MISSISSIPPI COASTAL IMPROVEMENTS PROGRAM (MsCIP)
INTERIM REPORT

SYSTEM OF ACCOUNTS APPENDIX

CONTENTS

Problem Area: #39 - Bayou Caddy Shore Protection Restoration Project, Hancock County, Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 3: Breakwater	Alternative 4: Earthen Containment	Alternative 5: Earthen Containment plus Breakwater
A. PLAN DESCRIPTION	No Federal Action	Consists of a breakwater constructed by DMR using concrete rubble from bridges damaged by Hurricane Katrina	Consists of an earthen dike to create an 18-acre marsh site.	Consists of an earthen dike to create an 18-acre marsh site plus a protective breakwater.
B. IMPACT ASSESSMENT				
1. National Economic Development				
a. Beneficial Impacts				
(1) Damages Prevented	Shoreline erosion would continue with the resultant loss of valuable fishery habitat.	Would provide minimal protection against erosion during small storm events.	Would result in moderate decrease to coastal erosion, especially from smaller storms.	Would result in most moderate decrease to coastal erosion, especially from smaller storms.
(2) Emergency Costs Avoided	N/A	N/A	N/A	N/A
(3) Ecosystem Restoration	Continued degradation of coastal marsh resources would result.	Alternative would would provide a functional habitat index score of **330** with an average annual cost of **$1,219.23** per unit score.	Alternative would would provide a functional habitat index score of **300** with an average annual cost of **$340.10** per unit score.	Alternative would would provide a functional habitat index score of **465** with an average annual cost of **$875.95** per unit score.
(4) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits.	Alternative provides no significant change in recreation benefits.	Alternative provides no significant change in recreation benefits
(5) Total Beneficial Impacts	None.			
b. Adverse Impacts				
(1) Project Cost	$0	$2,010,000	$4,140,000	$5,690,000
(2) Average Annual First Cost		$112,234	$231,169	$317,718
(2) Interest During Construction	N/A	$ 43,800	$93,700	$133,100
(3) Annual O&M	$0	$0	$134,600	$89,600
(4) Total Avg. Annual Costs	$0	$156,034	$459,469	$540,418
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding and coastal wetlands habitat lost.	Alternative would result in minimal decreased coastal erosion and resulting benefits.	Alternative would result in moderate decreased coastal erosion and resulting benefits.	Alternative would result in moderate decreased coastal erosion and resulting benefits.
2. Environmental Quality (EQ)				
(1) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation
(2) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(3) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(4) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in no minimal improvement in aesthetic values	Alternative would result in no moderate improvement in aesthetic values	Alternative would result in no moderate improvement in aesthetic values
(8) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have a minimal effect on existing natural resources.	Alternative would have a moderate effect on existing natural resources.	Alternative would have a moderate effect on existing natural resources.

Problem Area: #39 - Bayou Caddy Shore Protection Restoration Project, Hancock County, Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 3: Breakwater	Alternative 4: Earthen Containment	Alternative 5: Earthen Containment plus Breakwater
(9) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.	Biological resources would be improved versus the no-action alternative.
(10) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(11) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(12) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)				
(1) Impact on Sales Volume	Alternative would have no impact to sales volume.	Alternative would provide an increase of **$4,020,000** to the sales volume of the local economy.	Alternative would provide an increase of **$13,101,308** to the sales volume of the local economy.	Alternative would provide an increase of **$14,590,692** to the sales volume of the local economy.
(2) Impact on Income	Alternative would have no impact to income.	Alternative would provide an increase of **$969,363** to the income of the local economy.	Alternative would provide an increase of **$3,159,184** to the incme of the local economy.	Alternative would provide an increase of **$3,518,327** to the incme of the local economy.
(3) Impact on Employment	Alternative would have no impact to employment.	Alternative would provide an increase of **24** jobs to the local economy.	Alternative would provide an increase of **79** to the sales volume of the local economy.	Alternative would provide an increase of **89** to the sales volume of the local economy.
(6) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
4. Other Social Effects (OSE)				
a. Beneficial Impacts				
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(4) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(5) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have little effect on community growth

Problem Area: #39 - Bayou Caddy Shore Protection Restoration Project, Hancock County, Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 3: Breakwater	Alternative 4: Earthen Containment	Alternative 5: Earthen Containment plus Breakwater
(6) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(7) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(8) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(9) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION				
1. Contributions to Planning Objectives				
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.	Alternative will result in protection against erosion for even large storm events.
2. Response to Planning Constraints				
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria				
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion	Alternative is effective at dealing with issues of ecosystem restoration and coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.	Alternative will incur outlay of funds for construction. Would also require reduced outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.

Problem Area: #39 - Bayou Caddy Shore Protection Restoration Project, Hancock County, Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 3: Breakwater	Alternative 4: Earthen Containment	Alternative 5: Earthen Containment plus Breakwater
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal	Alternative will integrate with DMR plans for short term erosion protection measures and the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.	Elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: # - Hancock County Beaches Ecosystem Restoration and Hurricane Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
A. PLAN DESCRIPTION	No Federal Action	Consists of placing a dune 2 feet high to approximately Elevation 7.0 with a crest width of 10 feet high.	Consists of placing a dune 2 feet high to approximately Elevation 7.0 with a crest width of 10 feet high with plantings and a sand fence the entire linear length.
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Shoreline erosion would continue and the seawall would fail resulting in the need to rerout traffic away from Beach Boulevard.	Would result in a moderate decrease in shoreline erosion.	Would result in a moderate decrease in shoreline erosion.
(2) Emergency Costs Avoided	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative would provide **$794,775** in average annual recreation benefits	Alternative would provide **$794,775** in average annual recreation benefits
(4) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Total Project First Costs	$0	$1,270,000	$1,770,000
(2) Average Annual First Costs	$0	$70,914	$98,833
(2) Interest During Construction	N/A	$25,700	$35,600
(3) Annual O&M	$0	$40,000	$40,000
(4) Total Avg. Annual Costs	$0	$136,614	$174,433
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding and erosion.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration	Alternative would produce a functional habitat index score of **0 with no federal action**.	Alternative would produce a functional habitat index score of **260 with an average annual cost of $525.44 per functional unit**.	Alternative would produce a functional habitat index score of **405 with an average annual cost of $430.70 per functional unit**.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.

Problem Area: # - Hancock County Beaches Ecosystem Restoration and Hurricane Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.
(7) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
(8) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a minimal change in aesthetic values	Alternative would result in a moderate aesthetic improvement to coastal area.
(9) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would result in restoration of the beach creating a minimal improvement to its overall value as a natural resource.	Alternative would result in restoration of the beach creating a moderate improvement to its overall value as a natural resource.
(10) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(11) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(12) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(13) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(14) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation

Problem Area: # - Hancock County Beaches Ecosystem Restoration and Hurricane Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
(15) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$3,972,714** in additional sales volume to the local economy.	Alternative would provide **$4,972,714** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$957,961**in additional local income to the local economy.	Alternative would provide **$1,199,096** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **24** new jobs to the local economy.	Alternative would provide **30** new jobs to the local economy.
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(2) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(3) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.
(4) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(5) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(6) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.

Problem Area: # - Hancock County Beaches Ecosystem Restoration and Hurricane Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
(7) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion

Problem Area: # - Hancock County Beaches Ecosystem Restoration and Hurricane Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #62 - Hancock County Communities

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
A. PLAN DESCRIPTION	No Federal Action	Consists of removing 1-foot of sediment.	Consists of removing 2-feet of sediment.
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Would result in no decrease of flood damages.	Would result in a minimal decrease of flood damages because this evaluation is slightly above sea level and would provide some flood damage reduction benefits.	Would result in Moderate decrease of flood damages because this evaluation is slightly above sea level and would provide some flood damage reduction benefits.
(2) Emergency Costs Avoided	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative would provide **$3,820,000** in average annual recreation benefits.	Alternative would provide **$3,820,000** in average annual recreation benefits.
(4) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Project Cost	$0	$4,070,000	$6,820,000
(2) Average Annual Cost	$0	$227,261	$380,815
(2) Interest During Construction	N/A	$95,800	$160,200
(3) Annual O&M	$0	$64,900	$123,000
(4) Total Avg. Annual Costs	$0	$387,961	$664,015
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding.	Alternative would result in some benefits due to a minimal reduction in flood damages.	Alternative would result in some benefits due to moderate decrease in flood damages.
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration (Habitat Improvement)	Alternative would produce no improvements in habitat.	Alternative would produce a functional habitat index score of **195** with aaverage annual cost of **$1,989.54**.	Alternative would produce a functional habitat index score of **195** with a per unit total first cost of **$35,333**.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have a moderate improvement on water circulation.	Alternative would moderately improve water circulation.
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction

Problem Area: #62 - Hancock County Communities

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a moderate improvement to aesthetic values	Alternative would result in a moderate improvement to aesthetic values
(7) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have some effect on existing natural resources.	Alternative would result in restoration of coastal marsh resources.
(8) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(9) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(10) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(11) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(12) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(13) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$9,457,092** in additional sales volume to the local economy.	Alternative would provide **$16,096,164** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$2,280,437** in additional local income to the local economy.	Alternative would provide **$3,881,349** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **58** new jobs to the local economy.	Alternative would provide **98** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes

Problem Area: #62 - Hancock County Communities

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(3) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.
(5) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(6) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(7) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.

Problem Area: #62 - Hancock County Communities

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #19 - Jackson Marsh, Hancock County, Project Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Combination of Sediment Removal and Wall Replacement with aluminum sheet pile and remove sediment	Alternative 3: Combination of Sediment Removal and Wall Replacement with vinyl sheet pile and remove sediment
A. PLAN DESCRIPTION	No Federal Action	Consists of placing aluminum sheetpile structures from the edge of the concrete outlet walls to where the beach contacts the Mississippi Sound	Consists of the combination of removing sediment and replacing drainage canal outlet walls.
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Would result in NO decrease in flood damages.	Would result in decrease in damage to infrastructure linked and adjacent to the drainage channel.	Would result in decrease in damage to infrastructure linked and adjacent to the drainage channel.
(2) Emergency Costs Avoided	Emergency costs could increase if flooding results of channel wall failure and traffic needs to be re-routed around flooded areas. Some residential help calls may result.	Emergency costs would continue at reduced rate due to reduced threat to water over roadway and interior flooding effects.	Emergency costs would continue at reduced rate due to reduced threat to water over roadway and interior flooding effects.
(4) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits.	Alternative provides no significant change in recreation benefits
(5) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Project Cost	$0	$4,520,000	$3,030,000
(2) Average Annual Cost	$0	$252,388	$169,189
(2) Interest During Construction	N/A	$106,300	$71,000
(3) Annual O&M	$0	$234,700	$217,000
(4) Total Avg. Annual Costs	$0	$593,388	$457,189
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration	Alternative would provide a Functional Habitat Index score of **80**.	Alternative would provide a functional habitat index score of **525 with An average annual cost of $1,130.26**.	Alternative would provide a functional habitat index score of **525 with aan average annual cost of $870.84**.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have a significant effect on water circulation.	Alternative would have a significant effect on water circulation
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.

