MISSISSIPPI COASTAL IMPROVEMENTS PROGRAM (MsCIP) INTERIM REPORT

SYSTEM OF ACCOUNTS APPENDIX

CONTENTS

Bayou Caddy Ecosystem Restoration	1
Hancock County Beach Ecosystem Restoration	5
Hancock County Streams, Floor Damage Reduction and Ecosystem Restoration	10
Jackson Marsh Ecosystem Restoration	14
Clermont Harbor Hurricane Storm Damage Reduction	19
Downtown Bay Saint Louis Hurricane Storm Damage Reduction	28
Cowand Point Hurricane Storm Damage Reduction	32
Long Beach Canals Flood Damage Reduction	41
Harrison County Beaches Hurricane Storm Damage Reduction and Ecosystem Restora	ation 45
Courthouse Road Ecosystem Restoration and Flood Damage Reduction	49
Shearwater Bridge Hurricane Storm Damage Reduction	54
Gautier Coastal Streams Flood Damage Reduction and Ecosystem Restoration	58
Pascagoula Beach Boulevard Hurricane Storm Damage Reduction and Ecosystem Restoration	62
Upper Bayou Casotte Flood Damage Reduction	66
Franklin Creek Floodway Flood Damage Reduction	70

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.

events.	_	1		
ltem	Altternative 1: No Action	Alternative 3: Breakwater Consists of a breakwater	Alternative 4: Earthen Containment Consists of an earthen dike	Alternative 5: Earthen Containment plus Breakwater Consists of an earthen dike
A. PLAN DESCRIPTION	No Federal Action	constructed by DMR using concrete rubble from bridges damaged by Hurricane Katrina	to create an 18-acre marsh site.	to create an 18-acre marsh site plus a protective breakwater.
B. IMPACT ASSESSMENT		•		
1. National Economic Developm	ent			
a. Beneficial Impacts	Tour is a second	har	h.,	har 11 11 11 1
(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) Average Annual First Cost	N/A	\$112,234		
(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	, ,	\$459,469	
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 manmade 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 manmade 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.

events.	-			
			Alternative A Francis	Alternative 5: Earthen
Itom	Altternative 1: No Action	Alternative 3: Breakwater	Alternative 4: Earthen Containment	Containment plus Breakwater
(9) Biological Resources	Biological resources would	Alternative s. Breakwater	Biological resources would	Biological resources would
(5) Biological Resources	be degraded with respect to		be improved versus the no-	be improved versus the no-
	pre-storm conditions.	existing biological resources	·	action alternative.
(10) Air Quality	Alternative would have no	Alternative would have	Alternative would have	Alternative would have
	anticipated effect on air	temporary negative impacts		temporary negative impacts
	quality		. ,	to air quality due to handling
		of suitable soils.	of suitable soils.	of suitable soils.
(11) Water Quality	Alternative would have no	Alternative would have	Alternative would have	Alternative would have
(11) Water Quality	anticipated effect on water		temporary negative impacts	temporary negative impacts
	quality	to water quality due to	to water quality due to	to water quality due to
	. ,	placement of materials.	placement of materials.	placement of materials.
(12) Public Services	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
	anticipated effect on public	anticipated effect on public	anticipated effect on public	anticipated effect on public
	services .	services .	services .	services .
(13) Cultural and Historical	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
Preservation	anticipated effect on cultural		anticipated effect on cultural	· · · · · · · · · · · · · · · · · · ·
	and historical preservation	and historical preservation	and historical preservation	and historical preservation
(14) Total Quality of the		Alternative would have	Alternative would result in	Alternative would result in
Environment	Alternative is anticipated to	some positive effect on	positive effect on existing	positive effect on existing
	have no signicant positive	existing biological resources		and future biological
	or negative impacts on the		resources	resources
	total quality of this			
	environment			
3. Regional Economic Developm		IA11 11 11 11	A1	A10 11 11
(1) Impact on Sales Volume	Alternative would have no		Alternative would provide an	•
	impact to sales volume.	increase of \$4,020,000 to the sales volume of the	increase of \$13,101,308 to	increase of \$14,590,692 to the sales volume of the local
		local economy.	economy.	economy.
		iodai dodiiomy.		
(2) Impact on Income	Alternative would have no	Alternative would provide an	Alternative would provide an	Alternative would provide an
	impact to income.	-	increase of \$3,159,184 to	increase of \$3,518,327 to
		income of the local	the incme of the local	the incme of the local
		economy.	economy.	economy.
(3) Impact on Employment	Alternative would have no impact to employment.	Alternative would provide an increase of 24 jobs to the	increase of 79 to the sales	Alternative would provide an increase of 89 to the sales
	impact to employment.	local economy.	volume of the local	volume of the local
		local coolionly.	economy.	economy.
(6) Tax Changes	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
()	no change in taxes	no change in taxes	no change in taxes	no change in taxes
4. Other Social Effects (OSE)				
a. Beneficial Impacts				
(1) Security of Life, Health, and	Alternative would result in	Alternative would result in		Alternative would result in
Safety	continued risks to life,	continued risks to life,		continued risks to life, health
(2) Community Cohosion	health and safety Alternative is anticipated to	health and safety. Alternative is anticipated to	and safety. Alternative is anticipated to	and safety Alternative is anticipated to
(2) Community Cohesion	have no negative impacts	have a positive impact on	have a positive impact on	have a positive impact on
	on community cohesion	community cohesion by	community cohesion by	community cohesion by
	beyond those imposed by	virtue of the community	virtue of the community	virtue of the community
	the occurrence of Hurricane	observing that their coastal	observing that their coastal	observing that their coastal
	Katrins and its aftermath	resources are being	resources are being	resources are being
		restored.	restored.	restored.
(4) Tax Values	Alternative is anticipated to	Alternative is entisinated to	Alternative is entisinated to	Alternative is entisingled to
(4) Tax Values	Alternative is anticipated to have possible minor	Alternative is anticipated to have no increase in pre-	Alternative is anticipated to have no increase in pre-	Alternative is anticipated to have no increase in pre-
	negative impact on tax	Katrina tax values.	Katrina tax values.	Katrina tax values.
	value due to reduced	war raidou		
	habitat for fishing industry.			
(5) Community Growth	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
	have little effect on	have no effect on	have no effect on	have little effect on
	community growth	community growth.	community growth.	community growth

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

events.	<u> </u>			
ltem	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.
(7) 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.
(8) Public Facilities	to result in any major impact		T	Alternative is not anticipated to result in any major impact to public facilities.
(9) Injurious Displacement of Farms b. Preservation of loss of life	Alternative is anticipated to have no effects on displacement of farms Alternative is not anticipated	have no effects on displacement of farms	Alternative is anticipated to have no effects on displacement of farms Alternative is not anticipated	Alternative is anticipated to have no effects on displacement of farms Alternative is not anticipated
	•		to contribute to loss of life.	to contribute to loss of life.
C. PLAN EVALUATION				
Contributions to Planning Obj 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 Constra			[A1/2 12 12 12 12 12 12 12 12 12 12 12 12 12	Au
Avoid environmental impacts and minimize induced damages	continued loss of pre- Katrina environnmental resources.	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
3. Response to Evaluation Criter	ia			
a. Acceptability	Alternative does not meet goals and objectives of County or State Recovery Plans	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		to identified problems; functions as two elements, ecosystem restoration and	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)	construction, but will require a significant increase in the	construction. Would also require fuutre outlay of funds for operation and	,	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.

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

nom storm and numeane events		Alta-marth C D	A16
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 Developm	ent		
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.

Item	Altternative 1: No Action	Alternative 2: Dune	Alternative 3: Dune
i.c.iii	A ACTION OF THE MOUNT	Placement	Placement with Fencing
		3000	and Planting
(3) Manmade Resources	Alternative would have no	Alternative would result in	Alternative would result in
(0) Manimage Resources	anticipated effect on man-		anticipated benefit to man-
	made resources	made resources with	made resources with
		respect to the no-action	respect to the no-action
		alternative.	alternative.
(4) Noise Level Changes	Alternative would result in		Alternative would result in
(1) NOISC LEVEL CHAINGES	no change in noise levels		temporary increase in noise
		levels during construction	levels during construction
(5) Public Facilities	Alternative would result in	Alternative would result in	Alternative would result in
	no change in public	no anticipated change in	no anticipated change in
	facilities.	public facilities.	public facilities.
(6) Security of Life, Health, and	Alternative would result in	Alternative would result in	Alternative would result in
Safety	continued risks to life,	continued risks to life,	continued risks to life,
	health and safety	health and safety.	health and safety.
(7) Tax Changes			Alternative would result in
	•	no change in taxes	no change in taxes
(8) Aesthetic Values			Alternative would result in a
I	no significant change in	minimal change in	moderate aesthetic
I	aesthetic values	aesthetic values	improvement to coastal
(6) 11:		lan :	area.
(9) Natural Resources	Existing natural resources	Alternative would result in	Alternative would result in
1	would be degraded with	restoration of the beach	restoration of the beach
1	respect to pre-storm		creating a moderate
1	conditions.	•	improvement to its overall
		value as a natural resource.	value as a natural resource.
(10) Biological Resources	Biological resources would	Alternative would have	Biological resources would
(10) Diological Resources	be degraded with respect	some positive effect on	be improved versus the no-
1	to pre-storm conditions.	existing biological	action alternative.
	p. o otorni oonuliiona.	resources	attornative.
(11) Air Quality	Alternative would have no	Alternative would have	Alternative would have
` '	anticipated effect on air		temporary negative impacts
1	quality	to air quality due to	to air quality due to
		handling of suitable soils.	handling of suitable soils.
		-	
(12) Water Quality	Alternative would have no	Alternative would have	Alternative would have
1			temporary negative impacts
	- I	to water quality due to	to water quality due to
		placement of materials.	placement of materials.
(13) Public Services	Alternative would have no	Alternative would have no	Alternative would have no
		anticipated effect on public	anticipated effect on public
	services .	services .	services .
(14) Cultural and Historical	Alternative would have no		Alternative would have no
Preservation			anticipated effect on
	cultural and historical	cultural and historical	cultural and historical
	preservation	preservation	preservation

	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 Deve	lopment (RED)				
(1) Impact on Sales Volu	me 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.	\$957,961in additional local income to the local economy.	Alternative would provide \$1,199,096 in additional local income to the local economy.		
(3) Impact on Employmer	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 (OSI	Ξ)				
a. Beneficial Impacts		T	T		
(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 Busines	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.		

