANAGEMENT PLAN	6
9. PROJECT SPONSOR RESPONSIBILITIES AND CAPABILITIES.....	7
10. CONCLUSIONS	7

TABLES

Table 1 Estimated HARP Costs	4
Table 2 HARP Chart of Accounts for Acquisition of Approximately 2,000 Parcels	5

FIGURES

Figure 1 High Hazard Zone Project Overview	10
Figure 2 High Hazard Zone in Hancock County	11
Figure	11
Figure 3 High Hazard Zone in Harrison County	12
Figure 4 High Hazard Zone in Jackson County.....	12
Figure 4 High Hazard Zone in Jackson County.....	13

1. STUDY AUTHORITY/BACKGROUND

The Mississippi Coastal Improvements Program, Hancock, Harrison, and Jackson Counties, Mississippi (MsCIP) and the MsCIP Comprehensive Plan Report was authorized for study by the Department of Defense Appropriations Act, 2006 (P.L. 109-148) 30 December 2005. The authorization was in response to numerous deaths, extensive damage to environmental resources, homes, businesses and industries, exacerbated saltwater intrusion problems, widespread coastal erosion, damage to public infrastructure and the regional economy caused by the Hurricanes of 2005.

During the study, based upon Corps of Engineers' data, FEMA damage estimates, State of Mississippi post-Katrina reports and on-site Corps investigations, a visually distinct zone was identified in which all residential and commercial structures were destroyed or so significantly damaged as to deny re-occupation. The majority of residential and commercial structures within the "high-hazard zone" designated by the Corps were destroyed and have not yet been rebuilt. The rebuilding rate within the surge inundation area and in particular the V/VE Zones as defined by FEMA, has been much slower than might typically be expected following a hurricane.

The comprehensive plan developed by the study team, resource agencies and public contains a recommendation for the implementation of a significant nonstructural alternative for the acquisition and/or floodproofing of properties within the area identified as having a 1 percent annual chance of inundation from hurricane and storm surges, with the goal of reconstructing the project area as a disaster-resilient community. A portion of this area, designated in the study as the high-hazard zone, is regarded as too dangerous for certain types of nonstructural measures that would place a residential structure (using normal building code construction practices), even an elevated residential structure, in the pathway of the surge and waves from a Katrina-like storm. Therefore the high-hazard zone is not considered an appropriate location for floodproofing by elevation while permanent acquisition of properties and removal of structures from that zone is considered an appropriate measure. To implement the acquisition component of the 1 percent annual chance plan the study team formulated an approach referred to as the High Hazard Area Risk Reduction Plan (HARP).

The FEMA designated 100-year floodplain (that is, a 1 percent annual chance of inundation) contains an estimated 58,000 parcels of which an estimated 15,000 parcels are located within the high hazard zone. It is not realistic to consider that this component could be undertaken within a short timeframe due to impacts on the local tax base, social disruption and project costs. However, it is realistic to consider that this component could be phased in over an extended multi-year period. The HARP would include acquisition of approximately 2,000 parcels interspersed within the most high risk areas that could be implemented over a five year period. The long-term nonstructural risk reduction plan is envisioned as a coordinated effort between HUD, FEMA, and the Corps to be applied over a much longer period and would include acquisition of additional parcels within the high hazard zone, floodproofing and/or acquisition of structures and parcels within the 100-yr floodplain. In order to maximize benefits under a HARP, the plan should be implemented first in the most high risk areas and with those owners or tenants who may still be displaced.

2. ADVANTAGES

There are significant advantages to an acquisition plan for residential, limited commercial and municipal parcels within the high hazard zone of coastal Mississippi as follows:

- Reduction of future property losses and potential loss of life.

- Eliminates costly structural alternatives and associated long term operation and maintenance costs.
- Provides a buffer and aids in reducing storm surge to adjoining properties.
- Provides an opportunity as lands are acquired both now and in the future to initiate alternative uses of these lands for fish and wildlife preservation, ecosystem restoration, public recreation and other compatible public uses.