Problem Area: #19 - Jackson Marsh, Hancock County, Project Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Combination of Sediment Removal and Wall Replacement with aluminum sheet pile and remove sediment	Alternative 3: Combination of Sediment Removal and Wall Replacement with vinyl sheet pile and remove sediment
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in aesthetic improvement in public facilities	Alternative would result in aesthetic improvement in public facilities
(7) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would result in restoration of coastal marsh resources.
(8) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have no anticipated effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(9) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts during construction.	Alternative would have temporary negative impacts during construction.
(10) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to construction.	Alternative would have temporary negative impacts to water quality due to construction.
(11) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(12) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(13) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Environmental quality would be improved versus the no-action alternative and the bracing replacement alternative.
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$17,547,770** in additional sales volume to the local economy.	Alternative would provide **$13,894,354** in additional sales volume to the local economy.

Problem Area: #19 - Jackson Marsh, Hancock County, Project Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Combination of Sediment Removal and Wall Replacement with aluminum sheet pile and remove sediment	Alternative 3: Combination of Sediment Removal and Wall Replacement with vinyl sheet pile and remove sediment
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$4,230,382** in additional local income to the local economy.	Alternative would provide **$3,350,416** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **107** new jobs to the local economy.	Alternative would provide **86** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in decrease in risks to life, health and safety, due to re-establishment of stormwater conveyance.	Alternative would result in decrease in risks to life, health and safety, due to re-establishment of stormwater conveyance.
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(3) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have no effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have little effect on community growth
(5) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(6) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.	Alternative is anticipated to have a positive effect on business displacement versus the no-action alternative.

Problem Area: #19 - Jackson Marsh, Hancock County, Project Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Combination of Sediment Removal and Wall Replacement with aluminum sheet pile and remove sediment	Alternative 3: Combination of Sediment Removal and Wall Replacement with vinyl sheet pile and remove sediment
(7) Public Facilities	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection resulting from large storm and hurricane events	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection resulting from large storm and hurricane events	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection resulting from large storm and hurricane events
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative will result in improvement in safety to lives provided by restoration of stormwater conveyance.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Flood, Hurricane and/or Storm Damage Reduction	Alternative will result in no improvement in damage reduction, though damages will be increased versus the pre-Katrina condition.	Alternative will result in minor improvement in damage reduction.	Alternative will result in improved flood damage reduction versus the no-action alternative.
b. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in continued loss of environmental resources.	Marsh restoration will accrue unquantified benefits.
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is not anticipated to have any effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports only limited goals and objectives of City General Plan, or State Recovery Plan	Alternative supports limited goals and objectives of City General Plan and State Recovery Plan

Problem Area: #19 - Jackson Marsh, Hancock County, Project Mississippi

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Combination of Sediment Removal and Wall Replacement with aluminum sheet pile and remove sediment	Alternative 3: Combination of Sediment Removal and Wall Replacement with vinyl sheet pile and remove sediment
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Alternative provides only partial solution to identified problems; functions as two elements, ecosystem restoration and flood damage reduction, of Comprehensive Plan.
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is effective at dealing with environmental values and flood damage reduction issues.	Alternative is effective at dealing with environmental values and flood damage reduction issues.
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds for construction. Would also require continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in flood damages.	Alternative will incur outlay of funds for construction. Would also require continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in flood damages.
e. Integration	Alternative will not require integration with any other plans	Alternative will integrate with those plans that require addressing short- and long-term environmental restoration; alternative will not hinder short- or long-term environmental restoration or recovery goals.	Alternative will integrate with those plans that require addressing short- and long-term environmental restoration; alternative will not hinder short- or long-term environmental restoration or recovery goals, nor hurricane and storm damage reduction goals.
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove wetland and structural features	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be joint Federal/Non-Federal implementation responsibility.	Elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
A. PLAN DESCRIPTION	No Federal Action	Alternative would rebuild seawall with steel sheetpile	Alternative would rebuild seawall with vinyl sheetpile
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Continued damage to seawall, road, and utilities during events of roughly 5-yr frequency and larger; damage to businesses and residences above ~10-yr	Alternative would result in decrease in damages to restoration of seawall, preventing damage to infrastructure infrastructure road or utilities during events that overtop wall; would result in decreased damage to structures by adoption of more rigorous building codes	Alternative would result in decrease in damages to restoration of seawall, preventing damage to infrastructure infrastructure road or utilities during events that overtop wall; would result in decreased damage to structures by adoption of more rigorous building codes
(2) Emergency Costs Avoided	Emergency costs would continue at current rate; costs would occur due to re-routing of all traffic during events which would damage road; potential for loss of life due to added time and loss of evacuation route	Unquantified reduction in emergency costs due to preservation of Beach Blvd as evacuation and emergency services route	Unquantified reduction in emergency costs due to preservation of Beach Blvd as evacuation and emergency services route
(3) Ecosystem Restoration	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources
(4) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(5) Total Beneficial Impacts (Average Annual Benefits)			
b. Adverse Impacts			
(1) Project Cost	$0	$1,651,000	$1,320,000
(2) Average Annual Cost	$0	$92,189	$73,706
(2) Interest During Construction	n/a		
(3) Annual O&M	$0	$10,000	$5,000
(4) Total Avg. Annual Costs	$0	$102,189	$78,706

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	Alternative would result in significant benefit to National Economic Benefits account due to protection of road and utilities; unquantified benefit to NED account due to reduced damage suffered by property due to adoption of better building codes and modified zoning ordinances	Alternative would result in significant benefit to National Economic Benefits account due to protection of road and utilities; unquantified benefit to NED account due to reduced damage suffered by property due to adoption of better building codes and modified zoning ordinances
2. Cost Effectiveness (CE) (see "Efficiency" below)			
3. Environmental Quality (EQ)			
(1) Water Circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation
(2) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would reduce damages to man-made resources due to adoption of better building codes and zoning ordinances, and slight increase in protection due to repaired seawall	Alternative would reduce damages to man-made resources due to adoption of better building codes and zoning ordinances, and slight increase in protection due to repaired seawall
(3) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(4) Public Facilities	Alternative would result in no change in public facilities	Alternative would result in protection of public service utility lines and road	Alternative would result in protection of public service utility lines and road
(5) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in decrease in risks to life, health and safety, due to adoption of better building and zoning codes, and due to protection of road used for emergency services accesss and evacuation route	Alternative would result in decrease in risks to life, health and safety, due to adoption of better building and zoning codes, and due to protection of road used for emergency services accesss and evacuation route

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(6) Tax Changes	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and added costs of emergency services	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and adoption of new building codes and zoning ordinances, but may decrease costs of emergency services	Alternative may result in increases in local taxes due to adoption of new building codes and zoning ordinances, but may decrease costs of emergency services and need for continued rebuilding of public infrastructure and utilities
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in no significant change in aesthetic values, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance	Alternative would result in no significant change in aesthetic values, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance
(8) Natural Resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources
(9) Biological Resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources
(10) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to construction on seawall	Alternative would have temporary negative impacts to air quality due to construction on seawall
(11) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(12) Public Services	Alternative would have no anticipated effect on public services during non-storm periods, but would continue to allow negative impacts during and after large storm events due to loss of utility service and loss of road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative is anticipated to result in no significant change in cultural and historical preservation, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance	Alternative is anticipated to result in no significant change in cultural and historical preservation, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment
4. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$5,207,250** in additional sales volume to the local economy.	Alternative would provide **$5,867,250** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$1,255,651** in additional local income to the local economy.	Alternative would provide **$1,414,800** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **31** new jobs to the local economy.	Alternative would provide **35** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
5. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrina and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrina and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrina and its aftermath
(2) Employment	Alternative is expected to have no significant effect on local employment	Alternative is expected to have minor positive impact on employment due to institution of better building codes, and the increase in time spent implementing them in reconstructing of destroyed housing and businesses; temporary increase in employment due to construction on seawall	Alternative is expected to have minor positive impact on employment due to institution of better building codes, and the increase in time spent implementing them in reconstructing of destroyed housing and businesses; temporary increase in employment due to construction on seawall
(3) Tax Values	Alternative is anticipated to have negative impact on tax value due to lack of protection to property along coastline, and restriction on rebuilding that this will cause	Alternative is enticipated to have slight increase in tax values due to added value of properties rebuilt using new building codes	Alternative is enticipated to have slight increase in tax values due to added value of properties rebuilt using new building codes
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have little effect on community growth, except where revised building codes and zoning ordinances might affect population density close to coast	Alternative is anticipated to have little effect on community growth, except where revised building codes and zoning ordinances might affect population density close to coast

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(5) Property Values	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property; revision of building codes and zoning ordinances may result in higher property values for those structures in high risk area close to coastline due to required rebuilding to better code requirements	Alternative is anticipated to result in positive impact to property values immediately inland of former seawall due to protection of road, utilities, and property; revision of building codes and zoning ordinances may result in higher property values for those structures in high risk area close to coastline due to required rebuilding to better code requirements
(6) Displacement of Businesses	Alternative is anticipated to result in significant displacement of businesses inland due to lack of physical protection	Alternative is anticipated to result in no displacement of businesses by virtue or provision of physical protection measures to those along Beach Boulevard, but may result in displacement due to adoption of revised building codes and zoning ordinances	Alternative is anticipated to result in no displacement of businesses by virtue or provision of physical protection measures to those along Beach Boulevard, but may result in displacement due to adoption of revised building codes and zoning ordinances
(7) Public Facilities	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, lack of upgraded building codes, resultingf from large storm and hurricane events	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, resulting from large storm and hurricane events	Alternative is anticipated to result in lower risk and incurred costs to public facilities due to upgrade of physical protection, and upgrading of building codes, for large storm and hurricane events
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative will result in continued threat to loss of life during moderate to large storm and hurricane events	Alternative will result in improvement in safety to lives provided by better building codes and/or zoning ordinances, plus protection of road that acts as emergency services conduit and evacuation route	Alternative will result in improvement in safety to lives provided by better building codes and/or zoning ordinances, plus protection of road that acts as emergency services conduit and evacuation route

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Flood, Hurricane and/or Storm Damage Reduction	Alternative will result in no improvement in damage reduction	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to better building codes, which will result in lower damages from moderate to large events; revised zoning ordinances may also result in damage reduction due to removal of easily-damaged structures and infrastructure from highest risk areas of City; reduced damage potential due to protection of road and utilities from wave and surge action, and potential protection of property during moderate events	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to better building codes, which will result in lower damages from moderate to large events; revised zoning ordinances may also result in damage reduction due to removal of easily-damaged structures and infrastructure from highest risk areas of City; reduced damage potential due to protection of road and utilities from wave and surge action, and potential protection of property during moderate events
b. Ecosystem Restoration	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects
c. Recreation Opportunities	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way
b. Institutional Acceptability	Alternative is not supported by local government	Alternative is supported by local government (City and County)	Alternative is supported by local government (City and County)
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of City General Plan, or State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction, but better than Alternatives 2 and 3
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with issues of structure survivability and removal of high risk structures from highest risk areas, and improving protection to road and utlities during larger storm and hurricane events	Alternative is only effective at dealing with issues of structure survivability and removal of high risk structures from highest risk areas, and improving protection to road and utlities during larger storm and hurricane events
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require continued outlay of funds for infrastructure damage repair, emergency services delays, and structure repair	Alternative will incur outlay of funds for implementation of evacuation plans, warning plans, and other non-structural measures, plus construction, but less cost-effective than Alt. 4;	Alternative will incur outlay of funds for implementation of evacuation plans, warning plans, and other non-structural measures, plus construction (lower outlay than Alt. 3); would result in lower continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in structural repair in high risk areas; this alternative judged to be most efficient use of funds over projected period of analysis (minimum Project Life of 50 years); use of vinyl sheetpile achieved additional cost-savings over other alternative materials, as cost reduction optimization (see Engineering Appendix)