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

Item	Altternative 1: No Action		Alternative 3: Dune
		Placement	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 2-feet of sediment.		
B. IMPACT ASSESSMENT		0. 00 0	0.000		
1. National Economic Developm	nent				
a. Beneficial Impacts					
(1) Damages Prevented	Would result in no decrease of flood damages.	because this evaluation is	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 manmade 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

from storm and hurricane events	<u> </u>	Alternative 2: 1-foot	Alternative 3: 2-foot
Item	Altternative 1: No Action	sediment removal	sediment removal
(5) Public Facilities	Alternative would result in	Alternative would result in	Alternative would result in
(3) Fublic Facilities	no change in public	no anticipated change in	no anticipated change in
	facilities.	public facilities.	public facilities.
(6) Aesthetic Values	Alternative would result in	Alternative would result in a	Alternative would result in a
(0) Aestrictic values	no significant change in	moderate improvement to	moderate improvement to
	aesthetic values	aesthetic values	aesthetic values
(7) Natural Resources	Existing natural resources	Alternative would have	Alternative would result in
(7) Natural Resources	would be degraded with	some effect on existing	restoration of coastal marsh
	respect to pre-storm	natural resources.	resources.
	conditions.	natural resources.	resources.
(8) Biological Resources		Alternative would have	Biological resources would
(b) Biological Resources	be degraded with respect	some positive effect on	be improved versus the no-
	to pre-storm conditions.	existing biological	action alternative.
	to pre storm conditions.	resources	action atternative.
(9) Air Quality	Alternative would have no	Alternative would have	Alternative would have
(o) All Quality	anticipated effect on air		temporary negative impacts
	quality	to air quality due to	to air quality due to
	quanty	handling of suitable soils.	handling of suitable soils.
		lianaming of canabic conc.	Than aming or canable conc.
(10) Water Quality	Alternative would have no	Alternative would have	Alternative would have
(10) 110.0. Quality			temporary negative impacts
	quality	to water quality due to	to water quality due to
	4	placement of materials.	placement of materials.
(11) Public Services	Alternative would have no	Alternative would have no	Alternative would have no
(11) 1 45.16 55.11.655			anticipated effect on public
	services .	services .	services .
(12) Cultural and Historical	Alternative would have no	Alternative would have no	Alternative would have no
Preservation	anticipated effect on	anticipated effect on	anticipated effect on
	cultural and historical	cultural and historical	cultural and historical
	preservation	preservation	preservation
(13) Total Quality of the	Alternative is anticipated to	Alternative would have	Alternative would result in
Environment	have no signicant positive	some positive effect on	positive effect on existing
	or negative impacts on the	existing biological	and future biological
	total quality of this	resources	resources
	environment		
3. Regional Economic Developm			
(1) Impact on Sales Volume	Alternative will no impact to		Alternative would provide
	the local economy.	\$9,457,092 in additional	\$16,096,164 in additional
		sales volume to the local	sales volume to the local
		economy.	economy.
(2) Impact on Income		Alternative would provide	Alternative would provide
	the local economy.	\$2,280,437 in additional	\$3,881,349 in additional
		local income to the local	local income to the local
		economy.	economy.
(3) Impact on Employment	Alternative will no impact to		Alternative would provide
	the local economy.	58 new jobs to the local	98 new jobs to the local
		economy.	economy.
(4) Tax Changes	Alternative would result in	Alternative would result in	Alternative would result in
	no change in taxes	no change in taxes	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 Alternative 2: 1-foot Alternative 3: 2-foot **Altternative 1: No Action** sediment removal sediment removal Item 4. Other Social Effects (OSE) a. Beneficial Impacts (1) Security of Life, Health, and Alternative would result in Alternative would result in Alternative would result in continued risks to life, continued risks to life, continued risks to life, Safety health and safety health and safety. health and safety. (2) Community Cohesion Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have no negative impacts have a positive impact on have a positive impact on on community cohesion community cohesion by community cohesion by beyond those imposed by virtue of the community virtue of the community observing that their coastal the occurrence of observing that their coastal Hurricane Katrins and its resources are being resources are being aftermath restored. restored. Tax Values Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have possible minor have no increase in prehave no increase in prenegative impact on tax Katrina tax values. Katrina tax values. value due to reduced habitat for fishing industry. Community Growth Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have little effect on have no effect on have no effect on community growth community growth. community growth **Property Values** Alternative is not Alternative is anticipated to Alternative is anticipated to have no effect on property anticipated to result in have no effect on property impact to property values. values. values. Displacement of Businesses Alternative is not Alternative is not Alternative is anticipated to anticipated to result in any anticipated to result in any have a minor positive effect major impact to major impact to on business displacement businesses. businesses. versus the no-action alternative. **Public Facilities** Alternative is not Alternative is not Alternative is not anticipated to result in any anticipated to result in any anticipated to result in any major impact to public major impact to public major impact to public facilities. facilities. facilities (8) Injurious Displacement of Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have no effects on have no effects on have no effects on Farms displacement of farms displacement of farms displacement of farms Alternative is not b. Preservation of loss of life Alternative is not Alternative is not anticipated to contribute to anticipated to contribute to anticipated to contribute to loss of life. loss of life. loss of life. C. PLAN EVALUATION 1. Contributions to Planning Objectives a. Recovery of lost environmental Alternative will result in Alternative will result in Alternative will result in some recovery of recovery of 8 acres of resources continued loss of environmental resources. environmental resouces emergent tidal wetland with the agregation of habitat. sediment over time. Alternative will result in b. Recovery of shore erosion Alternative result in Alternative will result in protection measures continued erosion. some protection against protection against erosion

erosion for small storm

events.

for small to medium storm

events.

Problem Area: #62 - Hancock County Communities

from storm and hurricane events.			
		Alternative 2: 1-foot	Alternative 3: 2-foot
Item	Altternative 1: No Action	sediment removal	sediment removal
2. Response to Planning Constr			
a. Avoid environmental impacts and		Alternative is anticipated to	Alternative is anticipated to
minimize induced damages	continued loss of pre-	have a beneficial effect on	have a beneficial effect on
	Katrina environnmental	environmental resources.	environmental resources.
	resources.		
b. Institutional Acceptability	Alternative is not supported		Alternative is supported by
	by state or local	local and state	local and state
O Decrease to Evolvetion Orito	government	governments	governments
3. Response to Evaluation Crite		Altamatica acceptante accep	Altamatica acceptante mala
a. Acceptability	Alternative does not meet goals and objectives of	Alternative supports some	Alternative supports goals and objectives of County
	County or State Recovery	of the goals and objectives of County and State	and State Recovery Plans
	Plans	Recovery Plans	and State Necovery Flans
b. Completeness	Alternative does not	Alternative provides	Alternative provides
b. Completeness	provide any solution to	solution to prevention of	solution to identified
	identified problems	future erosion	problems; functions as two
	naonimoa prozionio		elements, ecosystem
			restoration and prevention
			of future erosion
c. Effectiveness	Alternative is ineffective at	Alternative is only effective	Alternative is effective at
	addressing any of identified		dealing with issues of
	problems	erosion	ecosystem restoration, but
			only partially effective at
			coastal erosion
d. Efficiency (Cost-Effectiveness;	Alternative does not incur		Alternative will incur outlay
i.e., most efficient use of Federal and	-	of funds (at DMR cost) for	of funds for construction.
Non-Federal Funds)	construction, but will	construction. Would also	Would also require
	require a significant increase in the future outlay	require fuutre outlay of	significant outlay of funds for operation and
	of funds for future erosion	maintenance of the project.	
	and ecosystem recovery	maintenance of the project.	Annual wetland monitoring
	efforts.		costs are estimated at
			\$5,000.
e. Integration	Alternative will not require	Alternative will require	Alternative will integrate
1 119	integration with any other	integration with future	with the Govonor's long-
	plans	wetland restoration efforts	term marsh creation goal
f. Reversibility	This issue does not apply	Alternative could be	Alternative could be
		reversible, given means to	reversible, given means to
		remove placed material	remove wetland and
			structural features
D. Implementation	This alternative does not	Structural elements would	Structural elements would
Responsibility	have any implementation	be responsibility of the	be joint Federal/Non-
,	responsibilities	Mississippi Department of	Federal implementation
		Marine Resources	responsibility.
5 0 1 1 1 1	This alternative waveld	This alternative wanted	This alternative would
E. State and other Non-	This alternative would require no State or other	This alternative would	This alternative would
Federal Coordination	Non-Federal coordination	require limited, if any, State or other Non-Federal	Federal coordination
	activities	coordination activities	activities
	uoti vitioo	ocordination activities	uotivitios
		l .	

from storm and nurricane events		T	
ltem	Altternative 1: No Action		Alternative 3:
			Combination of Sediment
		Removal and Wall	Removal and Wall
		Replacement with	Replacement with vinyl
		aluminum sheet pile and	sheet pile and remove
A DI ANI DECODIDEIONI	No Federal Action	remove sediment Consists of placing	sediment Consists of the combination
A. PLAN DESCRIPTION	No Federal Action	aluminum sheetpile	of removing sediment and
		structures from the edge of	replacing drainage canal
		the concrete outlet walls to	outlet walls.
		where the beach contacts	
		the Mississippi Sound	
B. IMPACT ASSESSMENT	1		
National Economic Developm	nont		
	ient		
a. Beneficial Impacts (1) Damages Prevented	Would result in NO	Would result in decrease in	Would result in decrease in
(1) Damages Frevented	decrease in flood damages.	damage to infrastructure	damage to infrastructure
	assisass in nood damages.	linked and adjacent to the	linked and adjacent to the
		drainage channel.	drainage channel.
(2) Emergency Costs Avoided	Emergency costs could	Emergency costs would	Emergency costs would
	increase if flooding results	continue at reduced rate	continue at reduced rate
	of channel wall failure and	due to reduced threat to	due to reduced threat to
	traffic needs to be re-	water over roadway and	water over roadway and
	routed around flooded	interior flooding effects.	interior flooding effects.
	areas. Some residential		
	help calls may result.		
(4) Recreation	Alternative provides no	Alternative provides no	Alternative provides no
	significant change in	significant change in	significant change in
	recreation benefits	recreation benefits.	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	functional habitat index	functional habitat index
	score of 80.	score of 525 with An	score of 525 with aan
		average annual cost of	average annual cost of
(0) W (0) (1)	All C	\$1,130.26 .	\$870.84 .
(2) Water Circulation	Alternative would have no	Alternative would have a	Alternative would have a
	anticipated effect on water	significant effect on water	significant effect on water
	circulation.	circulation.	circulation
(3) Manmade Resources	Alternative would have no	Alternative would result in	Alternative would result in
	anticipated effect on man- made resources	anticipated benefit to man- made resources with	anticipated benefit to man- made resources with
	made resources	respect to the no-action	respect to the no-action
		alternative.	alternative.
		antornative.	anomalivo.