There are substantial additional benefits that can be attained with an expeditious authorization of the HARP and the near-term benefits could significantly be reduced or lost should the program not be authorized until a later date. Prompt initiation of acquisition is more cost effective to the Government than commencing acquisition after parcels have been rebuilt. Acquisition prior to rebuilding also avoids displacement impacts to residents after they rebuild and reduces requirements for other Government-assisted temporary housing programs for those owners or tenants still displaced that may continue to receive financial assistance from the State or Federal Government.

3. SCHEDULE

When identifying the acquisition process for a HARP based on acquisition of approximately 2,000 interspersed parcels, the total time required was estimated to take five (5) years. The HARP acquisition process should require less administrative time and related costs compared to a traditional acquisition project since time spent for negotiations is expected to be less. Based on the strong local support from owners who are very desirous of selling their parcel(s), it is believed that the HARP would be similar to homeowner grant type programs in that interested owners would be applying for the program upon notifications of its authorization.

Considering that many of the estimated 15,000 parcel owners may not participate in an acquisition program, the MsCIP Project Delivery Team estimated that approximately 2,000 of these property owners would likely sell their parcel under a HARP. Based on a five year program, this would average 400 parcels per year and should be a reasonable number of acquisitions to expect with an adequately staffed office.

Since the primary purpose of the HARP is to restructure the project area as a disaster-resilient community, acquisition of properties will prevent future habitation which in turn would aid in reduction of loss of life and structural damages. Purchase of any parcels with residences or former residences would be subject to the owner or tenant also relocating outside of the high hazard area into decent, safe and sanitary housing as defined in 49 CFR 24. Among other eligibility requirements, the owner or tenant would have to show evidence that the new residence would meet the most current local floodplain management ordinance criteria for first floor elevation requirements to be eligible for relocation benefits.

4. DESCRIPTION OF PARCELS

Information collected from recent site surveys conducted by various MsCIP team members in March 2009 suggested that approximately 15 to 25 percent of the destroyed or seriously damaged homes previously located within the high hazard zone have been rebuilt according to various construction standards and ordinances in terms of storm survivability and elevation of the first floor. It was noted that many of the rebuilt homes within the high hazard zone would likely not survive another major storm event due to substandard construction or insufficient elevation. Even though one would expect that the owners of these rebuilt homes would not be interested in selling and reestablishing

their residence within 3 ½ - 4 years of Katrina, recent comments and opinions received at the public hearings suggest otherwise, especially from those owners who have rebuilt within Hancock and Harrison Counties. Hurricanes Gustav and Ike were both grim reminders for many of these owners of the damages and loss of property that can frequently occur from living within these high hazard zones of coastal Mississippi. Many homes within the Hancock and Harrison County areas incurred loss of personal property from flooding within their garages and yards from these recent storms. Other comments collected from the recent public meetings indicated that many owners are now considering selling due to the escalating insurance rates that have doubled or tripled within these areas. In some cases, landowners were denied flood insurance due to the high risks and therefore have not rebuilt. Recent discussions with FEMA representatives also verified that FEMA was not allowing any federal grants for residential or commercial construction within the V or high hazard zones.

The following division of parcels according to their current condition, status of redevelopment and ownership type indicates the array of opportunities provided to the Corps for acquiring high hazard zone properties.

1) Vacant parcels: A large portion of the parcels located within the high hazard zone were vacant prior to Katrina and most remain that way with average lot sizes of 100 x 150 ft. Current estimates based on visual observations range from 25 – 50 % or 3,750 – 7,500 parcels.

2) Vacant but previously occupied parcels: Another large portion of the high hazard zone is comprised of vacant but previously occupied parcels – occupied prior to Katrina. The majority of these parcels have been cleared so that there is little evidence of a former structure other than perhaps a remaining concrete slab or support pilings. The estimated number of parcels that have not been rebuilt upon range from 50 to 75 %, or 7,500 to 10,000 parcels.