Problem Area: #15H - Clermont Harbor Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
e. Integration	Alternative will not require integration with any other plans	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage; alternative will integrate with plans that promote reduction of damages in coastal zone	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage; alternative will integrate with plans that promote reduction of damages in coastal zone
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove limited structural improvements	Alternative could be reversible, given means to remove structural improvements
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	The non-structural elements of this alternative would be implemented at City and/or County level, conceivably with State assistance on building codes; structural elements would be joint Federal/Non-Federal implementation responsibility; implementation of evacuation plans may be Non-Federal implementation responsibility	The non-structural elements of this alternative would be implemented at City and/or County level, conceivably with State assistance on building codes; structural elements would be joint Federal/Non-Federal implementation responsibility; implementation of evacuation plans may be Non-Federal implementation responsibility
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative may require State or other Non-Federal coordination activities in regards to implemetation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination	This alternative may require State or other Non-Federal coordination activities in regards to implemetation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination

Problem Area: #15 - Bay. St. Louis Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Concrete T Wall	Alternative 3: Concrete Gravity Wall
A. PLAN DESCRIPTION	No Federal Action	Improvement of warning, evacuation, adoption of building and zoning code measures.	Alternative would rebuild seawall at existing elevation, but seaward to accommodate Federal Highway regulations
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Continued damage to seawall, road, and utilities during events of roughly 5-yr frequency and larger; damage to businesses and residences above ~10-yr	Alternative would result in decreased damage to infrastructure including and below the 50-year storm event. Average annual HSDR benefits are estimated at $1,785,500 and reduced annual time delays and operator's variable costs benefits are $481,400. Total annual benefits are $2,266,900.	Alternative would result in decreased damage to infrastructure including and below the 50-year storm event. Average annual HSDR benefits are estimated at $1,785,500 and reduced annual time delays and operator's variable costs benefits are $481,400. Total annual benefits are $2,266,900.
(2) Emergency Costs Avoided	Emergency costs would continue at current rate; costs would occur due to re-routing of all traffic during events which would damage road; potential for loss of life due to added time and loss of evacuation route	Emergency costs would continue at slightly reduced rate due to reduced threats to residents due to adoption of more rigorous evacuation and building and zoning codes	Emergency costs would continue at slightly reduced rate due to reduced threats to residents due to adoption of more rigorous evacuation and building and zoning codes
(3) Ecosystem Restoration	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources
(4) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides $318,000 average annual recreation benefit through the recrational experience.	Alternative provides $318,000 average annual recreation benefit through the recrational experience.
(5) Total Beneficial Impacts (Average Annual Benefits)		Alternative provides $2,584,900 average annual benefits	Alternative provides $2,584,900 average annual benefits
b. Adverse Impacts			
(1) Project Cost	$0	$29,400,000	$29,140,000
(2) Average Annual Costs	$0	$1,641,637	$1,627,119
(3) Interest During Construction	n/a	$821,395	$755,855
(3) Annual O&M	$0	$29,216	$29,216
(4) Total Avg. Annual Costs	$0	$2,492,248	$2,412,190
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	Alternative would result in continued losses to National Economic Benefits account from storms less frequent than the 50-year event.	Alternative would result in continued losses to National Economic Benefits account from storms less frequent than the 50-year event.
2. Cost Effectiveness (CE) (see "Efficiency" below)			
3. Environmental Quality (EQ)			
(1) Water Circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation
(2) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would reduce damages to man-made resources due to adoption of better building codes and zoning ordinances	Alternative would reduce damages to man-made resources due to adoption of better building codes and zoning ordinances, and slight increase in protection due to new seawall
(3) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in no anticipated change in noise levels	Alternative would result in temporary increase in noise levels during construction
(4) Public Facilities	Alternative would result in no change in public facilities	Alternative would result in no anticipated change in public facilities	Alternative would result in no anticipated change in public facilities
(5) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in decrease in risks to life, health and safety, due to adoption of better building and zoning codes	Alternative would result in decrease in risks to life, health and safety, due to adoption of better building and zoning codes

Problem Area: #15 - Bay. St. Louis Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Concrete T Wall	Alternative 3: Concrete Gravity Wall
(6) Tax Changes	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and added costs of emergency services	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and adoption of new building codes and zoning ordinances, but may decrease costs of emergency services	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and adoption of new building codes and zoning ordinances, but may decrease costs of emergency services
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in no significant change in aesthetic values, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance	Alternative would result in no significant change in aesthetic values, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance
(8) Natural Resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources
(9) Biological Resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources
(10) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to construction of seawall
(11) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality
(12) Public Services	Alternative would have no anticipated effect on public services during non-storm periods, but would continue to allow negative impacts during and after large storm events due to loss of utility service and loss of road access for emergency services and other uses	Alternative would have no anticipated effect on public services during non-storm periods, but would continue to allow negative impacts during and after large storm events due to loss of utility service and loss of road access for emergency services and other uses	Alternative would have no anticipated effect on public services during non-storm periods, but would continue to allow negative impacts during and after large storm events due to loss of utility service and loss of road access for emergency services and other uses
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative is anticipated to result in no significant change in cultural and historical preservation, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance	Alternative is anticipated to result in no significant change in cultural and historical preservation, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment
4. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$61,210,356** in additional sales volume to the local economy.	Alternative would provide **$59,396,354** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$14,357,182** in additional local income to the local economy.	Alternative would provide **$14,322,543** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **370** new jobs to the local economy.	Alternative would provide **358** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes

Problem Area: #15 - Bay. St. Louis Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Concrete T Wall	Alternative 3: Concrete Gravity Wall
5. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath
(2) Employment	Alternative is expected to have no significant effect on local employment	The construction of this alternative will bring 361 new jobs	The construction of this alternative will bring 393 new jobs
(3) Tax Values	Alternative is anticipated to have negative impact on tax value due to lack of protection to property along coastline, and restriction on rebuilding that this will cause	The construction of this project will bring significant increase in tax revenues fro the $74 million dollar direct and indirect dollar inpact. Alternative is enticipated to have slight increase in tax values due to added value of properties rebuilt using new building codes	The construction of this project will bring significant increase in tax revenues fro the $80 million dollar direct and indirect dollar inpact. Alternative is enticipated to have slight increase in tax values due to added value of properties rebuilt using new building codes
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have a significant effect on community growth, except where revised building codes and zoning ordinances might affect population density close to coast	Alternative is anticipated to have a significant effect on community growth, except where revised building codes and zoning ordinances might affect population density close to coast
(5) Property Values	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property; revision of building codes and zoning ordinances may result in higher property values for those structures in high risk area close to coastline due to required rebuilding to better code requirements	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property; revision of building codes and zoning ordinances may result in higher property values for those structures in high risk area close to coastline due to required rebuilding to better code requirements
(6) Displacement of Businesses	Alternative is anticipated to result in significant displacement of businesses inland due to lack of physical protection	Alternative is anticipated to result in displacement of businesses due to lack of physical protection; may also result in displacement due to adoption of revised building codes and zoning ordinances	Alternative is anticipated to result in displacement of businesses due to lack of physical protection; may also result in displacement due to adoption of revised building codes and zoning ordinances
(7) Public Facilities	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, lack of upgraded building codes, resultingf from large storm and hurricane events	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, resulting from large storm and hurricane events	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, resulting from large storm and hurricane events
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative will result in continued threat to loss of life during moderate to large storm and hurricane events	Alternative will result in improvement in safety to lives provided by better building codes and/or zoning ordinances	Alternative will result in improvement in safety to lives provided by better building codes and/or zoning ordinances
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Flood, Hurricane and/or Storm Damage Reduction	Alternative will result in no improvement in damage reduction	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to better building codes, which will result in lower damages from moderate to large events; revised zoning ordinances may also result in damage reduction due to removal of easily-damaged structures and infrastructure from highest risk areas of City	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to better building codes, which will result in lower damages from moderate to large events; revised zoning ordinances may also result in damage reduction due to removal of easily-damaged structures and infrastructure from highest risk areas of City

Problem Area: #15 - Bay. St. Louis Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Concrete T Wall	Alternative 3: Concrete Gravity Wall
b. Ecosystem Restoration	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects
c. Recreation Opportunities	Alternative is not anticipated to have any effects on recreation	Alternative has significant recreation benefits	Alternative has significant recreation benefits
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way
b. Institutional Acceptability	Alternative is not supported by local government	Alternative is not supported by local government	Alternative is not supported by local government
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of City General Plan, or State Recovery Plan	Alternative supports only limited goals and objectives of City General Plan, or State Recovery Plan	Alternative supports only limited goals and objectives of City General Plan, or State Recovery Plan
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with issues of structure survivability and removal of high risk structures from highest risk areas	Alternative is only effective at dealing with issues of structure survivability and removal of high risk structures from highest risk areas
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require continued outlay of funds for infrastructure damage repair, emergency services delays, and structure repair	Alternative will incur outlay of funds for implementation if selected, but the economic outputs are greater that the economic costs. The plans potential for reducing HSDR along with prevented time delay and variable operator cost far exceeds it's cost of construction	Alternative will incur outlay of funds for implementation if selected, but the economic outputs are greater that the economic costs. The plans potential for reducing HSDR along with prevented time delay and variable operator cost far exceeds it's cost of construction
e. Integration	Alternative will not require integration with any other plans	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage
f. Reversibility	This issue does not apply	Alternative could be reversible at any time, given some lead time	Alternative could be reversible, given means to remove limited structural improvements
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	This alternative would be implemented at City and/or County level, conceivably with State assistance on building codes; implementation of evacuation plans may be Non-Federal implementation responsibility	The non-structural elements of this alternative would be implemented at City and/or County level, conceivably with State assistance on building codes; structural elements would be joint Federal/Non-Federal implementation responsibility; implementation of evacuation plans may be Non-Federal implementation responsibility
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative may require State or other Non-Federal coordination activities in regards to implemetation of evacuation, and building code revisions	This alternative may require State or other Non-Federal coordination activities in regards to implemetation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
A. PLAN DESCRIPTION	No Federal Action	Alternative would rebuild seawall with steel sheetpile	Alternative would rebuild seawall with vinyl sheetpile
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Continued damage to seawall, road, and utilities during events of roughly 5-yr frequency and larger; damage to businesses and residences above ~10-yr	Alternative would result in decrease in damages to restoration of seawall, preventing damage to infrastructure infrastructure road or utilities during events that overtop wall; would result in decreased damage to structures by adoption of more rigorous building codes	Alternative would result in decrease in damages to restoration of seawall, preventing damage to infrastructure infrastructure road or utilities during events that overtop wall; would result in decreased damage to structures by adoption of more rigorous building codes
(2) Emergency Costs Avoided	Emergency costs would continue at current rate; costs would occur due to re-routing of all traffic during events which would damage road; potential for loss of life due to added time and loss of evacuation route	Unquantified reduction in emergency costs due to preservation of Beach Blvd as evacuation and emergency services route	Unquantified reduction in emergency costs due to preservation of Beach Blvd as evacuation and emergency services route
(3) Ecosystem Restoration	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources
(4) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(5) Total Beneficial Impacts (Average Annual Benefits)			
b. Adverse Impacts			
(1) Project Cost	$0	$4,769,000	$4,002,000
(2) Average Annual Benefits	$0	$266,291	$223,464
(2) Interest During Construction	n/a		
(3) Annual O&M	$0	$10,000	$5,000
(4) Total Avg. Annual Costs	$0	$276,291	$228,464