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

Item	Altternative 1: No Action	Alternative 2:	Alternative 3:
Item	Aitternative 1. No Action		Combination of Sediment
		Removal and Wall	Removal and Wall
		Replacement with	Replacement with vinyl
		aluminum sheet pile and	sheet pile and remove
		remove sediment	sediment
(2) Impact on Income	Alternative will no impact to		Alternative would provide
(2) Impact on meonic	the local economy.	\$4,230,382 in additional	\$3,350,416 in additional
	and recar economy.	local income to the local	local income to the local
		economy.	economy.
(3) Impact on Employment	Alternative will no impact to	,	Alternative would provide
(b) impact on Employment	the local economy.	107 new jobs to the local	86 new jobs to the local
	, and the second second	economy.	economy.
(4) Tax Changes	Alternative would result in	Alternative would result in	Alternative would result in
(,	no change in taxes	no change in taxes	no change in taxes
4. Other Social Effects (OSE)	<u> </u>	<u>. </u>	
a. Beneficial Impacts			
(1) Security of Life, Health, and	d Alternative would result in	Alternative would result in	Alternative would result in
Safety	continued risks to life,	decrease in risks to life,	decrease in risks to life,
	health and safety		health and safety, due to re-
		establishment of	establishment of
		stormwater conveyance.	stormwater conveyance.
(2) Community Cohesion	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
. ,	have no negative impacts	have a positive impact on	have a positive impact on
	on community cohesion	community cohesion by	community cohesion by
	beyond those imposed by	virtue of the community	virtue of the community
	the occurrence of	observing that their coastal	observing that their coastal
	Hurricane Katrins and its	resources are being	resources are being
	aftermath	restored.	restored.
(3) Tax Values	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
	have possible minor	have no increase in pre-	have no increase in pre-
	negative impact on tax	Katrina tax values.	Katrina tax values.
	value due to reduced		
	habitat for fishing industry.		
(4) Community Growth	· · · · · · · · · · · · · · · · · · ·	Alternative is anticipated to	The state of the s
	have no effect on	have no effect on	have little effect on
	community growth	community growth.	community growth
(5) Property Values	Alternative is not	Alternative is anticipated to	Alternative is anticipated to
	anticipated to result in	have no effect on property	have no effect on property
	impact to property values.	values.	values.
(0) 21 1 1 1 1		40 0 1 2 2 2 2 2	All III
(6) Displacement of Business		Alternative is anticipated to	Alternative is anticipated to
	anticipated to result in any	have a minor positive effect	
	major impact to	on business displacement	business displacement
	businesses.	versus the no-action	versus the no-action
		alternative.	alternative.

Irom Storm and nurricane events		Altamatica O	Altamastica
Item	Altternative 1: No Action	Alternative 2:	Alternative 3:
			Combination of Sediment
		Removal and Wall	Removal and Wall
		Replacement with	Replacement with vinyl
		aluminum sheet pile and	sheet pile and remove
(a) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c		remove sediment	sediment
(7) Public Facilities	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
	result in continued risks	result in continued risks	result in continued risks
	·	and incurred costs to public	
	facilities due to lack of	facilities due to lack of	facilities due to lack of
	physical protection		physical protection resulting
	resulting from large storm and hurricane events	from large storm and	from large storm and
	and numcane events	hurricane events	hurricane events
(9) Injurious Displacement of	Alternative is anticipated to	Alternative is antisinated to	Alternative is entisinated to
(8) Injurious Displacement of Farms	Alternative is anticipated to have no effects on	Alternative is anticipated to have no effects on	Alternative is anticipated to have no effects on
Faiiis			displacement of farms
b. Preservation of loss of life	displacement of farms Alternative is not	displacement of farms Alternative is not	Alternative will result in
b. Preservation of loss of file	anticipated to contribute to	anticipated to contribute to	improvement in safety to
	loss of life.	loss of life.	lives provided by
	loss of file.	loss of file.	restoration of stormwater
			conveyance.
			conveyance.
C. PLAN EVALUATION			
1. Contributions to Planning Ob			
a. Flood, Hurricane and/or Storm	Alternative will result in no	Alternative will result in	Alternative will result in
Damage Reduction	improvement in damage	minor improvement in	improved flood damage
	reduction, though damages		reduction versus the no-
	will be increased versus the		action alternative.
	pre-Katrina condition.		
	A.V. (1 19 14 1	A. (1 11 11 14 1	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
b. Recovery of lost environmental	Alternative will result in	Alternative will result in	Marsh restoration will
resources	continued loss of	continued loss of	accrue unquantified
	environmental resources.	environmental resources.	benefits.
	<u> </u>		
2. Response to Planning Constr	aints	A14 45 1	Altana attua ta un tinto de la constanti
a. Avoid environmental impacts and		Alternative is not	Alternative is anticipated to
minimize induced damages	continued loss of pre-	anticipated to have any	have a beneficial effect on
	Katrina environnmental	effect on environmental	environmental resources.
	resources.	resources.	All distribution
b. Institutional Acceptability	Alternative is not supported		Alternative is supported by
	by state or local	local and state	local and state
	government	governments	governments
3. Response to Evaluation Crite		Luc	
a. Acceptability	Alternative does not meet	Alternative supports only	Alternative supports limited
	goals and objectives of	limited goals and objectives	_
	County or State Recovery	of City General Plan, or	General Plan and State
	Plans	State Recovery Plan	Recovery Plan

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

attack.		Alternative 2: Rebuild of	Alternative 3: Rebuild of
Item	Altternative 1: No Action	Seawall with Steel Sheetpile	Seawall with Vinyl Sheetpile
	No Federal Action	Alternative would rebuild	Alternative would rebuild
A. PLAN DESCRIPTION	No i ederal Action	seawall with steel sheetpile	
B. IMPACT ASSESSMENT			
1. National Economic Developr	nent		
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 rerouting 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		
(2) Average Annual Cost (2) Interest During Construction	\$0 n/a	\$92,189	\$73,706
(3) Annual O&M	\$0		
(4) Total Avg. Annual Costs	\$0	\$102,189	\$78,706

allack.			
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	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	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	adoption of better building	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 2: Rebuild of	Alternative 3: Rebuild of
		Seawall with Steel	Seawall with Vinyl
Item	Altternative 1: No Action	Sheetpile	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	to adoption of new building codes and zoning ordinances, but may decrease costs of
(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

attack.			
		Alternative 2: Rebuild of Seawall with Steel	Alternative 3: Rebuild of Seawall with Vinyl
Item	Altternative 1: No Action	Sheetpile	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	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 highrisk 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	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
Environment	have no signicant positive or negative impacts on the total quality of this environment	have no signicant positive or negative impacts on the total quality of this environment	have no signicant positive or negative impacts on the total quality of this environment
4. Regional Economic Development	nent (RED)		
(1)	Alternative will no impact to the local economy.	\$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.	\$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	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

		Alternative 2: Rebuild of	Alternative 3: Rebuild of
		Seawall with Steel	Seawall with Vinyl
Item	Altternative 1: No Action	Sheetpile	Sheetpile
5. Other Social Effects (OSE)	-		
a. Beneficial Impacts			
(1) Community Cohesion	Alternative is anticipated to have no signicant positive	Alternative is anticipated to have no signicant positive	Alternative is anticipated to have no signicant positive
	or negative impacts on community cohesion	or negative impacts on community cohesion	or negative impacts on community cohesion
	beyond those required by the occurrence of Hurricane Katrina and its aftermath	beyond those required by	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
(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

allack.		Alternative O. Debuild of	Alternative C. Debuild of
		Alternative 2: Rebuild of	Alternative 3: Rebuild of
Item	Altternative 1: No Action	Seawall with Steel Sheetpile	Seawall with Vinyl Sheetpile
(5) Property Values		Alternative is anticipated to	Alternative is anticipated to
(a) Troperty Values		result in negative impact to	result in positive impact to
	property values	property values	property values
	immediately inland of	immediately inland of	immediately inland of
	former seawall due to lack	former seawall due to lack	former seawall due to
	of protection of road,	of protection of road,	protection of road, utilities,
	utilities, and property	utilities, and property;	and property; revision of
		revision of building codes	building codes and zoning
		and zoning ordinances may	ordinances may result in
		result in higher property	higher property values for
		values for those structures	those structures in high risk
		in high risk area close to	area close to coastline due
		coastline due to required	to required rebuilding to
		rebuilding to better code	better code requirements
		requirements	
(6) Displacement of Businesses		Alternative is anticipated to	Alternative is anticipated to
	result in significant		result in no displacement of
	displacement of businesses	,	businesses by virtue or
	inland due to lack of	provision of physical	provision of physical
	physical protection	protection measures to	protection measures to those along Beach
		those along Beach Boulevard, but may result	Boulevard, but may result
		in displacement due to	in displacement due to
		•	adoption of revised building
		codes and zoning	codes and zoning
		ordinances	ordinances
(7) Public Facilities	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
	result in continued risks	result in continued risks	result in lower risk and
	and incurred costs to public	and incurred costs to public	incurred costs to public
	facilities due to lack of	facilities due to lack of	facilities due to upgrade of
		physical protection,	physical protection, and
	upgraded building codes,	resulting from large storm	upgrading of building
	resultingf from large storm	and hurricane events	codes, for large storm and
	and hurricane events		hurricane events
(0) Injurious Displacement of	Alternative is autisticated to	Alternative is autising to 14-	Alternative is antisinated to
(8) Injurious Displacement of	Alternative is anticipated to have no effects on	Alternative is anticipated to have no effects on	Alternative is anticipated to have no effects on
Farms	displacement of farms	displacement of farms	displacement of farms
b. Preservation of loss of life	Alternative will result in	Alternative will result in	Alternative will result in
b. Flescivation of loss of life	continued threat to loss of	improvement in safety to	improvement in safety to
	life during moderate to	lives provided by better	lives provided by better
	large storm and hurricane	building codes and/or	building codes and/or
	events	zoning ordinances, plus	zoning ordinances, plus
		protection of road that acts	protection of road that acts
		as emergency services	as emergency services
		conduit and evacuation	conduit and evacuation
		route	route
	•	•	

		Alternative 2: Rebuild of	Alternative 3: Rebuild of	
		Seawall with Steel	Seawall with Vinyl	
Item	Altternative 1: No Action	Sheetpile	Sheetpile	
C. PLAN EVALUATION	-	-	-	
1. Contributions to Planning Ob	jectives			
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	
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 Constr				
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	

аттаск.			
		Alternative 2: Rebuild of	Alternative 3: Rebuild of
140	Alttownstive 4. No. Astis	Seawall with Steel	Seawall with Vinyl
b. Completeness	Alternative 1: No Action Alternative does not provide any solution to identified problems	Sheetpile Alternative provides only partial solution to identified problems; functions as only one element of Comprehensive Plan for hurricane and storm damage reduction	Sheetpile 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	addressing any of identified problems	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)	construction, but will require continued outlay of funds for infrastructure		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)