3) Residential parcels: Estimates of parcels within the high hazard zone with either rebuilt homes or with homes in the process of being rebuilt range from 15 – 25 % or 2,250 – 3, 750. Estimated values for most of these homes range from \$175,000 - \$400,000.

4) Commercial Parcels: A small percentage or less than 5 % of the parcels within the high hazard zone are commercial. A few of these have been rebuilt but probably less than 1 %. Depending on the type of business (bait shop, florist, convenience store) and its location, there could be a requirement for acquisition depending on the circumstances. For example, if a small retail type business or parcel were located within a block of parcels so as to render it an in-holding, then it would likely be recommended for acquisition.

5) Tenants: A number of multi-family units were observed to have been rebuilt in the high-hazard zone indicating there may also be persons eligible for tenant occupancy benefits under the provisions of 49 CFR Part 24. Such persons would be considered on a case by case basis in accordance with applicable policy and regulations. Since the eligible reimbursement costs would be minimal in comparison to those that an owner occupant could receive, a separate cost allowance is not estimated for this and should be covered under the 25% contingency.

6) Municipal facilities/parcels: A small percentage estimated at one half of one percent of the total parcels within the HARP limits are occupied by municipal facilities. Four such facilities are located in the municipality of Moss Point and were severely damaged from Katrina. Discussions with Moss Point City officials indicate they are very receptive to relocating into substitute facilities outside of the HARP limits and have not received any other government assistance. Relocation of the Moss Point facilities and other possible municipal facilities is discussed in further detail in the Non Structural Appendix, Section 4.6. The estimated cost to design, construct and relocate the Moss Point facilities is estimated at \$11,424,000.

5. ACQUISITION COSTS

Because of the uncertainties regarding the number of parcels that may remain vacant at the time of acquisition and the applicability of occupancy requirements under a typical relocation program, the following data shown in Table 1 indicates the estimated costs of a HARP based upon a mixture of parcels that may be expected during implementation. A Chart of Accounts is shown in Table 2.

Table 1
Estimated HARP Costs

<u>Average Lot and Home Costs</u>			
Avg. Cost of Home, RHP, admin, demolition:			\$300,000
Avg. Cost of Vacant lot and admin:			\$ 75,000
Avg. Cost of Vacant lot, demo of foundation, RHP, admin:			\$170,000
<u>Recovery Stats for Residents in FEMA Temp. Units:</u>			
	Mar 08	Dec 08	Mar 09
Hancock Co.	1,668 occupied units	398	291
Harrison Co.	3,112 occupied units	815	647
Jackson Co.	<u>1,509 occupied units</u>	<u>446</u>	<u>378</u>
	6,289	1,659	1,316
<u>Total Acquisition Costs based on Mixture of Estimated 2,000 Parcels</u>			
Homes	35 %	700	210,000,000
Lots	60 %	1200	90,000,000
Lots/RHP	5 %	100	<u>17,000,000</u>
			317,000,000
			<u>25% contingency</u>
			\$396,250,000
		Rounded:	\$397,000,000
Municipal Facilities			11,424,000
		Total	\$408,424,000