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	Alternative would result in significant benefit to National Economic Benefits account due to protection of road and utilities; unquantified benefit to NED account due to reduced damage suffered by property due to adoption of better building codes and modified zoning ordinances	Alternative would result in significant benefit to National Economic Benefits account due to protection of road and utilities; unquantified benefit to NED account due to reduced damage suffered by property due to adoption of better building codes and modified zoning ordinances
2. Cost Effectiveness (CE) (see "Efficiency" below)			
3. Environmental Quality (EQ)			
(1) Water Circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation
(2) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would reduce damages to man-made resources due to adoption of better building codes and zoning ordinances, and slight increase in protection due to repaired seawall	Alternative would reduce damages to man-made resources due to adoption of better building codes and zoning ordinances, and slight increase in protection due to repaired seawall
(3) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(4) Public Facilities	Alternative would result in no change in public facilities	Alternative would result in protection of public service utility lines and road	Alternative would result in protection of public service utility lines and road
(5) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in decrease in risks to life, health and safety, due to adoption of better building and zoning codes, and due to protection of road used for emergency services accesss and evacuation route	Alternative would result in decrease in risks to life, health and safety, due to adoption of better building and zoning codes, and due to protection of road used for emergency services accesss and evacuation route

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(6) Tax Changes	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and added costs of emergency services	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and adoption of new building codes and zoning ordinances, but may decrease costs of emergency services	Alternative may result in increases in local taxes due to adoption of new building codes and zoning ordinances, but may decrease costs of emergency services and need for continued rebuilding of public infrastructure and utilities
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in no significant change in aesthetic values, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance	Alternative would result in no significant change in aesthetic values, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance
(8) Natural Resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources
(9) Biological Resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources
(10) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to construction on seawall	Alternative would have temporary negative impacts to air quality due to construction on seawall
(11) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality
(12) Public Services	Alternative would have no anticipated effect on public services during non-storm periods, but would continue to allow negative impacts during and after large storm events due to loss of utility service and loss of road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative is anticipated to result in no significant change in cultural and historical preservation, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance	Alternative is anticipated to result in no significant change in cultural and historical preservation, unless zoning code changes preclude certain types of structure from high-risk areas of City. Adoption of revised building codes need have no effect on aesthetics unless they preclude rebuilding of original structures to original visual appearance
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment
4. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$12,656,322** in additional sales volume to the local economy.	Alternative would provide **$14,756,322** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$3,051,882** in additional local income to the local economy.	Alternative would provide **$3,558,266** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **76** new jobs to the local economy.	Alternative would provide **89** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
5. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrina and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrina and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrina and its aftermath

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(2) Employment	Alternative is expected to have no significant effect on local employment	Alternative is expected to have minor positive impact on employment due to institution of better building codes, and the increase in time spent implementing them in reconstructing of destroyed housing and businesses; temporary increase in employment due to construction on seawall	Alternative is expected to have minor positive impact on employment due to institution of better building codes, and the increase in time spent implementing them in reconstructing of destroyed housing and businesses; temporary increase in employment due to construction on seawall
(3) Tax Values	Alternative is anticipated to have negative impact on tax value due to lack of protection to property along coastline, and restriction on rebuilding that this will cause	Alternative is enticipated to have slight increase in tax values due to added value of properties rebuilt using new building codes	Alternative is enticipated to have slight increase in tax values due to added value of properties rebuilt using new building codes
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have little effect on community growth, except where revised building codes and zoning ordinances might affect population density close to coast	Alternative is anticipated to have little effect on community growth, except where revised building codes and zoning ordinances might affect population density close to coast
(5) Property Values	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property	Alternative is anticipated to result in negative impact to property values immediately inland of former seawall due to lack of protection of road, utilities, and property; revision of building codes and zoning ordinances may result in higher property values for those structures in high risk area close to coastline due to required rebuilding to better code requirements	Alternative is anticipated to result in positive impact to property values immediately inland of former seawall due to protection of road, utilities, and property; revision of building codes and zoning ordinances may result in higher property values for those structures in high risk area close to coastline due to required rebuilding to better code requirements

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(6) Displacement of Businesses	Alternative is anticipated to result in significant displacement of businesses inland due to lack of physical protection	Alternative is anticipated to result in no displacement of businesses by virtue or provision of physical protection measures to those along Beach Boulevard, but may result in displacement due to adoption of revised building codes and zoning ordinances	Alternative is anticipated to result in no displacement of businesses by virtue or provision of physical protection measures to those along Beach Boulevard, but may result in displacement due to adoption of revised building codes and zoning ordinances
(7) Public Facilities	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, lack of upgraded building codes, resultingf from large storm and hurricane events	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, resulting from large storm and hurricane events	Alternative is anticipated to result in lower risk and incurred costs to public facilities due to upgrade of physical protection, and upgrading of building codes, for large storm and hurricane events
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative will result in continued threat to loss of life during moderate to large storm and hurricane events	Alternative will result in improvement in safety to lives provided by better building codes and/or zoning ordinances, plus protection of road that acts as emergency services conduit and evacuation route	Alternative will result in improvement in safety to lives provided by better building codes and/or zoning ordinances, plus protection of road that acts as emergency services conduit and evacuation route

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Flood, Hurricane and/or Storm Damage Reduction	Alternative will result in no improvement in damage reduction	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to better building codes, which will result in lower damages from moderate to large events; revised zoning ordinances may also result in damage reduction due to removal of easily-damaged structures and infrastructure from highest risk areas of City; reduced damage potential due to protection of road and utilities from wave and surge action, and potential protection of property during moderate events	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to better building codes, which will result in lower damages from moderate to large events; revised zoning ordinances may also result in damage reduction due to removal of easily-damaged structures and infrastructure from highest risk areas of City; reduced damage potential due to protection of road and utilities from wave and surge action, and potential protection of property during moderate events
b. Ecosystem Restoration	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects
c. Recreation Opportunities	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way
b. Institutional Acceptability	Alternative is not supported by local government	Alternative is supported by local government (City and County)	Alternative is supported by local government (City and County)
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of City General Plan, or State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction, but better than Alternatives 2 and 3
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with issues of structure survivability and removal of high risk structures from highest risk areas, and improving protection to road and utlities during larger storm and hurricane events	Alternative is only effective at dealing with issues of structure survivability and removal of high risk structures from highest risk areas, and improving protection to road and utlities during larger storm and hurricane events
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require continued outlay of funds for infrastructure damage repair, emergency services delays, and structure repair	Alternative will incur outlay of funds for implementation of evacuation plans, warning plans, and other non-structural measures, plus construction, but less cost-effective than Alt. 4;	Alternative will incur outlay of funds for implementation of evacuation plans, warning plans, and other non-structural measures, plus construction (lower outlay than Alt. 3); would result in lower continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in structural repair in high risk areas; this alternative judged to be most efficient use of funds over projected period of analysis (minimum Project Life of 50 years); use of vinyl sheetpile achieved additional cost-savings over other alternative materials, as cost reduction optimization (see Engineering Appendix)

Problem Area: #15A - Cowand Point Seawall Repair and Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
e. Integration	Alternative will not require integration with any other plans	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage; alternative will integrate with plans that promote reduction of damages in coastal zone	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage; alternative will integrate with plans that promote reduction of damages in coastal zone
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove limited structural improvements	Alternative could be reversible, given means to remove structural improvements
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	The non-structural elements of this alternative would be implemented at City and/or County level, conceivably with State assistance on building codes; structural elements would be joint Federal/Non-Federal implementation responsibility; implementation of evacuation plans may be Non-Federal implementation responsibility	The non-structural elements of this alternative would be implemented at City and/or County level, conceivably with State assistance on building codes; structural elements would be joint Federal/Non-Federal implementation responsibility; implementation of evacuation plans may be Non-Federal implementation responsibility
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative may require State or other Non-Federal coordination activities in regards to implemetation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination	This alternative may require State or other Non-Federal coordination activities in regards to implemetation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination

Problem Area: #66A - Long Beach Canals

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Construct Culvert System Beginning at 28th St Bridge	Alternative 3: 28th St Bridge Modification and Modifications to Canals 2&3
A. PLAN DESCRIPTION	No Federal Action	consists of increasing the size of the culverts under 28th St to carry the flow presently going over the road and constructing new culverts to convey the flow to the Mississippi Sound	consists of increasing the Canal 2 bridge opening at 28th Street and Klondike Road, and modifying the geometry of Canal 2. It would also involve a high flow diversion at the upstream end of Canal 2 to capture flows from flooding the Turkey Creek
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Would result in no decrease of flood damages.	Would result in a moderate decrease of flood damages in storms smaller than the 25-year event.	Would result in a moderate decrease of flood damages in storms smaller than the 25-year event.
(2) Emergency Costs Avoided	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(4) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Project Cost	$0	$104,040,000	$23,480,000
(2) Average Annual Cost	$0	$5,809,386	$1,311,076
(2) Interest During Construction	N/A		
(3) Annual O&M	$0	$30,153	$112,793
(4) Total Avg. Annual Costs	$0	$5,839,539	$1,423,869
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding.	Alternative would result in some benefits due to moderate decrease in flood damages.	Alternative would result in some benefits due to a moderate reduction in flood damages.
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration (Habitat Improvement)	Alternative would not produce a functional habitat index score.	Alternative would would provide improved habitat through removal of obstructions	Alternative would would provide improved habitat through removal of obstructions
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would moderately improvement water circulation.	Alternative would moderately improvement water circulation.
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction

Problem Area: #66A - Long Beach Canals

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Construct Culvert System Beginning at 28th St Bridge	Alternative 3: 28th St Bridge Modification and Modifications to Canals 2&3
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.
(7) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
(8) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in improvemed aesthetic values	Alternative would result in improved aesthetic values
(9) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have some effect on existing natural resources.	Alternative would result in restoration of coastal marsh resources.
(10) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(11) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(12) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(13) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(14) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(15) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$235,305,000** in additional sales volume to the local economy.	Alternative would provide **$57,375,000** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$49,808,266** in additional local income to the local economy.	Alternative would provide **$12,144,874** in additional local income to the local economy.

Problem Area: #66A - Long Beach Canals

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Construct Culvert System Beginning at 28th St Bridge	Alternative 3: 28th St Bridge Modification and Modifications to Canals 2&3
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **1,594** new jobs to the local economy.	Alternative would provide **364** new jobs to the local economy.
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(2) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative could potentially affect the tax base through the creation of new jobs.	Alternative could potentially affect the tax base through the creation of new jobs.
(3) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.
(4) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(5) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(6) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(7) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.