		Alternative 2: Rebuild of	Alternative 3: Rebuild of
		Seawall with Steel	Seawall with Vinyl
Item	Altternative 1: No Action		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	State or other Non-Federal coordination activities in regards to implementation of evacuation, and building code revisions; construction of seawall may require	This alternative may require State or other Non-Federal coordination activities in regards to implementation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination

Problem Area: #15	- Bay. St. Louis Hurric	ane and Storm Dama	ge 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	Г				
1. National Economic Develop	oment				
a. Beneficial Impacts (1) Damages Prevented	Continued damage to seawall, road, and utilities during events of roughly 5-yr		Alternative would result in decreased damage to infrastructure including and		
	frequency and larger; damage to businesses and residences above ~10-yr	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.	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				
(2) Average Annual Costs	\$0		\$1,627,119		
(3) Interest During Construction (3) Annual O&M		\$821,395			
(3) Annual O&M (4) Total Avg. Annual Costs	\$0 \$0	\$29,216 \$2,492,248			
c. Enhance National Economic	Alternative would result in continued	Alternative would result in continued	Alternative would result in continued		
Benefits	losses to National Economic Benefits account due to loss of road, utilities, and damages to property	losses to National Economic Benefits account from storms less frequent than the 50-year event.	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

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

ltem	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 Develop	ment		
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		\$223,464
(2) Interest During Construction	n/a	Ψ255,291	Ψ220,404
(3) Annual O&M	\$0	-	\$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

		Alternative 2: Rebuild of Seawall with Steel	Alternative 3: Rebuild of Seawall with Vinyl
Item	Altternative 1: No Action	Sheetpile	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	road and utilities; unquantified benefit to NED account due to reduced damage suffered by property due to adoption of better building codes and	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)	Internal Control	Tan a	A10 (1)
(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	zoning ordinances, and	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

attack.			
ltem	Altternative 1: No Action	Alternative 2: Rebuild of Seawall with Steel Sheetpile	Alternative 3: Rebuild of Seawall with Vinyl Sheetpile
(6) Tax Changes	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	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
(12) Public Services		access for emergency	Alternative would have positive impact on public services, due to protection of utility service and road access for emergency services and other uses

attack.			Altemetics 2. Debuild of	Alternative 2. Debuild of
			Alternative 2: Rebuild of Seawall with Steel	Alternative 3: Rebuild of Seawall with Vinyl
	Item	Altternative 1: No Action	Sheetpile	Sheetpile
(13) C Preserv	ultural and Historical vation	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-	_
(14) To Environ	otal Quality of the nment	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. Regio	nal Economic Developn	nent (RED)		
	mpact on Sales Volume	Alternative will no impact to the local economy.	\$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) Im	npact 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.
	mpact on Employment	Alternative will no impact to the local economy.	76 new jobs to the local economy.	Alternative would provide 89 new jobs to the local economy.
(4) Ta	x 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)			
	icial Impacts			
(1) Cc	ommunity 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

attack.		Alternative 2: Rebuild of	Alternative 3: Rebuild of
		Seawall with Steel	Seawall with Vinyl
Item	Altternative 1: No Action		Sheetpile
(2) Employment	Alternative is expected to	Alternative is expected to	Alternative is expected to
	have no significant effect	have minor positive impact	have minor positive impact
	on local employment	on employment due to	on employment due to
	, ,	institution of better building	institution of better building
		codes, and the increase in	codes, and the increase in
		time spent implementing	time spent implementing
		them in reconstructing of	them in reconstructing of
		destroyed housing and	destroyed housing and
		businesses; temporary	businesses; temporary
		increase in employment	increase in employment
		due to construction on	due to construction on
		seawall	seawall
(3) Tax Values	-	Alternative is enticipated to	Alternative is enticipated to
	have negative impact on	have slight increase in tax	have slight increase in tax
	tax value due to lack of	values due to added value	values due to added value
	protection to property along		of properties rebuilt using
	coastline, and restriction on	new building codes	new building codes
	rebuilding that this will		
	cause		
(4) Community Growth		-	Alternative is anticipated to
	have little effect on	have little effect on	have little effect on
	community growth	community growth, except	community growth, except
		where revised building	where revised building
		codes and zoning	codes and zoning
		ordinances might affect	ordinances might affect
		population density close to coast	population density close to coast
(7)			
(5) Property Values		Alternative is anticipated to	Alternative is anticipated to
		result in negative impact to	result in positive impact to
	property values	property values	property values
	immediately inland of	immediately inland of	immediately inland of
	former seawall due to lack of protection of road,	former seawall due to lack of protection of road,	former seawall due to
	utilities, and property	utilities, and property;	protection of road, utilities, and property; revision of
	lummes, and property	revision of building codes	building codes and zoning
		and zoning ordinances may	ordinances may result in
		result in higher property	higher property values for
		values for those structures	those structures in high risk
		in high risk area close to	area close to coastline due
		coastline due to required	to required rebuilding to
		rebuilding to better code	better code requirements
		requirements	343

		Alternative 2: Rebuild of	Alternative 3: Rebuild of
		Seawall with Steel	Seawall with Vinyl
Item	Altternative 1: No Action	Sheetpile	Sheetpile
(6) Displacement of Businesses	Alternative is anticipated to result in significant displacement of businesses inland due to lack of physical protection	result in no displacement of	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	result in continued risks and incurred costs to public facilities due to lack of	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

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

attack.			
ltem	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	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	structure survivability and removal of high risk	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 utilities during larger storm and hurricane events
d. Efficiency (Cost-Effectiveness; i.e., most efficient use of Federal and Non-Federal Funds)	construction, but will require continued outlay of funds for infrastructure	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)

attack.	T		
		Alternative 2: Rebuild of	Alternative 3: Rebuild of
		Seawall with Steel	Seawall with Vinyl
Item	Altternative 1: No Action	•	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	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	State or other Non-Federal coordination activities in regards to implementation of evacuation, and building code revisions; construction of seawall may require	This alternative may require State or other Non-Federal coordination activities in regards to implementation of evacuation, and building code revisions; construction of seawall may require limited State and other non-Federal coordination

from storm and hurricane events	5.		
ltem	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 Developn	nent		
a. Beneficial Impacts			
(1) Damages Prevented	Would result in no decrease of flood damages.	decrease of flood damages	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

from storm and hurricane events	· 	Alternative 2: Construct	Alternative 3: 28th St
		Alternative 2: Construct Culvert System Beginning at 28th St	Bridge Modification and Modifications to Canals
Item	Altternative 1: No Action	Bridge	2&3
(5) Public Facilities	Alternative would result in	Alternative would result in	Alternative would result in
	no change in public	no anticipated change in	no anticipated change in
(2) 2 11 51 5 11 111	facilities.	public facilities.	public facilities.
(6) Security of Life, Health, and		Alternative would result in	Alternative would result in
Safety	continued risks to life,	continued risks to life,	continued risks to life,
(7) Tay Changes	health and safety Alternative would result in	health and safety. Alternative would result in	health and safety. Alternative would result in
(7) Tax Changes	no change in taxes	no change in taxes	no change in taxes
(8) Aesthetic Values	Alternative would result in	Alternative would result in	Alternative would result in
(b) Aestrietic values	no significant change in	improvemed aesthetic	improved aesthetic values
	aesthetic values	values	improved destrictic values
(9) Natural Resources		Alternative would have	Alternative would result in
(1)	would be degraded with	some effect on existing	restoration of coastal marsh
	respect to pre-storm	natural resources.	resources.
	conditions.		
(10) Biological Resources	Biological resources would	Alternative would have	Biological resources would
	be degraded with respect	some positive effect on	be improved versus the no-
	to pre-storm conditions.	existing biological	action alternative.
		resources	
(11) Air Quality		Alternative would have	Alternative would have
	anticipated effect on air		temporary negative impacts
	quality	to air quality due to	to air quality due to
		handling of suitable soils.	handling of suitable soils.
(12) Water Quality		Alternative would have	Alternative would have
	-		temporary negative impacts
	quality	to water quality due to	to water quality due to
		placement of materials.	placement of materials.
(13) Public Services		Alternative would have no	Alternative would have no
		anticipated effect on public	anticipated effect on public
(14) Cultural and Historical	services .	Services .	Services .
(14) Cultural and Historical	Alternative would have no	Alternative would have no	Alternative would have no
Preservation	anticipated effect on	anticipated effect on	anticipated effect on
	cultural and historical preservation	cultural and historical preservation	cultural and historical preservation
(15) Total Quality of the	Alternative is anticipated to	•	Alternative would result in
Environment		some positive effect on	positive effect on existing
		existing biological	and future biological
	total quality of this	resources	resources
	environment		
3. Regional Economic Developm	nent (RED)		
(1) Impact on Sales Volume	Alternative will no impact to	Alternative would provide	Alternative would provide
	the local economy.	\$235,305,000 in additional	
		sales volume to the local	sales volume to the local
		economy.	economy.
(2) Impact on Income	Alternative will no impact to		Alternative would provide
	the local economy.	\$49,808,266 in additional	\$12,144,874 in additional
		local income to the local	local income to the local
		economy.	economy.

	orm and hurricane events	T	A11 11 2 2	A 11
			Alternative 2: Construct	
			Culvert System	Bridge Modification and
			Beginning at 28th St	Modifications to Canals
	Item	Altternative 1: No Action	Bridge	2&3
(3)	Impact on Employment	Alternative will no impact to		Alternative would provide
		the local economy.	1,594 new jobs to the local	364 new jobs to the local
			economy.	economy.
4. Oth	er Social Effects (OSE)			
a. Bei	neficial Impacts			
(1)	Community Cohesion	Alternative is anticipated to	Alternative is anticipated to	
		have no negative impacts	have a positive impact on	have a positive impact on
		on community cohesion	community cohesion by	community cohesion by
		beyond those imposed by	virtue of the community	virtue of the community
		the occurrence of	observing that their coastal	observing that their coastal
		Hurricane Katrins and its	resources are being	resources are being
		aftermath	restored.	restored.
(2)	Tax Values	Alternative is anticipated to	Alternative could potentially	Alternative could potentially
. ,		have possible minor	affect the tax base through	affect the tax base through
		negative impact on tax	the creation of new jobs.	the creation of new jobs.
		value due to reduced	,	
		habitat for fishing industry.		
(3)	Community Growth	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
(0)	Community Crown	have little effect on	have no effect on	have no effect on
		community growth	community growth.	community growth.
(4)	Property Values	Alternative is not		Alternative is anticipated to
(+)	Toperty values	anticipated to result in	have no effect on property	have no effect on property
		impact to property values.	values.	values.
(5)	Displacement of Businesses	Alternative is not	Alternative is not	Alternative is anticipated to
(3)	Displacement of Businesses	anticipated to result in any	anticipated to result in any	have a minor positive effect
		major impact to	major impact to	on business displacement
		businesses.	businesses.	versus the no-action
		businesses.	businesses.	alternative.
(6)	Public Facilities	Alternative is not	Alternative is not	Alternative is not
(0)	Fublic Facilities	anticipated to result in any	anticipated to result in any	
		major impact to public	major impact to public	anticipated to result in any major impact to public
		facilities.	facilities.	facilities.
(7)	Injurious Displacement of	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
(7) Farr	-	have no effects on	have no effects on	have no effects on
Гап	115	displacement of farms	displacement of farms	displacement of farms
h Dro	eservation of loss of life	Alternative is not	Alternative is not	Alternative is not
D. FIE	servation of loss of life	anticipated to contribute to	anticipated to contribute to	anticipated to contribute to
		loss of life.	loss of life.	loss of life.
0 0:	AN EVALUATION	1000 OF IIIG.	1000 OF IIIG.	1000 OF IIIC.
	AN EVALUATION			
	ntributions to Planning Ob		Г	T
	covery of lost environmental	Alternative will result in	Alternative will result in	Alternative will result in
resour	ces	continued loss of	some recovery of	recovery of 8 acres of
		environmental resources.	environmental resouces	emergent tidal wetland
			with the agregation of	habitat.
			sediment over time.	
b. Re	covery of shore erosion	Alternative result in	Alternative will result in	Alternative will result in
protec	tion measures	continued erosion.	some protection against	protection against erosion
			erosion for small storm	for small to medium storm
				The state of the s