Table 2
HARP Chart of Accounts for Acquisition of Approximately 2,000 Parcels

	FEDERAL	NON-FEDERAL	TOTALS
01A PROJECT PLANNING			
Other			
Project Cooperation Agreement			
01AX Contingencies			
Subtotal			
01B LANDS AND DAMAGES/PERMITS			
01B40 Acquisition/Review of PS	6,300,000		6,300,000
01B20 Acquisition by PS		41,950,000	41,950,000
01BX Contingencies (25%)	1,575,000	10,487,500	12,062,500
Subtotal	7,875,000	52,437,500	60,312,500
01F PL 91-646 ASSISTANCE			
01F20 By PS			
01FX Contingencies (25%)		0	0
Subtotal		0	0
01R REAL ESTATE LAND PAYMENTS			
01R1B Land Payments by PS		244,000,000	244,000,000
01R2B PL91-646 Relocation Payment by PS		24,750,000	24,750,000
01R2D Review of PS			0
01RX Contingencies (25%)	0	67,187,500	67,187,500
Subtotal	0	335,937,500	335,937,500
TOTALS	7,875,000	388,375,000	396,250,000
ROUNDED TO			\$397,000,000
01N00 FACILITY RELOCATIONS			
2100 Administrative		8,573,000	8,573,000
01BX Contingencies (25%)		566,200	566,200
Subtotal		2,284,800	2,284,800
		11,424,000	11,424,000
TOTAL			\$408,424,000

Note: In accordance with the provisions of WRDA 1986, as amended, cost sharing would be 65-percent Federal and 35-percent non Federal. Based on these provisions the estimated Federal share of the total cost of this project feature is \$258,050,000 and the current estimated non Federal share is \$138,950,000.

6. APPLICATION OF THE UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICY ACT OF 1970, AS AMENDED (URA)

The URA for the acquisition of real property provides various benefits to property owners when their property is acquired for an authorized Federal project. In keeping with the vision of the MsCIP for establishing a disaster-resilient coastline in regards to hurricane and storm surge, any benefit payments such as a Replacement Housing Payment (RHP) under the proposed HARP would be subject to the property owner establishing occupancy in decent, safe and sanitary (DSS) housing outside the designated high-hazard zone. Depending on the flood zone criteria for the area that the owner relocates to, the DSS designation would include the necessity to elevate the first floor of the home in accordance with the most current Digital Flood Insurance Rate Map (DFIRM) data as published by FEMA.

7. REPLACEMENT HOUSING PAYMENT (RHP) UNDER THE URA

Eligibility for relocation benefits under the URA is triggered generally by the occurrence of one of the following actions taken by the Federal Government or by a non-Federal sponsor for a federally assisted project: (1) the initiation of negotiations, (2) the issuance of a notice of intent to acquire, or (3) the actual acquisition of the property, whichever comes first. Generally, persons otherwise eligible under the URA requirements who move from their property, or move personal property, as a direct result of these displacing activities are considered displaced persons covered by the URA. One benefit under the URA available to eligible displaced persons of residential properties is payment of a RHP. The RHP would be in addition to the payment of the fair market value for the land itself.

Because there may still be residential owners and tenants displaced by Hurricane Katrina that may not be occupying the property when the HARP is implemented, the potential for application of a “constructive residential occupancy” theory under the URA and its implementing regulation contained in 49 CFR Part 24 will be considered on a case by case basis in accordance with applicable policies, regulations and criteria developed by the Government.

8. ACQUISITION IMPLEMENTATION AND MANAGEMENT PLAN

Specific guidelines for deployment of a HARP should be developed as a part of the authorization process and should be utilized to implement and manage the HARP. Preparation of an Acquisition Implementation and Management Plan (AIMP) in coordination with the Project Sponsor would ensure successful implementation and management of the HARP. The AIMP should be utilized and updated throughout the acquisition program as a working document and should include acquisition schedules, real estate costs, budgets, a relocation plan, program eligibility requirements, contacts, notification letters, applicable state and federal laws, prioritizing of acquisition areas and parcels, appraisal data, closing processes and any other relevant issues. To facilitate the acquisition process, it is recommended that a Draft AIMP be initiated as soon as possible and prior to a HARP implementation.

In order to maximize benefits under the HARP, it would be implemented first in the most high risk areas and initially with owners who are still displaced and willing to sell. However, eminent domain may be used when necessary to implement the HARP.