Problem Area: #66A - Long Beach Canals

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Construct Culvert System Beginning at 28th St Bridge	Alternative 3: 28th St Bridge Modification and Modifications to Canals 2&3
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #13 - Harrison County Beaches

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
A. PLAN DESCRIPTION	No Federal Action	Consists of placing a dune 5 feet high to approximately with a crest width of 10 feet high.	Consists of placing a dune 5 feet high with a crest width of 10 feet high with plantings and a sand fence the entire linear length.
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Shoreline erosion would continue and the seawall would fail resulting in the need to rerout traffic away from Beach Boulevard.	Would result in a moderate decrease in shoreline erosion.	Would result in a moderate decrease in shoreline erosion.
(2) Emergency Costs Avoided	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative would provide **$4,706,546** in average annual recreation benefits	Alternative would provide **$4,706,546** in average annual recreation benefits
(4) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Total Project First Costs	$0	$10,220,000	$13,580,000
(2) Average Annual First Costs	$0	$570,664	$758,280
(2) Interest During Construction	N/A	$241,500	$320,200
(3) Annual O&M	$0	$340,000	$260,000
(4) Total Avg. Annual Costs	$0	$1,152,164	$1,338,480
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding and erosion.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration	Alternative would produce a functional habitat index score of **0 with no federal action**.	Alternative would produce a functional habitat index score of **260 with an average annual cost of $4,431.40**.	Alternative would produce a functional habitat index score of **405 with an average annual cost of $3,304.88**.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction

Problem Area: #13 - Harrison County Beaches

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a minimal change in aesthetic values	Alternative would result in a moderate aesthetic improvement to coastal
(7) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would result in restoration of the beach creating a minimal improvement to its overall value as a natural resource.	Alternative would result in restoration of the beach creating a moderate improvement to its overall value as a natural resource.
(8) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(9) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(10) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(11) Public Services	Alternative would have no anticipated effect on public services.	Alternative would have no anticipated effect on public services.	Alternative would have no anticipated effect on public services.
(12) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(13) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$34,914,360** in additional sales volume to the local economy.	Alternative would provide **$39,063,799** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$6,809,191** in additional local income to the local economy.	Alternative would provide **$7,618,439** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **198** new jobs to the local economy.	Alternative would provide **221** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes

Problem Area: #13 - Harrison County Beaches

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(3) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.
(5) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(6) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(7) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.

Problem Area: #13 - Harrison County Beaches

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #15 - Courthouse Road Flood Damage Reduction and Ecosystem Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	No Action	Alternative 1: Replace Drainage Channel Lateral Bracing	Alternative 2: Restore Coastal Marsh	Alternative 3: Replace Bracing and Restore Coastal Marsh
A. PLAN DESCRIPTION	No Federal Action.	Alternative would replace lateral channel braces.	Alternative would restore destroyed low- and high-salt marsh.	Alternative would replace lateral channel braces and restore destroyed low- and high-salt marsh.
B. IMPACT ASSESSMENT				
1. National Economic Development				
a. Beneficial Impacts				
(1) Damages Prevented	Accelerated damage to drainage channel walls, potential impacts to drainage network, potential increased flooding threat in landward communities during events of roughly 5-yr frequency and larger.	Alternative would result in decrease in damage to infrastructure linked and adjacent to the drainage channel.	Accelerated damage to drainage channel walls, potential impacts to drainage network, potential increased flooding threat in landward communities during events of roughly 5-yr frequency and larger.	Alternative would result in decrease in damage to infrastructure linked and adjacent to the drainage channel.
(2) Emergency Costs Avoided	Emergency costs could increase if flooding results of channel wall failure and traffic needs to be re-routed around flooded areas. Some residential help calls may result.	Emergency costs would continue at reduced rate due to reduced threat to water over roadway and interior flooding effects.	Emergency costs could increase if flooding results of channel wall failure and traffic needs to be re-routed around flooded areas. Some residential help calls may result.	Emergency costs would continue at reduced rate due to reduced threat to water over roadway and interior flooding effects.
(3) Ecosystem Restoration	Continued degradation of coastal marsh resources would result.	Alternative provides no preservation or restoration of environmental resources.	Alternative would would provide a functional habitat index score of **525** with an average annual cost per functional habitat index score is **$51.78.**	Alternative would would provide a functional habitat index score of **525** with an average annual cost per functional habitat index score is **$98.56.**
(4) Recreation	Alternative provides no significant change in recreation benefits.	Alternative provides no significant change in recreation benefits.	Alternative provides no significant change in recreation benefits.	Alternative provides no significant change in recreation benefits.
(5) Total Beneficial Impacts (Average Annual Benefits)	not available	not available	not available	not available
b. Adverse Impacts				
(1) Project Cost	$0	$270,000	$250,000	$520,000
(2) Average Annual Fisrt Cost		$15,076	$13,960	$29,036
(3) Interest During Construction	not applicable.	$9,110	$8,604	$17,713
(4) Annual O&M	$0	$5,000	$5,000	$5,000
(5) Total Avg. Annual Costs	$0	**$29,186**	**$27,564**	**$51,749**
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding and coastal wetlands habitat lost.	Alternative would result in continued losses to National Economic Benefits account due to loss of wetland resources; no net increase to pre-Katrina interior flooding benefit.	Alternative would result in benefit to coastal environmental resources, but result in continued losses to National Economic Benefits account due to increased frequency of flooding.	Alternative would result in benefit to National Economic Benefits account wetland resource restoration with no net increase to pre-Katrina interior flooding benefit.
2. Cost Effectiveness (CE) (see "Efficiency" below)				
3. Environmental Quality (EQ)				
(1) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.

Problem Area: #15 - Courthouse Road Flood Damage Reduction and Ecosystem Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	No Action	Alternative 1: Replace Drainage Channel Lateral Bracing	Alternative 2: Restore Coastal Marsh	Alternative 3: Replace Bracing and Restore Coastal Marsh
(2) Manmade Resources	Alternative would have no anticipated effect on man-made resources.	Alternative will extend life of drainage channel would result in anticipated benefit to other man-made resources with respect to the no-action alternative.	Alternative would have no anticipated effect on man-made resources.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(3) Noise Level Changes	Alternative would result in no change in noise levels.	Alternative would result in temporary increase in noise levels during construction.	Alternative would result in temporary increase in noise levels during construction.	Alternative would result in temporary increase in noise levels during construction.
(4) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in repair and improved longevity public facilities.	Alternative would result in no change in public facilities.	Alternative would result in repair and improved longevity public facilities.
(5) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in decrease in risks to life, health and safety, due to re-establishment of stormwater conveyance.	Alternative would result in continued risks to life, health and safety.	Alternative would result in decrease in risks to life, health and safety, due to re-establishment of stormwater conveyance.
(6) Tax Changes	Alternative would result in no change in taxes.	Alternative would result in no change in taxes.	Alternative would result in no change in taxes.	Alternative would result in no change in taxes.
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values.	Alternative would result in no significant change in aesthetic values.	Alternative would result in aesthetic improvement in public facilities.	Alternative would result in aesthetic improvement in public facilities.
(8) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have no anticipated effect on existing natural resources.	Alternative would result in restoration of coastal marsh resources.	Alternative would result in restoration of coastal marsh resources.
(9) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have no anticipated effect on existing biological resources	Biological resources would be improved versus the no-action alternative.	Biological resources would be improved versus the no-action alternative.
(10) Air Quality	Alternative would have no anticipated effect on air quality.	Alternative would have no anticipated effect on air quality.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling and placement of suitable soils.
(11) Water Quality	Alternative would have no anticipated effect on water quality.	Alternative would have no anticipated effect on water quality.	Alternative would have temporary negative impacts to water quality due to placement of suitable soils.	Alternative would have temporary negative impacts to water quality due to placement of suitable soils.
(12) Public Services	Alternative would have no anticipated effect on public services during non-storm periods, but negative impacts would accrue during and after even moderate storm events due to interior flooding and potential loss of roadway access.	Alternative would have no anticipated effect on public services during non-storm periods, but would ameliorate negative impacts during and after even moderate rainstorm events.	Alternative would have no anticipated effect on public services during non-storm periods, but negative impacts would accrue during and after even moderate storm events due to interior flooding and potential loss of roadway access.	Alternative would have no anticipated effect on public services during non-storm periods, but would ameliorate negative impacts during and after even moderate rainstorm events.
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation.	Alternative would have no anticipated effect on cultural and historical preservation.	Alternative would have no anticipated effect on cultural and historical preservation.	Alternative would have no anticipated effect on cultural and historical preservation.
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment.	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment.	Environmental quality would be improved versus the no-action alternative and the bracing replacement alternative.	Environmental quality would be improved versus the no-action alternative and the bracing replacement alternative.

Problem Area: #15 - Courthouse Road Flood Damage Reduction and Ecosystem Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	No Action	Alternative 1: Replace Drainage Channel Lateral Bracing	Alternative 2: Restore Coastal Marsh	Alternative 3: Replace Bracing and Restore Coastal Marsh
4. Regional Economic Development (RED)				
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$808,976** in additional sales volume to the local economy.	Alternative would provide **$736,976** in additional sales volume to the local economy.	Alternative would provide **$1,371,976** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$171,241** in additional local income to the local economy.	Alternative would provide **$161,715** in additional local income to the local economy.	Alternative would provide **$290,308** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **5** new jobs to the local economy.	Alternative would provide **5** new jobs to the local economy.	Alternative would provide **8** new jobs to the local economy.
5. Other Social Effects (OSE)				
a. Beneficial Impacts				
(1) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their community is being repaired.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their community is being repaired.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their community is being repaired.
(2) Employment	Alternative is expected to have no significant effect on local employment.	Alternative is expected to have minor positive impact on employment due to temporary increase in employment due to construction.	Alternative is expected to have minor positive impact on employment due to temporary increase in employment due to construction.	Alternative is expected to have minor positive impact on employment due to temporary increase in employment due to construction.
(3) Tax Values	Alternative is anticipated to have negative impact on tax value due to reduced stormwater flood protection to property in the nearby coastal communities.	Alternative is enticipated to have no increase in pre-Katrina tax values.	Alternative is enticipated to have no increase in pre-Katrina tax values.	Alternative is enticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have little effect on community growth.	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have little effect on community growth.	Alternative is anticipated to have little effect on community growth.
(5) Property Values	Alternative is anticipated to result in negative impact to property values immediately inland due to lack of stormwater conveyance.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(6) Displacement of Businesses	Alternative may result in displacement of businesses inland due to lack of stormwater conveyance.	Alternative is anticipated to have a positive effect on business displacement versus the no-action alternative.	Alternative may result in displacement of businesses inland due to lack of stormwater conveyance.	Alternative is anticipated to have a positive effect on business displacement versus the no-action alternative.
(7) Public Facilities	Alternative is anticipated to result in continued risks and incurred costs to linked stormwater facilities, and costs incurred to roadway closures and shallow flooding cleanup.	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection resulting from large storm and hurricane events.	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection resulting from large storm and hurricane events.	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection resulting from large storm and hurricane events.
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms.	Alternative is anticipated to have no effects on displacement of farms.	Alternative is anticipated to have no effects on displacement of farms.	Alternative is anticipated to have no effects on displacement of farms.
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative will result in improvement in safety to lives provided by restoration of stormwater conveyance.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.