from storm and hurricane events.			
ltem	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 Constr			
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 Crite			
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 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. **Altternative 1: No Action** Alternative 2: Dune Item Alternative 3: Dune **Placement** Placement with Fencing and Planting A. PLAN DESCRIPTION No Federal Action Consists of placing a dune Consists of placing a dune 5 feet high to approximately 5 feet high with a crest with a crest width of 10 feet width of 10 feet high with plantings and a sand fence he entire linear length. **B. IMPACT ASSESSMENT** 1. National Economic Development a. Beneficial Impacts (1) Damages Prevented Shoreline erosion would Would result in a moderate Would result in a moderate continue and the seawall decrease in shoreline decrease in shoreline would fail resulting in the erosion. erosion. need to rerout traffic away from Beach Boulevard. N/A N/A (2) Emergency Costs Avoided N/A (3) Recreation Alternative provides no Alternative would provide Alternative would provide significant change in \$4,706,546 in average **\$4,706,546** in average recreation benefits annual recreation benefits annual recreation benefits (4) Total Beneficial Impacts b. Adverse Impacts (1) Total Project First Costs \$0 \$10,220,000 \$13,580,000 (2) Average Annual First \$0 \$570,664 \$758,280 Costs (2) Interest During N/A \$241,500 \$320,200 Construction (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 Alternative would result in Alternative would result in Alternative would result in Benefits some benefits due to continued losses to some benefits due to National Economic Benefits decreased erosion and decreased erosion and account due to increased storm surge in smaller storm surge in smaller frequency of flooding and storm events. storm events. erosion. **Environmental Quality (EQ)** (1) Ecosystem Restoration Alternative would produce Alternative would produce Alternative would produce a functional habitat index a functional habitat index functional habitat index score of 0 with no federal score of 260 with an score of 405 with an action. average annual cost of average annual cost of \$3,304.88. \$4,431.40. (2) Water Circulation Alternative would have no Alternative would have no Alternative would have no anticipated effect on water anticipated effect on water anticipated effect on water circulation. circulation. circulation. Alternative would have no Alternative would result in Alternative would result in (3) Manmade Resources anticipated effect on mananticipated benefit to mananticipated benefit to manmade resources made resources with made resources with respect to the no-action respect to the no-action alternative. alternative. Alternative would result in Alternative would result in Alternative would result in (4) Noise Level Changes no change in noise levels temporary increase in noise temporary increase in noise levels during construction levels during construction

Problem Area: #13 - Harrison County Beaches

fro	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 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.
	(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	have no signicant positive	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 Developm			
	(1) Impact on Sales Volume	Alternative will no impact to the local economy.	\$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.	\$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.	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

from storm and hurricane events.				
ltem	Altternative 1: No Action	Alternative 2: Dune Placement	Alternative 3: Dune Placement with Fencing and Planting	
4. Other Social Effects (OSE)		I	y	
a. Beneficial Impacts				
(1) Security of Life, Health, and	Alternative would result in	Alternative would result in	Alternative would result in	
Safety	continued risks to life, health and safety	continued risks to life, health and safety.	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	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				
Contributions to Planning Ob 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

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 Constr	aints				
a. Avoid environmental impacts and minimize induced damages		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 Crite					
a. Acceptability	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 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 require integration with future wetland restoration efforts	Alternative will integrate with the Govonor's long-term marsh creation goal		
f. Reversibility	,	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		

events.				
ltem	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 Developr	nent			
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			
b. Adverse Impacts	•	•		
(1) Project Cost	\$0	\$270,000	\$250,000	
(2) Average Annual Fisrt Cost		\$15,076		+ -,
(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		continued losses to National		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.

events.				
		Alternative 1: Replace		Alternative 3: Replace
	No Astron	Drainage Channel Lateral	Alternative 2: Restore	Bracing and Restore
Item	No Action	Bracing	Coastal Marsh	Coastal Marsh
(2) Manmade Resources	Alternative would have no	Alternative will extend life of		Alternative would result in
	anticipated effect on man-	drainage channel would result in anticipated benefit	anticipated effect on man- made resources.	anticipated benefit to man- made resources with
	made resources.	to other man-made	made resources.	
		resources with respect to		respect to the no-action alternative.
		the no-action alternative.		allemative.
		the no-action alternative.		
	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
(3) Noise Level Changes	no change in noise levels.		temporary increase in noise	
	no change in noise levels.	levels during construction.	levels during construction.	levels during construction.
		levels during construction.	levels during construction.	levels duffing construction.
(4) Public Facilities	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
(4) I ublic I dollities	no change in public	repair and improved	no change in public	repair and improved
	facilities.	longevity public facilities.	facilities.	longevity public facilities.
(5) Security of Life, Health, and	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
Safety	continued risks to life,	decrease in risks to life,	continued risks to life, health	
Galety	health and safety.	health and safety, due to re-	,	health and safety, due to re-
	nealth and salety.	establishment of stormwater	and salety.	establishment of stormwater
		conveyance.		conveyance.
		conveyance.		conveyance.
(6) Tax Changes	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
(b) Tax Changes	no change in taxes.	no change in taxes.	no change in taxes.	no change in taxes.
(7) Aesthetic Values	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
(1) Aestrictic values	no significant change in	no significant change in	aesthetic improvement in	aesthetic improvement in
	aesthetic values.	aesthetic values.	public facilities.	public facilities.
	aconicie values.	destricte values.	public facilities.	public facilities.
(8) Natural Resources	Existing natural resources	Alternative would have no	Alternative would result in	Alternative would result in
(b) Hatarar Recourses	would be degraded with		restoration of coastal marsh	
	respect to pre-storm	natural resources.	resources.	resources.
	conditions.	Indiana rossansos.		. 555 a. 555.
(9) Biological Resources	Biological resources would	Alternative would have no	Biological resources would	Biological resources would
(6) 2.0.09.00. 1.0000.000	•	anticipated effect on existing		be improved versus the no-
	pre-storm conditions.	biological resources	action alternative.	action alternative.
	pro eterm contantener	2.0.09.000000000		action anomalive.
(10) Air Quality	Alternative would have no	Alternative would have no	Alternative would have	Alternative would have
` ,	anticipated effect on air	anticipated effect on air	temporary negative impacts	temporary negative impacts
	guality.	quality.	to air quality due to handling	to air quality due to handling
	1.	. ,	of suitable soils.	and placement of suitable
				soils.
(11) Water Quality	Alternative would have no	Alternative would have no	Alternative would have	Alternative would have
	anticipated effect on water	anticipated effect on water	temporary negative impacts	temporary negative impacts
	quality.	quality.	to water quality due to	to water quality due to
			placement of suitable soils.	placement of suitable soils.
(12) Public Services	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
	anticipated effect on public	anticipated effect on public	anticipated effect on public	anticipated effect on public
	services during non-storm	services during non-storm	services during non-storm	services during non-storm
	periods, but negative	periods, but would	periods, but negative	periods, but would
	impacts would accrue	ameliorate negative impacts	impacts would accrue	ameliorate negative impacts
	during and after even	during and after even	during and after even	during and after even
	moderate storm events due	moderate rainstorm events.	moderate storm events due	moderate rainstorm events.
	to interior flooding and		to interior flooding and	
	potential loss of roadway		potential loss of roadway	
	access.		access.	
(13) Cultural and Historical	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
Preservation		anticipated effect on cultural	anticipated effect on cultural	
	and historical preservation.	and historical preservation.	and historical preservation.	and historical preservation.
	· .		,	
(14) Total Quality of the	Alternative is anticipated to	Alternative is anticipated to	Environmental quality would	Environmental quality would
Environment	have no signicant positive	have no signicant positive or		be improved versus the no-
	or negative impacts on the	negative impacts on the	action alternative and the	action alternative and the
	total quality of this	total quality of this	bracing replacement	bracing replacement
	environment.	environment.	alternative.	alternative.
	<u> </u>			
-				

events.				
		Alternative 1: Replace Drainage Channel Lateral	Alternative 2: Restore	Alternative 3: Replace Bracing and Restore
Item	No Action	Bracing	Coastal Marsh	Coastal Marsh
4. Regional Economic Developm				
(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	the local economy.	income to the local economy.	Alternative would provide \$161,715 in additional local income to the local economy.	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	have a positive impact on community cohesion by virtue of the community	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	have no significant effect on local employment.	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	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 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	result in continued risks and incurred costs to linked stormwater facilities, and costs incurred to roadway		incurred costs to public facilities due to lack of	Alternative is anticipated to
(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 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.

events.				
		Alternative 1: Replace Drainage Channel Lateral	Alternative 2: Restore	Alternative 3: Replace Bracing and Restore
Item	No Action	Bracing	Coastal Marsh	Coastal Marsh
C. PLAN EVALUATION				
Contributions to Planning Obj a. Flood, Hurricane and/or Storm	Alternative will result in no	Alternative will result in	Alternative will result in no	Alternative will result in
Damage Reduction	improvement in damage reduction, though damages	Alternative will result in improved flood damage reduction versus the no-action alternative.	Alternative will result in no improvement in flood damage reduction.	improved flood damage reduction versus the no- action alternative.
b. Ecosystem Restoration	to have any restoration effects.	Alternative is not anticipated to have any restoration effects.	accrue about 1/3 acre benefits.	Marsh restoration will accrue about 1/3 acre benefits.
c. Recreation Opportunities	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 Constra	aints	A 10 11 1 1 1 1 1 1 1	A1	A11 11 11 11 11 11 11
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	have a beneficial effect on	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 Criter	ia			
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.	partial solution to identified problems; functions as only	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)	any outlay of funds for construction, but will require	of funds for construction. Would also require continued outlay of funds for	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.	of funds for construction. Would also require continued outlay of funds for infrastructure damage repair, emergency services delays; reduced costs over