9. PROJECT SPONSOR RESPONSIBILITIES AND CAPABILITIES

The Mississippi Department of Marine Resources (MSDMR) is expected to be non-Federal Project Sponsor (NFS) for the HARP. The NFS will have the responsibility to provide all lands, easements, rights-of-way, relocations and dredged or excavated material disposal areas (LERRD) and will perform all relocations determined by the Government to be necessary for the project. The Government will have oversight of these activities to ensure compliance with the Uniform Relocation Assistance Act, Public Law 91-646, as amended, and with the Uniform Regulations contained in 49 C.F.R. Part 24. Should the NFS determine that certain circumstances may prevent acquisition in a timely manner, it may request the Government to acquire the LERRD on its behalf. In such event, the decision to acquire the LERRD on behalf of the non-Federal sponsor lies within the sole discretion of the Government. If agreed to by the Government, a Memorandum of Agreement (MOA) would be entered into and forwarded to HQUSACE for coordination, review and approval prior to execution. The Assessment of the non-Federal Sponsor's capability to acquire real estate is attached as Exhibit "A". Based on this assessment, it is highly probable that the NFS will be seeking assistance from the Government for acquisition of the LERRD on its behalf.

10. CONCLUSIONS

The nonstructural program component for a HARP project within the high hazard zone of coastal Mississippi can provide significant levels of protection to the residents in the project area and can be the foundation for development of a disaster-resilient community along the Gulf Coast. When compared to other flood damage reduction alternatives for the project area, the nonstructural components are the most cost effective, environmentally friendly, incremental in deployment but cumulative in benefit accrual, affordable in terms of local sponsor OMRR&R costs, supportive of local NFIP ordinances, and can be integrated into other community plans for energy conservation, new housing development, economic development, public transit strategies, and renewal of public facilities through local Capital Improvements Programs.

**Assessment of the
Real Estate Acquisition Capability
Of
Mississippi Department of Marine Resources (MSDMR)**

I. Legal Authority:

- a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes? (yes/no) **YES**
- b. Does the sponsor have the power to eminent domain for this project? (yes/no) **MSDMR does not but the State and local entities do.**
- c. Does the sponsor have “quick-take” authority for this project? (yes/no) **Same as b.**
- d. Are any of the land/interests in the land required for this project located outside the sponsor’s political boundary? (yes/no) **NO**
- e. Are any of the lands/interests in land required for the project owned by an entity whose property the sponsor cannot condemn? (yes/no) **NO**

II. Human Resource Requirements:

- a. Will the sponsor’s in-house staff require training to become familiar with the real estate requirements of Federal projects including P. L. 91-646, as amended? (yes/no) **YES**
- b. If the answer to II.a. is “yes”, has a reasonable plan been developed to provide such training? (yes/no) **NO**
- c. Does the sponsor’s in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project? (yes/no) **NO**
- d. Is the sponsor’s projected in-house staffing level sufficient considering its other work load, if any, and the project schedule? (yes/no) **NO**
- e. Can the sponsor obtain contractor support, if required in a timely fashion? (yes/no) **NO**
- f. Will the sponsor likely request USACE assistance in acquiring real estate? (yes/no) **YES**

III. Other Project Variables:

- a. Will the sponsor’s staff be located within reasonable proximity to the project site? (yes/no) **YES**
- b. Has the sponsor approved the project/real estate schedule/milestones? (yes/no) **YES**

IV. Overall Assessment:

- a. Has the sponsor performed satisfactory on other USACE projects?
(yes/no/not applicable) **YES**
- b. With regard to the project, the sponsor is anticipated to be: highly capable/fully capable/moderately capable/marginally capable/insufficiently capable.
INSUFFICIENTLY CAPABLE

V. Coordination:

- a. Has this assessment been coordinated with the sponsor? (yes/no) **YES**
- b. Does the sponsor concur with this assessment? (yes/no) (If “no”, provide explanation)
YES

Reviewed and approved by:

/s/

Willie L. Patterson
Chief, Real Estate Division
Mobile District

EXHIBIT A
Page 2

Figure 1
High Hazard Zone Project Overview

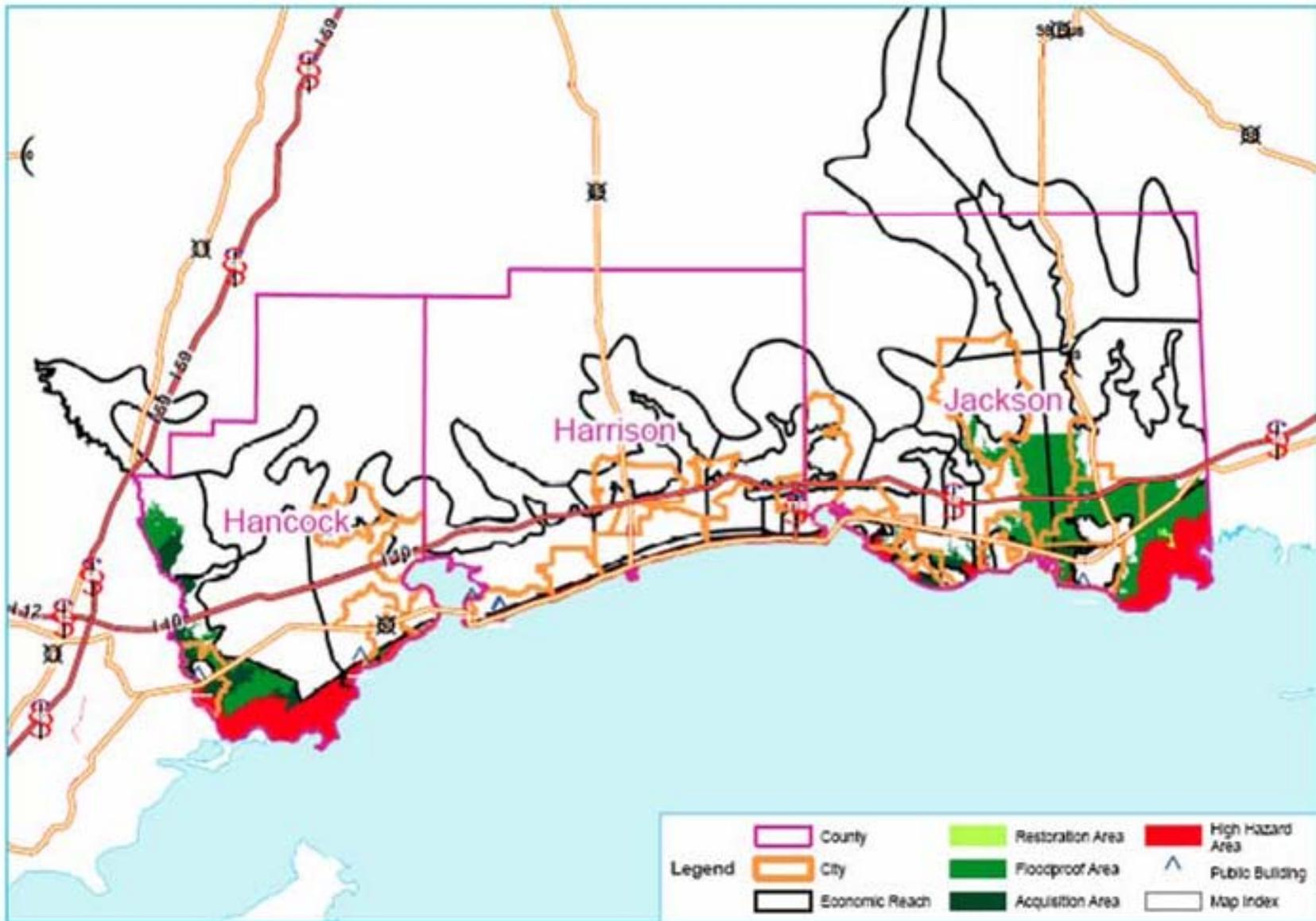


Figure 2
High Hazard Zone in Hancock County

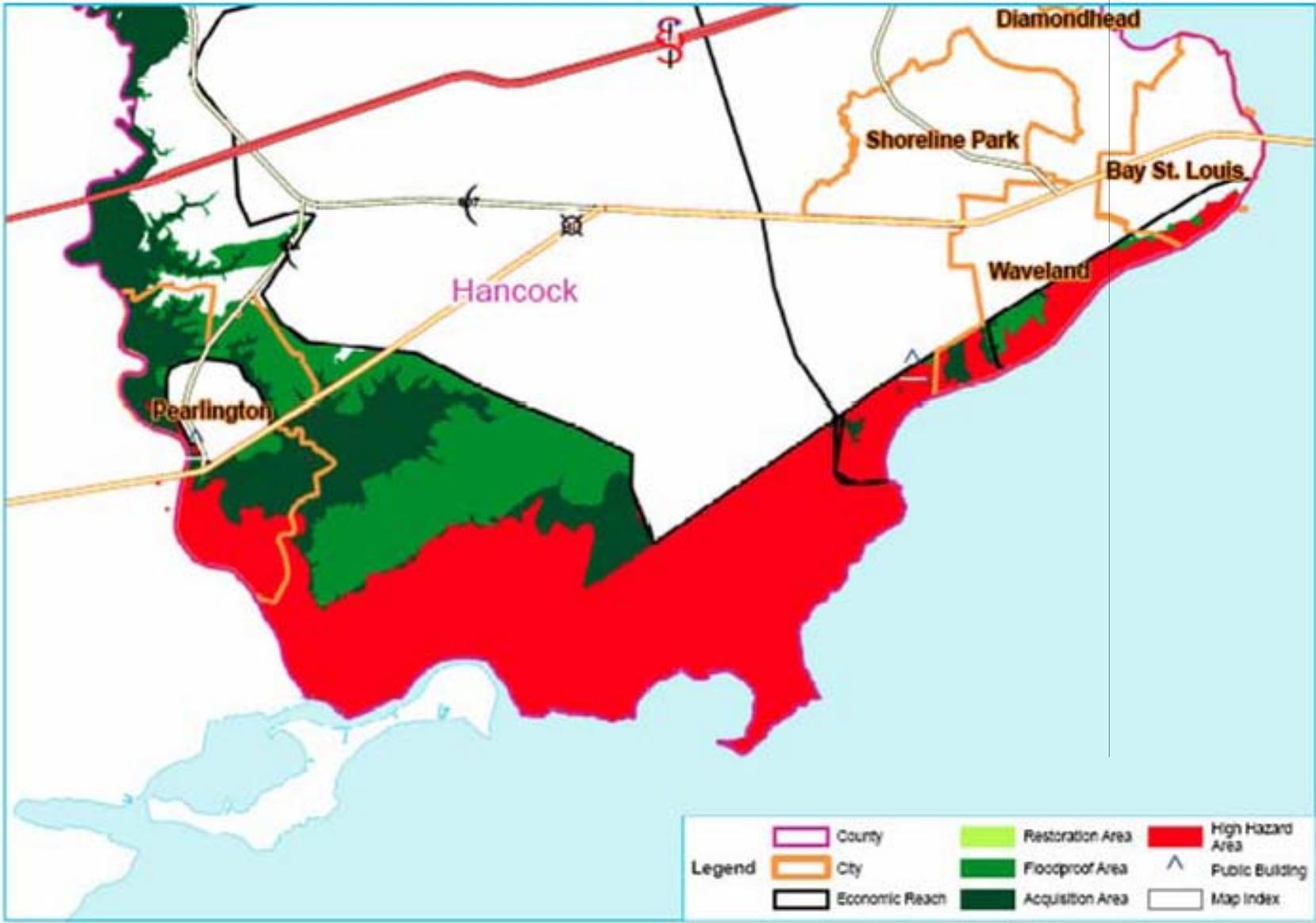