Problem Area: #15 - Courthouse Road Flood Damage Reduction and Ecosystem Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	No Action	Alternative 1: Replace Drainage Channel Lateral Bracing	Alternative 2: Restore Coastal Marsh	Alternative 3: Replace Bracing and Restore Coastal Marsh
C. PLAN EVALUATION				
1. Contributions to Planning Objectives				
a. Flood, Hurricane and/or Storm Damage Reduction	Alternative will result in no improvement in damage reduction, though damages will be increased versus the pre-Katrina condition.	Alternative will result in improved flood damage reduction versus the no-action alternative.	Alternative will result in no improvement in flood damage reduction.	Alternative will result in improved flood damage reduction versus the no-action alternative.
b. Ecosystem Restoration	Alternative is not anticipated to have any restoration effects.	Alternative is not anticipated to have any restoration effects.	Marsh restoration will accrue about 1/3 acre benefits.	Marsh restoration will accrue about 1/3 acre benefits.
c. Recreation Opportunities	Alternative is not anticipated to have any effects on recreation.	Alternative is not anticipated to have any effects on recreation.	Alternative may have limited positive effect on recreation.	Alternative may have limited positive effect on recreation.
2. Response to Planning Constraints				
a. Avoid environmental impacts and minimize induced damages	Alternative is not anticipated to result in the continued loss of pre-Katrina environnmental resources.	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by local government.	Alternative is supported by local government.	Alternative is supported by local government.	Alternative is supported by local government.
3. Response to Evaluation Criteria				
a. Acceptability	Alternative does not meet goals and objectives of City General Plan, or State Recovery Plan.	Alternative supports only limited goals and objectives of City General Plan, or State Recovery Plan.	Alternative supports limited goals and objectives of City General Plan and State Recovery Plan.	Alternative supports limited goals and objectives of City General Plan and State Recovery Plan.
b. Completeness	Alternative does not provide any solution to identified problems.	Alternative provides solution to hurricane damage repair; and, solution to flood damage reduction versus the no action alternative.	Alternative provides only partial solution to identified problems; functions as only one element, environmental restoration, of Comprehensive Plan.	Alternative provides complete solution to identified storm damage, flood damage reduction, and environmental restoration opportunities.
c. Effectiveness	Alternative is ineffective at addressing any of identified problems.	Alternative is only effective at dealing with issues of hurricane damage repair with some flood damage reduction benefit versus the No Action alternative.	Alternative is only effective at dealing with issues of environmental value.	Alternative is effective in improving environmental and flood damage reduction values and repairing hurricane damaged infrastructure.
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require continued outlay of funds for infrastructure damage repair and emergency services.	Alternative will incur outlay of funds for construction. Would also require continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in flood damages.	Alternative will incur outlay of funds for construction. Would also require continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in structural repair in high risk areas. Annual wetland monitoring costs are estimated at $5,000.	Alternative will incur outlay of funds for construction. Would also require continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over time for savings in flood damages.

Problem Area: #15 - Courthouse Road Flood Damage Reduction and Ecosystem Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	No Action	Alternative 1: Replace Drainage Channel Lateral Bracing	Alternative 2: Restore Coastal Marsh	Alternative 3: Replace Bracing and Restore Coastal Marsh
e. Integration	Alternative will not require integration with any other plans.	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage.	Alternative will integrate with those plans that require addressing short- and long-term environmental restoration; alternative will not hinder short- or long-term environmental restoration or recovery goals.	Alternative will integrate with those plans that require addressing short- and long-term environmental restoration; alternative will not hinder short- or long-term environmental restoration or recovery goals, nor hurricane and storm damage reduction goals.
f. Reversibility	This issue does not apply.	Alternative could be reversible, given means to remove limited structural features.	Alternative could be reversible, given means to remove wetland features.	Alternative could be reversible, given means to remove wetland features and limited structural features.
D. Implementation Responsibility	This alternative does not have any implementation responsibilities.	Structural elements would be joint Federal/Non-Federal implementation responsibility.	Elements would be joint Federal/Non-Federal implementation responsibility.	Elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities.	This alternative would require limited, if any, State or other Non-Federal coordination activities.	This alternative would require limited, if any, State or other Non-Federal coordination activities.	This alternative would require limited, if any, State or other Non-Federal coordination activities.

Problem Area: #5 - Shearwater Bridge Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Replacement and extension of timber retaining walls	Alternative 3: Replacement of existing timber retaining walls with new vinyl sheet piling	Alternative 4: Replacement of existing timber retaining walls with new steel sheet piling
A. PLAN DESCRIPTION	No Federal Action	Alternative would rebuild and extend damaged timber retaining walls to existing elevations	Alternative would replace and extend existing timber retaining walls with new vinyl sheet piling	Alternative would replace and extend existing timber retaining walls with new steel sheet piling
B. IMPACT ASSESSMENT				
1. National Economic Development				
a. Beneficial Impacts				
(1) Damages Prevented	Continued damage and deterioration of existing timber retaining walls which protect bridge approaches, abutments, and utilities even with out storm surge.	Alternative would result in substantial protection of the Shearwater bridge and approach roadways for low to high storm surge.	Alternative would result in substantial protection of the Shearwater bridge and approach roadways for low to high storm surge.	Alternative would result in substantial protection of the Shearwater bridge and approach roadways for low to high storm surge.
(2) Emergency Costs Avoided	Emergency costs would continue at current rate; costs would occur due to re-routing of all traffic during events which would damage road; potential for loss of life due to added time and loss of evacuation route	Unquantified reduction in emergency costs due to preservation of Shearwater Drive as evacuation and emergency services route	Unquantified reduction in emergency costs due to preservation of Shearwater Drive as evacuation and emergency services route	Unquantified reduction in emergency costs due to preservation of Shearwater Drive as evacuation and emergency services route
(3) Ecosystem Restoration	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources	Alternative provides no preservation or restoration of environmental resources
(4) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(5) Total Beneficial Impacts (Average Annual Benefits)				
b. Adverse Impacts				
(1) Project Cost	$0	$850,000	$1,480,000	$1,810,000
(2) Average Annual Cost	$0	$47,462	$82,640	$101,067
(2) Interest During Construction	n/a	$0	$0	$0
(3) Annual O&M	$0	$510,000	$0	$0
(4) Total Avg. Annual Costs	$0	$1,407,462	$1,562,640	$1,911,067
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;	Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;	Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;
2. Cost Effectiveness (CE) (see "Efficiency" below)				
3. Environmental Quality (EQ)				
(1) Water Circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation	Alternative would have no anticipated effect on water circulation
(2) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property	Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property	Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property
(3) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(4) Public Facilities	Alternative would result in no change in public facilities	Alternative would result in protection of public service utility lines, bridge and road	Alternative would result in protection of public service utility lines, bridge and road	Alternative would result in protection of public service utility lines, bridge and road
(5) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency services accesss and evacuation route	Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency services accesss and evacuation route	Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency services accesss and evacuation route

Problem Area: #5 - Shearwater Bridge Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Replacement and extension of timber retaining walls	Alternative 3: Replacement of existing timber retaining walls with new vinyl sheet piling	Alternative 4: Replacement of existing timber retaining walls with new steel sheet piling
(6) Tax Changes	Alternative may result in increases in local taxes due to need for continued rebuilding of public infrastructure and added costs of emergency services	Alternative may decrease costs of emergency services and need for continued rebuilding of public infrastructure and utilities	Alternative may decrease costs of emergency services and need for continued rebuilding of public infrastructure and utilities	Alternative may decrease costs of emergency services and need for continued rebuilding of public infrastructure and utilities
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in significant positive change in aesthetic values, by replacing rotten, collapsing timber retainer walls.	Alternative would result in significant positive change in aesthetic values, by replacing rotten, collapsing timber retainer walls.	Alternative would result in significant positive change in aesthetic values, by replacing rotten, collapsing timber retainer walls.
(8) Natural Resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources	Alternative would have no anticipated effect on existing natural resources
(9) Biological Resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources	Alternative would have no anticipated effect on existing biological resources
(10) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to construction	Alternative would have temporary negative impacts to air quality due to construction	Alternative would have temporary negative impacts to air quality due to construction
(11) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality	Alternative would have no anticipated effect on water quality
(12) Public Services	Alternative would have no anticipated effect on public services during non-storm periods, but would continue to allow negative impacts during and after large storm events due to loss of utility service and loss of road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment
4. Regional Economic Development (RED)				
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$2,133,125** in additional sales volume to the local economy.	Alternative would provide **$3,180,000** in additional sales volume to the local economy.	Alternative would provide **$3,879,600** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$416,014** in additional local income to the local economy.	Alternative would provide **$620,181** in additional local income to the local economy.	Alternative would provide **$756,621** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **12** new jobs to the local economy.	Alternative would provide **18** new jobs to the local economy.	Alternative would provide **22** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes

Problem Area: #5 - Shearwater Bridge Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Replacement and extension of timber retaining walls	Alternative 3: Replacement of existing timber retaining walls with new vinyl sheet piling	Alternative 4: Replacement of existing timber retaining walls with new steel sheet piling
5. Other Social Effects (OSE)				
a. Beneficial Impacts				
(1) Community Cohesion	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have no signicant positive or negative impacts on community cohesion beyond those required by the occurrence of Hurricane Katrins and its aftermath
(2) Employment	Alternative is expected to have no significant effect on local employment	Alternative is expected to have minor positive impact due to temporary increase in employment due to construction of retaining walls	Alternative is expected to have minor positive impact due to temporary increase in employment due to construction of retaining walls	Alternative is expected to have minor positive impact due to temporary increase in employment due to construction of retaining walls
(3) Tax Values	N/A	N/A	N/A	N/A
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have little effect on community growth
(5) Property Values	Alternative is anticipated to result in no impact to property values in the vicinity	Alternative is anticipated to result in no impact to property values in the vicinity	Alternative is anticipated to result in no impact to property values in the vicinity	Alternative is anticipated to result in no impact to property values in the vicinity
(6) Displacement of Businesses	Alternative is anticipated to result in no impact in displacement of business	Alternative is anticipated to result in no impact in displacement of business	Alternative is anticipated to result in no impact in displacement of business	Alternative is anticipated to result in no impact in displacement of business
(7) Public Facilities	Alternative is anticipated to result in continued risks and incurred costs to public facilities due to lack of physical protection, resultingf from large storm and hurricane events	Alternative is anticipated to result in lower risk and incurred costs to public facilities due to upgrade of physical protection, for large storm and hurricane events	Alternative is anticipated to result in lower risk and incurred costs to public facilities due to upgrade of physical protection, for large storm and hurricane events	Alternative is anticipated to result in lower risk and incurred costs to public facilities due to upgrade of physical protection, for large storm and hurricane events
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative will result in continued threat to loss of life during moderate to large storm and hurricane events	Alternative will result in improvement in safety to lives provided by protection of bridge and road that acts as emergency services conduit and evacuation route	Alternative will result in improvement in safety to lives provided by protection of bridge and road that acts as emergency services conduit and evacuation route	Alternative will result in improvement in safety to lives provided by protection of bridge and road that acts as emergency services conduit and evacuation route
C. PLAN EVALUATION				
1. Contributions to Planning Objectives				
a. Flood, Hurricane and/or Storm Damage Reduction	Alternative will result in no improvement in damage reduction	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to reduced damage potential due to protection of bridge, road and utilities from wave and surge action	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to reduced damage potential due to protection of bridge, road and utilities from wave and surge action	Alternative is anticipated to have improvement in hurricane and storm damage reduction due to reduced damage potential due to protection of bridge, road and utilities from wave and surge action
b. Ecosystem Restoration	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects	Alternative is not anticipated to have any restoration effects
c. Recreation Opportunities	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation	Alternative is not anticipated to have any effects on recreation

Problem Area: #5 - Shearwater Bridge Hurricane and Storm Damage Reduction

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from hurricane and storm-induced surge and waves; destruction of infrastructure from wave and surge attack.