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.	those plans that require addressing short- and long-	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

induced surge and waves; destru	ction of initiastructure in	•		
		Alternative 2:	Alternative 3:	Alternative 4:
		Replacement and	Replacement of existing	Replacement of existing
		extension of timber	timber retaining walls with	timber retaining walls with
Item	Altternative 1: No Action	retaining walls	new vinyl sheet piling	new steel sheet piling
A. PLAN DESCRIPTION	No Federal Action	Alternative would rebuild	Alternative would replace	Alternative would replace
A. I LAN BLOOKII HON		and extend damaged timber	-	and extend existing timber
		retaining walls to existing	retaining walls with new	retaining walls with new
		elevations	vinyl sheet piling	steel sheet piling
D 111D4 OT 40050011511T		cicvations	viriyi sheet piinig	steer sheet plinig
B. IMPACT ASSESSMENT				
1. National Economic Developm	ent			
a. Beneficial Impacts				
(1) Damages Prevented	Continued damage and	Alternative would result in	Alternative would result in	Alternative would result in
(1) Damagee 1 Tevented	deterioration of existing	substantial protection of the		substantial protection of the
	timber retaining walls which	•	Shearwater bridge and	Shearwater bridge and
	protect bridge approaches,	approach roadways for low	approach roadways for low	approach roadways for low
	abutments, and utilities	to high storm surge.	to high storm surge.	to high storm surge.
	,	to nigh storm surge.	to night storm surge.	to nigh storm surge.
(2) =	even with out storm surge.			
(2) Emergency Costs Avoided	Emergency costs would	Unquantified reduction in	Unquantified reduction in	Unquantified reduction in
	continue at current rate;	emergency costs due to	emergency costs due to	emergency costs due to
	costs would occur due to re-	1.	preservation of Shearwater	preservation of Shearwater
	routing of all traffic during	Drive as evacuation and	Drive as evacuation and	Drive as evacuation and
	events which would damage	emergency services route	emergency services route	emergency services route
	road; potential for loss of life			
	due to added time and loss			
	of evacuation route			
(3) Ecosystem Restoration	Alternative provides no	Alternative provides no	Alternative provides no	Alternative provides no
(e) zeosystem resteration	preservation or restoration	preservation or restoration	preservation or restoration	preservation or restoration
	of environmental resources	of environmental resources	of environmental resources	of environmental resources
(4) Recreation	Alternative provides no	Alternative provides no	Alternative provides no	Alternative provides no
(4) Recreation			significant change in	significant change in
	significant change in			0
(2) 2	recreation benefits	recreation benefits	recreation benefits	recreation benefits
(5) Total Beneficial Impacts				
(Average Annual Benefits)				
b. Adverse Impacts				
(1) Project Cost	\$0	\$850,000	\$1,480,000	\$1,810,000
		φοσο,σσο	ψ1,100,000	Ψ1,010,000
(2) Average Annual Cost	\$0			
(2) Average Annual Cost (2) Interest During Construction	\$0	\$47,462	\$82,640	\$101,067
(2) Interest During Construction	n/a	\$47,462 \$0	\$82,640 \$0	\$101,067 \$0
(2) Interest During Construction (3) Annual O&M	n/a \$0	\$47,462 \$0 \$510,000	\$82,640 \$0 \$0	\$101,067 \$0 \$0
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs	n/a \$0 \$0	\$47,462 \$0 \$510,000 \$1,407,462	\$82,640 \$0 \$0 \$1,562,640	\$101,067 \$0 \$0 \$1,911,067
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic	n/a \$0 \$0 Alternative would result in	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs	n/a \$0 \$0 Alternative would result in continued losses to National	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see "	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ)	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below)	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see "	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ)	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities;
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ)	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ)	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on man-	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on man-	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road,	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road,	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road,
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation and the control of the contr	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources	n/a \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources	n/a \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources	n/a \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources	n/a \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service	\$82,640 \$0 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes	n/a \$0 \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road	\$82,640 \$0 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road	\$101,067 \$0 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes (4) Public Facilities	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities Alternative would result in continued risks to life,	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life,	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life,	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life,
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes (4) Public Facilities	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes (4) Public Facilities	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities Alternative would result in continued risks to life,	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes (4) Public Facilities (5) Security of Life, Health, and	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities Alternative would result in continued risks to life,	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes (4) Public Facilities (5) Security of Life, Health, and	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities Alternative would result in continued risks to life,	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road 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	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road 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	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road 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
(2) Interest During Construction (3) Annual O&M (4) Total Avg. Annual Costs c. Enhance National Economic Benefits 2. Cost Effectiveness (CE) (see " 3. Environmental Quality (EQ) (1) Water Circulation (2) Manmade Resources (3) Noise Level Changes (4) Public Facilities	n/a \$0 \$0 Alternative would result in continued losses to National Economic Benefits account due to loss of road, utilities, and damages to property Efficiency" below) Alternative would have no anticipated effect on water circulation Alternative would have no anticipated effect on manmade resources Alternative would result in no change in noise levels Alternative would result in no change in public facilities Alternative would result in continued risks to life,	\$47,462 \$0 \$510,000 \$1,407,462 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency	\$82,640 \$0 \$0 \$1,562,640 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency	\$101,067 \$0 \$0 \$1,911,067 Alternative would result in significant benefit to National Economic Benefits account due to protection of bridge, road and utilities; Alternative would have no anticipated effect on water circulation Alternative would reduce damages to man-made resources due to increased protection of bridge, road, utilities, and property Alternative would result in temporary increase in noise levels during construction Alternative would result in protection of public service utility lines, bridge and road Alternative would result in decrease in risks to life, health and safety, due to protection of bridge, and road used for emergency

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

		Alternative 2:	Alternative 3:	Alternative 4:
		Replacement and	Replacement of existing	Replacement of existing
		extension of timber	timber retaining walls with	timber retaining walls with
Item	Altternative 1: No Action	retaining walls	new vinyl sheet piling	new steel sheet piling
(6) Tax Changes	Alternative may result in	Alternative may decrease	Alternative may decrease	Alternative may decrease
	increases in local taxes due	costs of emergency services	costs of emergency services	costs of emergency services
	to need for continued	and need for continued	and need for continued	and need for continued
	rebuilding of public	rebuilding of public	rebuilding of public	rebuilding of public
	infrastructure and added	infrastructure and utilities	infrastructure and utilities	infrastructure and utilities
	costs of emergency			
	services			
(7) Aesthetic Values	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
	no significant change in	significant positive change	significant positive change	significant positive change
	aesthetic values	in aesthetic values, by	in aesthetic values, by	in aesthetic values, by
		replacing rotten, collapsing	replacing rotten, collapsing	replacing rotten, collapsing
		timber retainer walls.	timber retainer walls.	timber retainer walls.
(8) Natural Resources	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
	anticipated effect on			anticipated effect on existing
	existing natural resources	natural resources	natural resources	natural resources
(9) Biological Resources	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
	anticipated effect on			anticipated effect on existing
	existing biological resources	=	biological resources	biological resources
(10) Air Quality	Alternative would have no	Alternative would have	Alternative would have	Alternative would have
	anticipated effect on air		temporary negative impacts	temporary negative impacts
	quality	to air quality due to	to air quality due to	to air quality due to
		construction	construction	construction
(11) Water Quality	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
	anticipated effect on water	anticipated effect on water	anticipated effect on water	anticipated effect on water
	quality	quality	quality	quality
(12) Public Services	Alternative would have no	Alternative would have	Alternative would have	Alternative would have
	anticipated effect on public	positive impact on public	positive impact on public	positive impact on public
	services during non-storm	services, due to protection	services, due to protection	services, due to protection
	periods, but would continue	of utility service and road	of utility service and road	of utility service and road
	to allow negative impacts during and after large storm	access for emergency	access for emergency services and other uses	access for emergency services and other uses
	events due to loss of utility	Services and other uses	Services and other uses	services and other uses
	service and loss of road			
	access for emergency			
	services and other uses			
(13) Cultural and Historical	Alternative would have no	Alternative would have no	Alternative would have no	Alternative would have no
Preservation		anticipated effect on cultural		anticipated effect on cultural
Freservation	and historical preservation	and historical preservation	and historical preservation	and historical preservation
(44) Table 28 (51)	· ·	·	·	· ·
(14) Total Quality of the	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
Environment	have no signicant positive		have no signicant positive or	have no signicant positive or
	or negative impacts on the	negative impacts on the	negative impacts on the	negative impacts on the total quality of this
	total quality of this environment	total quality of this environment	total quality of this environment	environment
		enviioninent	environment	environment
4. Regional Economic Developn		Inn. o	lan e	lan e e e
(1) Impact on Sales Volume	Alternative will no impact to		Alternative would provide	Alternative would provide
	the local economy.	\$2,133,125 in additional	\$3,180,000 in additional	\$3,879,600 in additional
		sales volume to the local	sales volume to the local	sales volume to the local
(0) Immediately	Alternative will as impact to	economy.	economy.	economy.
(2) Impact on Income	Alternative will no impact to	Alternative would provide	Alternative would provide	Alternative would provide
	the local economy.		\$620,181 in additional local	\$756,621 in additional local
		income to the local economy.	income to the local	income to the local
(2) Impact on Employment	Alternative will no impact to	,	economy. Alternative would provide 18	economy.
(3) Impact on Employment	the local economy.	·	· · · · · · · · · · · · · · · · · · ·	Alternative would provide 22
	the local economy.	new jobs to the local economy.	new jobs to the local economy.	new jobs to the local economy.
(4) Tax Changes	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
(T) Tax Changes				
	no change in taxes	no change in taxes	no change in taxes	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 storminduced surge and waves; destruction of infrastructure from wave and surge attack Alternative 2: Alternative 3: Alternative 4: Replacement and Replacement of existing Replacement of existing timber retaining walls with timber retaining walls with extension of timber ltem Altternative 1: No Action retaining walls new vinyl sheet piling new steel sheet piling 5. Other Social Effects (OSE) a. Beneficial Impacts (1) Community Cohesion Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have no signicant positive have no signicant positive or have no signicant positive or have no signicant positive or negative impacts on or negative impacts on negative impacts on negative impacts on community cohesion community cohesion beyor community cohesion beyo community cohesion beyond beyond those required by those required by the those required by the those required by the the occurrence of Hurrican occurrence of Hurricane occurrence of Hurricane occurrence of Hurricane Katrins and its aftermath Katrins and its aftermath Katrins and its aftermath Katrins and its aftermath (2) Employment Alternative is expected to Alternative is expected to Alternative is expected to Alternative is expected to have no significant effect or have minor positive impact have minor positive impact have minor positive impact local employment due to temporary increase in due to temporary increase i due to temporary increase in employment due to employment due to employment due to construction of retaining construction of retaining construction of retaining walls walls walls Tax Values N/A N/A N/A N/A Community Growth Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have little effect on have little effect on have little effect on have little effect on community growth community growth community growth community growth Alternative is anticipated to Alternative is anticipated to (5) Property Values Alternative is anticipated to Alternative is anticipated to result in no impact to property values in the property values in the property values in the property values in the vicinity vicinity vicinity vicinity (6) Displacement of Businesses Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to result in no impact in displacement of business displacement of business displacement of business displacement of business (7) Public Facilities Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to result in continued risks and result in lower risk and result in lower risk and result in lower risk and incurred costs to public incurred costs to public incurred costs to public incurred costs to public facilities due to lack of facilities due to upgrade of facilities due to upgrade of facilities due to upgrade of physical protection, for physical protection, for physical protection, physical protection, for resultingf from large storm large storm and hurricane large storm and hurricane large storm and hurricane and hurricane events events events events (8) Injurious Displacement of Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have no effects on have no effects on have no effects on have no effects on displacement of farms displacement of farms displacement of farms displacement of farms b. Preservation of loss of life Alternative will result in Alternative will result in Alternative will result in Alternative will result in continued threat to loss of mprovement in safety to improvement in safety to improvement in safety to life during moderate to large lives provided by protection ives provided by protection lives provided by protection of bridge and road that acts of bridge and road that acts storm and hurricane events of bridge and road that acts as emergency services as emergency services as emergency services conduit and evacuation conduit and evacuation conduit and evacuation route route route C. PLAN EVALUATION 1. Contributions to Planning Objectives a. Flood, Hurricane and/or Storm Alternative will result in no Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Damage Reduction improvement in damage have improvement in have improvement in have improvement in hurricane and storm hurricane and storm reduction hurricane and storm damage reduction due to damage reduction due to damage reduction due to reduced damage potential reduced damage potential reduced damage potential due to protection of bridge, due to protection of bridge, due to protection of bridge, road and utilities from wave road and utilities from wave road and utilities from wave and surge action and surge action and surge action b. Ecosystem Restoration Alternative is not anticipated Alternative is not anticipated Alternative is not anticipated Alternative is not anticipated to have any restoration to have any restoration to have any restoration to have any restoration effects effects effects effects c. Recreation Opportunities