Figure 3
High Hazard Zone in Harrison County

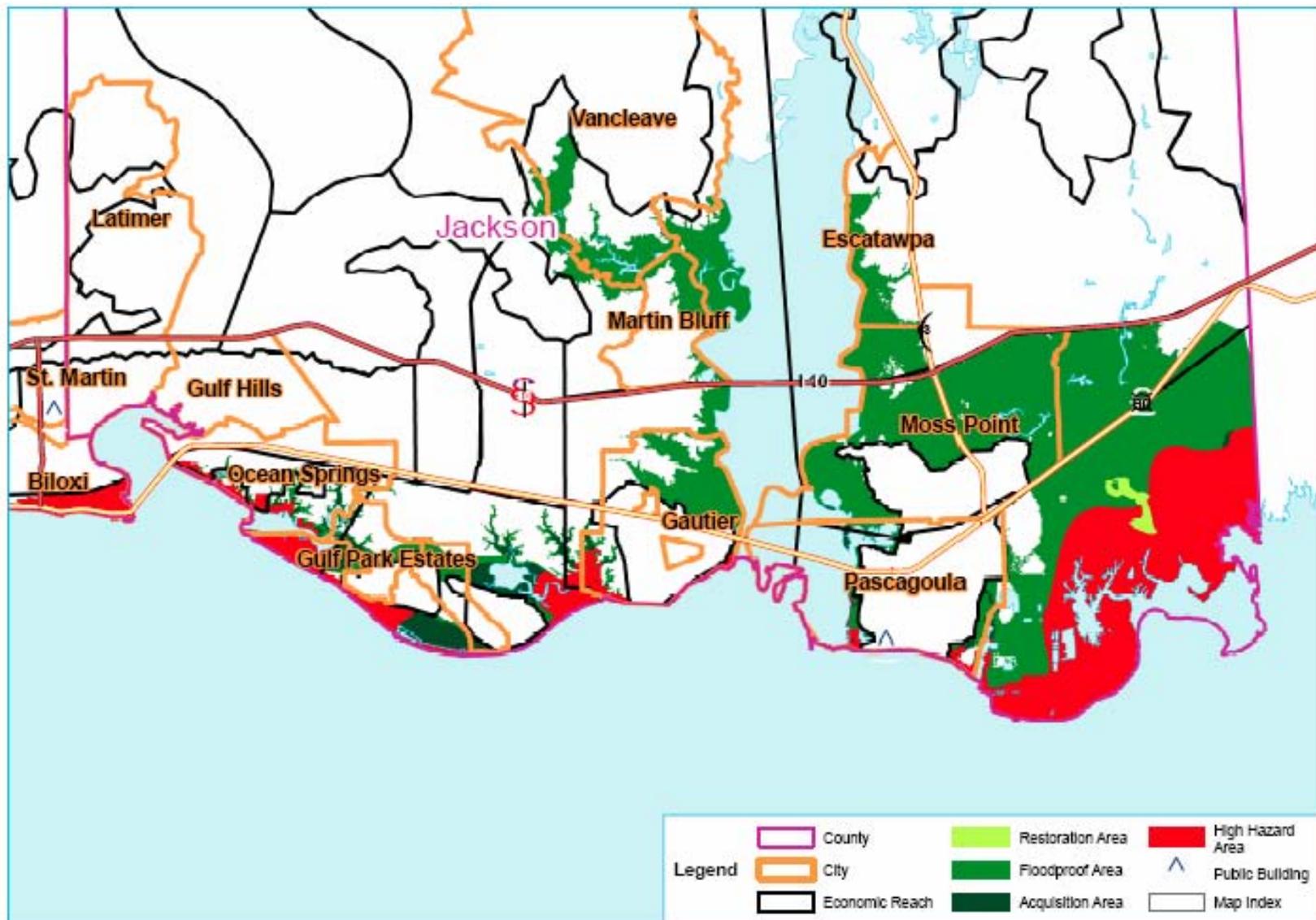


Figure 4
High Hazard Zone in Jackson County