Item	Altternative 1: No Action	Alternative 2: Replacement and extension of timber retaining walls	Alternative 3: Replacement of existing timber retaining walls with new vinyl sheet piling	Alternative 4: Replacement of existing timber retaining walls with new steel sheet piling
2. Response to Planning Constraints				
a. Avoid environmental impacts and minimize induced damages	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way	Alternative is not anticipated to have any effect on environmental resources, or to induce damages in any way
b. Institutional Acceptability	Alternative is not supported by local government	Alternative is supported by local government (City and County)	Alternative is supported by local government (City and County)	Alternative is supported by local government (City and County)
3. Response to Evaluation Criteria				
a. Acceptability	Alternative does not meet goals and objectives of City General Plan, or State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan	Alternative supports goals and objectives of City General Plan and State Recovery Plan
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides a good solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Alternative provides a good solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Alternative provides a good solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is effective at dealing with issues of structure survivability, and improving protection to bridge, road and utlities during larger storm and hurricane events	Alternative is effective at dealing with issues of structure survivability, and improving protection to bridge, road and utlities during larger storm and hurricane events	Alternative is effective at dealing with issues of structure survivability, and improving protection to bridge, road and utlities during larger storm and hurricane events
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require continued outlay of funds for infrastructure damage repair, emergency services delays, and structure repair	Alternative will incur outlay of funds for construction (lower outlay than Alt.s 3-4 initially); would result in lower to no continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs for short term savings in structural repair; this alternative judged to be an efficient use of funds over projected period of analysis (minimum Project Life of 50 years); Alternative 3 is considered to be the most cost effective over the fifty year period (see Engineering Appendix)	Alternative will incur outlay of funds for construction (higher outlay than Alt. 2 initially); would result in lower to no continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs for short term savings in structural repair; this alternative judged to be an efficient use of funds over projected period of analysis (minimum Project Life of 50 years); Alternative 3 is considered to be the most cost effective over the fifty year period (see Engineering Appendix)	Alternative will incur outlay of funds for construction (higher outlay than Alt. 2 - 3 initially); would result in lower to no continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs for short term savings in structural repair; this alternative judged to be an efficient use of funds over projected period of analysis (minimum Project Life of 50 years); Alternative 3 is considered to be the most cost effective over the fifty year period (see Engineering Appendix)
e. Integration	Alternative will not require integration with any other plans	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage	Alternative will integrate with those plans that require addressing short- and long-term reduction in structural damage
f. Reversibility	This issue does not apply	This issue does not apply	This issue does not apply	This issue does not apply
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	This alternative would be implemented or coordinated at City and/or County level, conceivably with State assistance on bridge design and maintenance;	This alternative would be implemented or coordinated at City and/or County level, conceivably with State assistance on bridge design and maintenance;	This alternative would be implemented or coordinated at City and/or County level, conceivably with State assistance on bridge design and maintenance;
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative may require State coordination activities in regards to implemetation	This alternative may require State coordination activities in regards to implemetation	This alternative may require State coordination activities in regards to implemetation

Problem Area: #66A - Gautier Coastal Streams Flood Damage Reduction and Ecosystem Restoration Hancock County, MS

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
A. PLAN DESCRIPTION	No Federal Action	Consists of removing 1-foot of sediment.	Consists of removing 2-feet of sediment.
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Would result in no decrease of flood damages.	Would result in a moderate decrease of flood damages.	Would result in a moderate decrease of flood damages.
(2) Emergency Costs Avoided	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(4) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Project Cost	$0	$2,280,000	$4,050,000
(2) Average Annual Cost	$0	$127,311	$226,144
(2) Interest During Construction	N/A	$63,700	$105,300
(3) Annual O&M	$0	$28,000	$58,900
(4) Total Avg. Annual Costs	$0	$219,011	$390,344
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding.	Alternative would result in some benefits due to a minimal reduction in flood damages.	Alternative would result in some benefits due to moderate decrease in flood damages.
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration (Habitat Improvement)	Alternative would not produce a functional habitat index score.	Alternative would would produce a functional habitat index score of **245** with an average annual cost of **$633.92**.	Alternative would would produce a functional habitat index score of **245** with an average annual cost of **$1,163.44**.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have a moderate improvement on water circulation.	Alternative would moderately improve water circulation.
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.
(7) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes

Problem Area: #66A - Gautier Coastal Streams Flood Damage Reduction and Ecosystem Restoration Hancock County, MS

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
(8) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a moderate improvement to aesthetic values	Alternative would result in a moderate improvement to aesthetic values
(9) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have some effect on existing natural resources.	Alternative would result in restoration of coastal marsh resources.
(10) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(11) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(12) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(13) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(14) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(15) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$6,872,171** in additional sales volume to the local economy.	Alternative would provide **$11,839,806** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$1,340,248** in additional local income to the local economy.	Alternative would provide **$2,309,065** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **39** new jobs to the local economy.	Alternative would provide **67** new jobs to the local economy.

Problem Area: #66A - Gautier Coastal Streams Flood Damage Reduction and Ecosystem Restoration Hancock County, MS

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(2) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(3) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.
(4) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(5) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(6) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(7) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.

Problem Area: #66A - Gautier Coastal Streams Flood Damage Reduction and Ecosystem Restoration Hancock County, MS

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #9 - Pascagoula Beach Boulevard Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Seawall/Channel Repair	Alternative 3: Seawall/Channel Repair and Add Beach	Alternative 4: Seawall/Channel Repair and Add Beach and Dune
A. PLAN DESCRIPTION	No Federal Action	Consists of repair and rehabilitating joints and cell caps on the seawall and replacing stream bank panels at the drainage	Consists of alternative 2 plus adding a beach by placing 229,000,000 CY of sand.	Consists of alternative 3 plus creating a dune by placing an additional 41,000 CY of sand and 8,470 feet of sand fencing.
B. IMPACT ASSESSMENT				
1. National Economic Development				
a. Beneficial Impacts				
(1) Damages Prevented	Shoreline erosion would continue and the seawall would fail resulting in the need to rerout traffic away from Beach Boulevard.	Would result in **average annual benefits of $20,464** in time lost and variable vehicle operating costs due to not having to reroute the traffic.	Would result in **average annual benefits of $20,464** in time lost and variable vehicle operating costs due to not having to reroute the traffic.	Would result in **average annual benefits of $20,464** in time lost and variable vehicle operating costs due to not having to reroute the traffic.
(2) Emergency Costs Avoided	N/A	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative would provide in **average annual recreation benefits of $2,632,200.**	Alternative would provide in **average annual recreation benefits of $2,632,200.**
(4) Total Beneficial Impacts	None.			
b. Adverse Impacts				
(1) Total Project First Costs	$0	$1,790,000	$6,470,000	$7,460,000
(2) Average Annual First Costs	$0	$99,950	$361,272	$416,551
(2) Interest During Construction	N/A	$43,800	$153,600	$176,400
(3) Annual O&M	$0	$0	$913,900	$693,600
(4) Total Avg. Annual Costs	$0	$143,750	$1,428,772	$1,286,551
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding and erosion.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.	Alternative would result in some benefits due to decreased erosion and storm surge in smaller storm events.
2. Environmental Quality (EQ)				
(1) Ecosystem Restoration	Alternative would produce a functional habitat index score of **0 with no federal action**.	Alternative would produce a functional habitat index score of **110 with an average annual cost of $1,306.81**.	Alternative would produce a functional habitat index score of **235 with aan average annual cost of $6,079.88**.	Alternative would produce a functional habitat index score of **395 with an average annual cost of $3,257.09**.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a minimal change in aesthetic values	Alternative would result in a moderate aesthetic improvement to coastal	Alternative would result in a significant aesthetic improvement to coastal
(7) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would result in restoration of the beach moderately improving its overall value as a natural resource.	Alternative would result in restoration of the beach and dune with vegetative plantings significantly improving its overall value as a natural resource.

Problem Area: #9 - Pascagoula Beach Boulevard Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Seawall/Channel Repair	Alternative 3: Seawall/Channel Repair and Add Beach	Alternative 4: Seawall/Channel Repair and Add Beach and Dune
(8) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.	Biological resources would be improved versus the no-action alternative.
(9) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(10) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(11) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(12) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(13) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)				
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$3,985,600** in additional sales volume to the local economy.	Alternative would provide **$40,327,740** in additional sales volume to the local economy.	Alternative would provide **$50,789,000** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$777,294** in additional local income to the local economy.	Alternative would provide **$7,864,939** in additional local income to the local economy.	Alternative would provide **$9,905,152** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **23** new jobs to the local economy.	Alternative would provide **228** new jobs to the local economy.	Alternative would provide **288** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
4. Other Social Effects (OSE)				
a. Beneficial Impacts				
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(3) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have little effect on community growth
(5) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.