recreation

Alternative is not anticipated

to have any effects on

Alternative is not anticipate

to have any effects on

recreation

Alternative is not anticipated

to have any effects on

recreation

Alternative is not anticipate

to have any effects on

recreation

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

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

	rom storm and nurricane events.		Alternative 2: 1-foot	Alternative 3: 2-foot
	Item	Altternative 1: No Action		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	-	-	
	National Economic Developm	nent		
_	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			
<u></u>	(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
<u></u>	(3) Annual O&M	\$0	\$28,000	\$58,900
<u> </u>	(4) Total Avg. Annual Costs	\$0	\$219,011	\$390,344
	Enhance National Economic enefits	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.
	Environmental Quality (EQ)	T	T	
	(1) Ecosystem Restoration (Habitat Improvement)	Alternative would not produce a functional habitat index score.	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	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	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
	(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	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

Item	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal
(8) Aesthetic Values	Alternative would result in		Alternative would result in a
(o) Aestrictic values	no significant change in	moderate improvement to	moderate improvement to
	aesthetic values	aesthetic values	aesthetic values
(9) Natural Resources	Existing natural resources	Alternative would have	Alternative would result in
(b) Hatarar Hossaross	would be degraded with	some effect on existing	restoration of coastal marsh
	respect to pre-storm	natural resources.	resources.
	conditions.		
(10) Biological Resources	Biological resources would	Alternative would have	Biological resources would
	be degraded with respect	some positive effect on	be improved versus the no-
	to pre-storm conditions.	existing biological	action alternative.
		resources	
(11) Air Quality		Alternative would have	Alternative would have
	anticipated effect on air	temporary negative impacts	temporary negative impacts
	quality	to air quality due to	to air quality due to
		handling of suitable soils.	handling of suitable soils.
(12) Water Quality	Alternative would have no	Alternative would have	Alternative would have
			temporary negative impacts
	quality	to water quality due to	to water quality due to
		placement of materials.	placement of materials.
(13) Public Services	Alternative would have no	Alternative would have no	Alternative would have no
	anticipated effect on public	anticipated effect on public	anticipated effect on public
	services .	services .	services.
(14) Cultural and Historical	Alternative would have no	Alternative would have no	Alternative would have no
Preservation	anticipated effect on	anticipated effect on	anticipated effect on
	cultural and historical	cultural and historical	cultural and historical
	preservation	preservation	preservation
(15) Total Quality of the		Alternative would have	Alternative would result in
Environment		some positive effect on	positive effect on existing
		existing biological	and future biological
	total quality of this environment	resources	resources
2. Degianal Feenemia Payalana			
3. Regional Economic Developm	Alternative will no impact to	Alternative would provide	Alternative would provide
(1) Impact on Sales Volume	the local economy.	\$6.872.171 in additional	\$11,839,806 in additional
	ine local economy.	sales volume to the local	sales volume to the local
		economy.	economy.
(2) Impact on Income	Alternative will no impact to		Alternative would provide
(2) impact on income	the local economy.	\$1,340,248 in additional	\$2,309,065 in additional
	and loodi doorlottiy.	local income to the local	local income to the local
		economy.	economy.
(3) Impact on Employment	Alternative will no impact to	Alternative would provide	Alternative would provide
(o) impact on Employment	the local economy.	39 new jobs to the local	67 new jobs to the local
		economy.	economy.

from storm and hurricane events.					
Itom	Altternative 1: No Action	Alternative 2: 1-foot sediment removal	Alternative 3: 2-foot sediment removal		
4. Other Social Effects (OSE)	AILLEITIALIVE 1. NO ACTION	Seminent removal	Seminent removal		
a. Beneficial Impacts					
(1) Community Cohesion	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to		
(1) Community Concolon	have no negative impacts	have a positive impact on	have a positive impact on		
	on community cohesion	community cohesion by	community cohesion by		
	beyond those imposed by	virtue of the community	virtue of the community		
	the occurrence of	observing that their coastal	observing that their coastal		
	Hurricane Katrins and its	resources are being	resources are being		
	aftermath	restored.	restored.		
(2) Tax Values	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to		
	have possible minor	have no increase in pre-	have no increase in pre-		
	negative impact on tax	Katrina tax values.	Katrina tax values.		
	value due to reduced				
(0) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	habitat for fishing industry.	Alfanos et de la contra del contra de la contra del la contra del la contra del la contra de la contra de la contra del la contra de la contra del la contra de la contra de la contra de la contra de la contra del la contra de la contra del la contra d	A14		
(3) Community Growth	Alternative is anticipated to have little effect on	Alternative is anticipated to have no effect on	have no effect on		
	community growth	community growth.	community growth.		
(4) Property Values	Alternative is not		Alternative is anticipated to		
(+) Floperty values	anticipated to result in	have no effect on property	have no effect on property		
	impact to property values.	values.	values.		
(5) Displacement of Businesses	Alternative is not	Alternative is not	Alternative is anticipated to		
(c) Displacement of Dusinesses	anticipated to result in any	anticipated to result in any	have a minor positive effect		
	major impact to	major impact to	on business displacement		
	businesses.	businesses.	versus the no-action		
			alternative.		
(6) Public Facilities	Alternative is not	Alternative is not	Alternative is not		
	anticipated to result in any	anticipated to result in any	anticipated to result in any		
	major impact to public	major impact to public	major impact to public		
(7)	facilities.	facilities.	facilities.		
(7) Injurious Displacement of		-	Alternative is anticipated to		
Farms	have no effects on displacement of farms	have no effects on displacement of farms	have no effects on displacement of farms		
b. Preservation of loss of life	Alternative is not	Alternative is not	Alternative is not		
b. Fleservation of loss of file		anticipated to contribute to	anticipated to contribute to		
	loss of life.	loss of life.	loss of life.		
C. PLAN EVALUATION		oo.			
1. Contributions to Planning Ob	iectives				
a. Recovery of lost environmental	Alternative will result in	Alternative will result in	Alternative will result in		
resources	continued loss of	some recovery of	recovery of 8 acres of		
1	environmental resources.	environmental resouces	emergent tidal wetland		
		with the agregation of	habitat.		
		sediment over time.			
b. Recovery of shore erosion	Alternative result in	Alternative will result in	Alternative will result in		
protection measures	continued erosion.	some protection against	protection against erosion		
		erosion for small storm	for small to medium storm		
		events.	events.		
2. Response to Planning Constr			T		
a. Avoid environmental impacts and			Alternative is anticipated to		
minimize induced damages	continued loss of pre-	have a beneficial effect on	have a beneficial effect on		
	Katrina environnmental resources.	environmental resources.	environmental resources.		
	resources.				