Problem Area: #9 - Pascagoula Beach Boulevard Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Seawall/Channel Repair	Alternative 3: Seawall/Channel Repair and Add Beach	Alternative 4: Seawall/Channel Repair and Add Beach and Dune
(6) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(7) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION				
1. Contributions to Planning Objectives				
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.	Alternative will result in protection against erosion for even large storm events.
2. Response to Planning Constraints				
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria				
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion	Alternative is effective at dealing with issues of ecosystem restoration and coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.	Alternative will incur outlay of funds for construction. Would also require reduced outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal	Alternative will integrate with DMR plans for short term erosion protection measures and the Govonor's long-term marsh creation goal

Problem Area: #9 - Pascagoula Beach Boulevard Restoration

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Seawall/Channel Repair	Alternative 3: Seawall/Channel Repair and Add Beach	Alternative 4: Seawall/Channel Repair and Add Beach and Dune
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.	Elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #37 - Upper Bayou Casotte

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
A. PLAN DESCRIPTION	No Federal Action	Consists of removing 1-foot of sediment.	Consists of removing 2-feet of sediment.
B. IMPACT ASSESSMENT			
1. National Economic Development			
a. Beneficial Impacts			
(1) Damages Prevented	Would result in no decrease of flood damages.	Would result in a moderate decrease of flood damages.	Would result in Moderate decrease of flood damages.
(2) Emergency Costs Avoided	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(4) Total Beneficial Impacts	None.		
b. Adverse Impacts			
(1) Project Cost	$0	$1,020,000	$1,300,000
(2) Average Annual Cost	$0	$56,955	$72,589
(2) Interest During Construction	N/A	$23,900	$30,500
(3) Annual O&M	$0	$15,240	$21,000
(4) Total Avg. Annual Costs	$0	$96,095	$124,089
c. Enhance National Economic Benefits	Alternative would result in continued losses to National Economic Benefits account due to increased frequency of flooding.	Alternative would result in some benefits due to a moderate reduction in flood damages.	Alternative would result in some benefits due to significant decrease in flood damages.
2. Environmental Quality (EQ)			
(1) Ecosystem Restoration (Habitat Improvement)	Alternative would produce no improvements in habitat.	Alternative would improve habitat through flushing of the system, improve fish migration, and offer better foraging areas for shoreline birds.	Alternative would improve habitat through flushing of the system, improve fish migration, and offer better foraging areas for shoreline birds.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have a minmal improvement on water circulation.	Alternative would moderately improve water circulation.
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(7) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a minimal improvement to aesthetic values	Alternative would result in a moderate improvement to aesthetic values

Problem Area: #37 - Upper Bayou Casotte

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
(8) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have some effect on existing natural resources.	Alternative would result in restoration of coastal marsh resources.
(9) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.
(10) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(11) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.
(12) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(13) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(14) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources
3. Regional Economic Development (RED)			
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$2,740,999** in additional sales volume to the local economy.	Alternative would provide **$3,553,527** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$534,565** in additional local income to the local economy.	Alternative would provide **$693,028** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **16** new jobs to the local economy.	Alternative would provide **19** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
4. Other Social Effects (OSE)			
a. Beneficial Impacts			
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.

Problem Area: #37 - Upper Bayou Casotte

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.
(3) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.
(5) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(6) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action
(7) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.
C. PLAN EVALUATION			
1. Contributions to Planning Objectives			
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.
2. Response to Planning Constraints			
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments

Problem Area: #37 - Upper Bayou Casotte

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
3. Response to Evaluation Criteria			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities

Problem Area: #22 - Franklin Creek Floodway

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Highflow Diversion	Alternative 3: Bridge Construction	Alternative 4: Purchase and Removal
A. PLAN DESCRIPTION	No Federal Action	Consists of excavating 7.4 acres to divert high flow from the Franklin Creek Tributary.	Consists of constructing 3 railroad bridges 300ft long and 15ft wide to divert flow southward.	Consists the purchase and removal of 30 structures (24 homes and 6 mobile homes) for permanent evacuation of the floodplain.
B. IMPACT ASSESSMENT				
1. National Economic Development				
a. Beneficial Impacts				
(1) Damages Prevented	Alternative would result in continued flooding in Pecan, MS.	Alternative would moderately reduce flood damages in Pecan, MS.	Alternative would moderately reduce flood damages in Pecan, MS.	Alternative would reduce 100% of flood damages in Pecan, MS.
(2) Emergency Costs Avoided	N/A	N/A	N/A	N/A
(3) Recreation	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits	Alternative provides no significant change in recreation benefits
(4) Total Beneficial Impacts	None.			
b. Adverse Impacts				
(1) Total Project First Costs	$0	$1,400,000	$5,340,000	$4,160,000
(2) Average Annual First Costs	$0	$78,173	$298,175	$232,286
(2) Interest During Construction	N/A	$33,000	$125,800	$110,700
(3) Annual O&M	$0	$25,300	$19,900	$0
(4) Total Avg. Annual Costs	$0	$136,473	$443,875	$342,986
2. Environmental Quality (EQ)				
(1) Ecosystem Restoration	Alternative would no environmental impact.	Alternative would have a moderate impact through prevention of future saltwater intrusion.	Alternative would have a moderate impact through prevention of future saltwater intrusion.	Alternative would no environmental impact.
(2) Water Circulation	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation.	Alternative would have no anticipated effect on water circulation
(3) Manmade Resources	Alternative would have no anticipated effect on man-made resources	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.	Alternative would result in anticipated benefit to man-made resources with respect to the no-action alternative.
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction	Alternative would result in temporary increase in noise levels during construction
(5) Public Facilities	Alternative would result in no change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.	Alternative would result in no anticipated change in public facilities.
(6) Aesthetic Values	Alternative would result in no significant change in aesthetic values	Alternative would result in a moderate change in aesthetic values	Alternative would result in no significant change in aesthetic values	Alternative would result in no significant change in aesthetic values
(7) Natural Resources	Existing natural resources would be degraded with respect to pre-storm conditions.	Alternative would have a moderate impact through prevention of future saltwater intrusion.	Existing natural resources would be degraded with respect to pre-storm conditions.	Existing natural resources would be degraded with respect to pre-storm conditions.
(8) Biological Resources	Biological resources would be degraded with respect to pre-storm conditions.	Alternative would have some positive effect on existing biological resources	Biological resources would be improved versus the no-action alternative.	Biological resources would be improved versus the no-action alternative.
(9) Air Quality	Alternative would have no anticipated effect on air quality	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.	Alternative would have temporary negative impacts to air quality due to handling of suitable soils.
(10) Water Quality	Alternative would have no anticipated effect on water quality	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.	Alternative would have temporary negative impacts to water quality due to placement of materials.

Problem Area: #22 - Franklin Creek Floodway

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Highflow Diversion	Alternative 3: Bridge Construction	Alternative 4: Purchase and Removal
(11) Public Services	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .	Alternative would have no anticipated effect on public services .
(12) Cultural and Historical Preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no anticipated effect on cultural and historical preservation
(13) Total Quality of the Environment	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment	Alternative would have some positive effect on existing biological resources	Alternative would result in positive effect on existing and future biological resources	Alternative is anticipated to have no signicant positive or negative impacts on the total quality of this environment
3. Regional Economic Development (RED)				
(1) Impact on Sales Volume	Alternative will no impact to the local economy.	Alternative would provide **$3,948,750** in additional sales volume to the local economy.	Alternative would provide **$12,201,931** in additional sales volume to the local economy.	Alternative would provide **$0** in additional sales volume to the local economy.
(2) Impact on Income	Alternative will no impact to the local economy.	Alternative would provide **$770,107** in additional local income to the local economy.	Alternative would provide **$2,379,688** in additional local income to the local economy.	Alternative would provide **$0** in additional local income to the local economy.
(3) Impact on Employment	Alternative will no impact to the local economy.	Alternative would provide **23** new jobs to the local economy.	Alternative would provide **69** new jobs to the local economy.	Alternative would provide **0** new jobs to the local economy.
(4) Tax Changes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes	Alternative would result in no change in taxes
4. Other Social Effects (OSE)				
a. Beneficial Impacts				
(1) Security of Life, Health, and Safety	Alternative would result in continued risks to life, health and safety	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety.	Alternative would result in continued risks to life, health and safety
(2) Community Cohesion	Alternative is anticipated to have no negative impacts on community cohesion beyond those imposed by the occurrence of Hurricane Katrins and its aftermath	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative is anticipated to have a positive impact on community cohesion by virtue of the community observing that their coastal resources are being restored.	Alternative would improve the total quality of life for the residents by evacuating them from the floodplain.
(3) Tax Values	Alternative is anticipated to have possible minor negative impact on tax value due to reduced habitat for fishing industry.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.	Alternative is anticipated to have no increase in pre-Katrina tax values.
(4) Community Growth	Alternative is anticipated to have little effect on community growth	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have no effect on community growth.	Alternative is anticipated to have little effect on community growth
(5) Property Values	Alternative is not anticipated to result in impact to property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.	Alternative is anticipated to have no effect on property values.
(6) Displacement of Businesses	Alternative is not anticipated to result in any major impact to businesses.	Alternative is not anticipated to result in any major impact to businesses.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.	Alternative is anticipated to have a minor positive effect on business displacement versus the no-action alternative.
(7) Public Facilities	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.	Alternative is not anticipated to result in any major impact to public facilities.
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms
b. Preservation of loss of life	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.	Alternative is not anticipated to contribute to loss of life.

Problem Area: #22 - Franklin Creek Floodway

Problems ID: Damages suffered by hurricane-induced surge and wave attack; Potential future damages from storm and hurricane events.

Item	Altternative 1: No Action	Alternative 2: Highflow Diversion	Alternative 3: Bridge Construction	Alternative 4: Purchase and Removal
C. PLAN EVALUATION				
1. Contributions to Planning Objectives				
a. Recovery of lost environmental resources	Alternative will result in continued loss of environmental resources.	Alternative will result in some recovery of environmental resouces with the agregation of sediment over time.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.	Alternative will result in recovery of 8 acres of emergent tidal wetland habitat.
b. Recovery of shore erosion protection measures	Alternative result in continued erosion.	Alternative will result in some protection against erosion for small storm events.	Alternative will result in protection against erosion for small to medium storm events.	Alternative will result in protection against erosion for even large storm events.
2. Response to Planning Constraints				
a. Avoid environmental impacts and minimize induced damages	Alternative will result in the continued loss of pre-Katrina environnmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.	Alternative is anticipated to have a beneficial effect on environmental resources.
b. Institutional Acceptability	Alternative is not supported by state or local government	Alternative is supported by local and state governments	Alternative is supported by local and state governments	Alternative is supported by local and state governments
3. Response to Evaluation Criteria				
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	Alternative supports some of the goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans	Alternative supports goals and objectives of County and State Recovery Plans
b. Completeness	Alternative does not provide any solution to identified problems	Alternative provides solution to prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion	Alternative provides solution to identified problems; functions as two elements, ecosystem restoration and prevention of future erosion
c. Effectiveness	Alternative is ineffective at addressing any of identified problems	Alternative is only effective at dealing with future erosion	Alternative is effective at dealing with issues of ecosystem restoration, but only partially effective at coastal erosion	Alternative is effective at dealing with issues of ecosystem restoration and coastal erosion
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	Alternative does not incur any outlay of funds for construction, but will require a significant increase in the future outlay of funds for future erosion and ecosystem recovery efforts.	Alternative will incur outlay of funds (at DMR cost) for construction. Would also require fuutre outlay of funds for operation and maintenance of the project.	Alternative will incur outlay of funds for construction. Would also require significant outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.	Alternative will incur outlay of funds for construction. Would also require reduced outlay of funds for operation and maintenance of the project. Annual wetland monitoring costs are estimated at $5,000.
e. Integration	Alternative will not require integration with any other plans	Alternative will require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal	Alternative will integrate with DMR plans for short term erosion protection measures and the Govonor's long-term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be reversible, given means to remove placed material	Alternative could be reversible, given means to remove wetland and structural features	Alternative could be reversible, given means to remove wetland and structural features
D. Implementation Responsibility	This alternative does not have any implementation responsibilities	Structural elements would be responsibility of the Mississippi Department of Marine Resources	Structural elements would be joint Federal/Non-Federal implementation responsibility.	Elements would be joint Federal/Non-Federal implementation responsibility.
E. State and other Non-Federal Coordination	This alternative would require no State or other Non-Federal coordination activities	This alternative would require limited, if any, State or other Non-Federal coordination activities	This alternative would require State and other Federal coordination activities	This alternative would require State and other Federal coordination activities