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

events.				
ltem	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 Developm	nent			
a. Beneficial Impacts				
(1) Damages Prevented	Shoreline erosion would	Would result in average	Would result in average	Would result in average
	continue and the seawall		annual benefits of \$20,464	
	would fail resulting in the	in time lost and variable	in time lost and variable	in time lost and variable
	need to rerout traffic away from Beach Boulevard.	vehicle operating costs due to not having to reroute the	vehicle operating costs due to not having to reroute the	vehicle operating costs due to not having to reroute the
	Hom Beach Bodievard.	traffic.	traffic.	traffic.
(2) Emergency Costs Avoided	N/A	N/A	N/A	N/A
(3) Recreation	Alternative provides no	Alternative provides no	Alternative would provide in	Alternative would provide in
,,	significant change in recreation benefits	significant change in recreation benefits	average annual recreation benefits of \$2,632,200.	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	N/A	\$43,800	\$153,600	\$176,400
Construction			, ,	
(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	Alternative would result in some benefits due to	Alternative would result in some benefits due to	Alternative would result in some benefits due to
Deficitio	Economic Benefits account	decreased erosion and	decreased erosion and	decreased erosion and
	due to increased frequency	storm surge in smaller	storm surge in smaller	storm surge in smaller
	of flooding and erosion.	storm events.	storm events.	storm events.
2. Environmental Quality (EQ)				
(1) Ecosystem Restoration	Alternative would produce a	Alternative would produce a	Alternative would produce a	Alternative would produce a
	functional habitat index	functional habitat index	functional habitat index	functional habitat index
	score of 0 with no federal	score of 110 with an	score of 235 with aan	score of 395 with an
	action.	average annual cost of	average annual cost of	average annual cost of
(2) Water Circulation	Alternative would have no	\$1,306.81.	\$6,079.88. Alternative would have no	\$3,257.09.
(2) Water Circulation	anticipated effect on water	Alternative would have no anticipated effect on water	anticipated effect on water	Alternative would have no anticipated effect on water
	circulation.	circulation.	circulation.	circulation
(3) Manmade Resources	Alternative would have no	Alternative would result in	Alternative would result in	Alternative would result in
(-,	anticipated effect on man-	anticipated benefit to man-	anticipated benefit to man-	anticipated benefit to man-
	made resources	made resources with	made resources with	made resources with
		respect to the no-action	respect to the no-action	respect to the no-action
	Alternative weeks as and the	alternative.	Alternative	Alternative
(4) Noise Level Changes	Alternative would result in no change in noise levels	Alternative would result in temporary increase in noise	Alternative would result in temporary increase in noise	Alternative would result in
	no change in hoise levels	levels during construction	levels during construction	levels during construction
				g sonor donor
(5) Public Facilities	Alternative would result in	Alternative would result in	Alternative would result in	Alternative would result in
	no change in public	no anticipated change in	no anticipated change in	no anticipated change in
	facilities.	public facilities.	public facilities.	public facilities.
(6) Aesthetic Values	Alternative would result in	Alternative would result in a	Alternative would result in a	Alternative would result in a
	no significant change in	minimal change in aesthetic		significant aesthetic
(7) Netwel December	aesthetic values	values	improvement to coastal	improvement to coastal
(7) Natural Resources	Existing natural resources	Existing natural resources	Alternative would result in restoration of the beach	Alternative would result in
	would be degraded with respect to pre-storm	would be degraded with respect to pre-storm	moderately improving its	restoration of the beach and dune with vegetative
	conditions.	conditions.	overall value as a natural	plantings significantly
			resource.	improving its overall value
				as a natural resource.
•	•	•		

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	Alternative would have	Biological resources would	Biological resources would	
(c) consignation	be degraded with respect to pre-storm conditions.		be improved versus the no-	be improved versus the no- action alternative.	
(9) Air Quality	Alternative would have no	Alternative would have	Alternative would have	Alternative would have	
	anticipated effect on air quality	temporary negative impacts to air quality due to handling of suitable soils.	temporary negative impacts to air quality due to handling of suitable soils.	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	Alternative would have no anticipated effect on cultural and historical preservation	Alternative would have no	
(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 Developm					
(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.	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	have a positive impact on community cohesion by virtue of the community		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		Alternative is anticipated to have no effect on property	Alternative is anticipated to	

events.				
Item	Altternative 1: No Action	Alternative 2:	Alternative 3:	Alternative 4:
		Seawall/Channel Repair	Seawall/Channel Repair	Seawall/Channel Repair
			and Add Beach	and Add Beach and Dune
(6) Displacement of Businesses	Alternative is not anticipated			Alternative is anticipated to
		to result in any major impact		have a minor positive effect
	to businesses.	to businesses.	on business displacement	on business displacement
			versus the no-action	versus the no-action
(7) 5 111 5 1111			alternative.	alternative.
(7) Public Facilities	Alternative is not anticipated			Alternative is not anticipated
	to public facilities.	to public facilities.		to result in any major impact
	to public facilities.	to public facilities.	to public facilities.	to public facilities.
(8) Injurious Displacement of	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
(8) Injurious Displacement of Farms	have no effects on		have no effects on	have no effects on
Famis	displacement of farms	displacement of farms	displacement of farms	displacement of farms
b. Preservation of loss of life		•	•	Alternative is not anticipated
b. Treservation of loss of life	to contribute to loss of life.		to contribute to loss of life.	to contribute to loss of life.
	to contribute to loss of life.	to contribute to loss of life.	to contribute to loss of file.	to contribute to loss of life.
C. PLAN EVALUATION	<u> </u>	<u> </u>		
	a a tive a			
Contributions to Planning Obj a. Recovery of lost environmental	Alternative will result in	Altornative will result in	Altornative will result in	Alternative will result in
1	Alternative will result in continued loss of	Alternative will result in	Alternative will result in recovery of 8 acres of	
resources	environmental resources.	some recovery of environmental resouces	emergent tidal wetland	recovery of 8 acres of emergent tidal wetland
	environniental resources.	with the agregation of	habitat.	habitat.
		sediment over time.	Habitat.	Habitat.
b. Recovery of shore erosion	Alternative result in	Alternative will result in	Alternative will result in	Alternative will result in
protection measures	continued erosion.	some protection against	protection against erosion	protection against erosion
protection measures	continued erosion.		for small to medium storm	for even large storm events.
		events.	events.	lor even large sterm evente.
2. Response to Planning Constra	ints	lo romo:		
a. Avoid environmental impacts and		Alternative is anticipated to	Alternative is anticipated to	Alternative is anticipated to
minimize induced damages	continued loss of pre-		have a beneficial effect on	have a beneficial effect on
minimize induced damagee	Katrina environnmental	environmental resources.	environmental resources.	environmental resources.
	resources.			
b. Institutional Acceptability	Alternative is not supported	Alternative is supported by	Alternative is supported by	Alternative is supported by
, ,		local and state governments		
		_	_	_
3. Response to Evaluation Criter	ia	•		
a. Acceptability	Alternative does not meet	Alternative supports some	Alternative supports goals	Alternative supports goals
	goals and objectives of	of the goals and objectives	and objectives of County	and objectives of County
	County or State Recovery	of County and State	and State Recovery Plans	and State Recovery Plans
	Plans	Recovery Plans		
b. Completeness	Alternative does not provide	Alternative provides solution	Alternative provides solution	Alternative provides solution
	any solution to identified	to prevention of future	to identified problems;	to identified problems;
	problems	erosion	functions as two elements,	functions as two elements,
			ecosystem restoration and	ecosystem restoration and
			prevention of future erosion	prevention of future erosion
- Fm - r	All confidence of the confiden	Alternative to the second	All and the second seco	Alternative to the control of the co
c. Effectiveness	Alternative is ineffective at		Alternative is effective at	Alternative is effective at
	addressing any of identified	-	dealing with issues of	dealing with issues of
	problems	erosion	ecosystem restoration, but	ecosystem restoration and
			only partially effective at	coastal erosion
d Efficiency (Oct Efficiency	Altamatica da concesto de	Altamatica collisia de el	coastal erosion	Altamatica will be a constitution of
d. Efficiency (Cost-Effectiveness; i.e.	Alternative does not incur	Alternative will incur outlay	Alternative will incur outlay	Alternative will incur outlay
most efficient use of Federal and Non		of funds (at DMR cost) for	of funds for construction.	of funds for construction.
Federal Funds)	construction, but will require		Would also require	Would also require reduced
	a significant increase in the future outlay of funds for	funds for operation and	significant outlay of funds for	and maintenance of the
	future erosion and		operation and maintenance of the project. Annual	project. Annual wetland
	ecosystem recovery efforts.	maniteriance of the project.	wetland monitoring costs	monitoring costs are
	Coosystem recovery enons.		are estimated at \$5,000.	estimated at \$5,000.
			aro ostimatou at 40,000.	ootiinated at \$0,000.
e. Integration	Alternative will not require	Alternative will require	Alternative will integrate with	Alternative will integrate with
c. integration	integration with any other	integration with future	the Govonor's long-term	DMR plans for short term
	plans	wetland restoration efforts	marsh creation goal	erosion protection measures
	piano	monaria restoration enolis	marsii oroation yoar	and the Govonor's long-term
				marsh creation goal
				3-4
I	1	1		

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

from storm and hurricane eve	ents.		
Item	Altternative 1: No Action		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 ASSESSMEN	NT	<u> </u>	
1. National Economic Develo			
a. Beneficial Impacts	-		
(1) Damages Prevented	Would result in no	Would result in a moderate	Would result in Moderate
	decrease of flood	decrease of flood	decrease of flood damages
	damages.	damages.	
(2) Emergency Costs Avoided		N/A	N/A
(3) Recreation	Alternative provides no	Alternative provides no	Alternative provides no
	significant change in	significant change in	significant change in
	recreation benefits	recreation benefits	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	on 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	Alternative would result in	Alternative would result in	Alternative would result in
Benefits	continued losses to	some benefits due to a	some benefits due to
		moderate reduction in flood	_
	account due to increased	damages.	damages.
	frequency of flooding.	<u> </u>	
2. Environmental Quality (EC			
(1) Ecosystem Restoration	Alternative would produce	Alternative would improve	Alternative would improve
(Habitat Improvement)	no improvements in habitat.		habitat through flushing of
		the system, improve fish	the system, improve fish
		migration, and offer better	migration, and offer better
			foraging areas for shoreline
(0) 14/-1 6:	Altamatic	birds.	birds.
(2) Water Circulation	Alternative would have no	Alternative would have a	Alternative would
	anticipated effect on water	minmal improvement on	moderately improve water
(0)	circulation.	water circulation.	circulation.
(3) Manmade Resources			Alternative would result in
	anticipated effect on man- made resources	anticipated benefit to man- made resources with	anticipated benefit to man- made resources with
	made resources	respect to the no-action	respect to the no-action
		alternative.	alternative.
(A) Noise Level Character	Alternative would result in	Alternative would result in	Alternative would result in
(4) Noise Level Changes	no change in noise levels		temporary increase in noise
	onango in noise levels	levels during construction	levels during construction
		355	
(5) Public Facilities	Alternative would result in	Alternative would result in	Alternative would result in
() () () () () () () () () ()	no change in public	no anticipated change in	no anticipated change in
	facilities.	public facilities.	public facilities.
	iaciilles.		
(7) Aesthetic Values	Alternative would result in	1.	Alternative would result in a
(7) Aesthetic Values		1.	Alternative would result in a moderate improvement to

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

nom storm and numerate events			Alternative 3: 2-foot	
Item	Altternative 1: No Action	sediment removal	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	have a positive impact on community cohesion by virtue of the community	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	have little effect on community growth	Alternative is anticipated to have no effect on community growth.	have no effect on community growth.	
(5) Property Values	Alternative is not anticipated to result in impact to property values.	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 Ob		TA14 45 20	Altana di anni il	
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 Constr				
Avoid environmental impacts and minimize induced damages	continued loss of pre- Katrina environnmental resources.	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	

from storm and nurricane events	Alternative 2: 1-foot					
Item	Altternative 1: No Action	sediment removal	sediment removal			
3. Response to Evaluation Crite						
a. Acceptability		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			and a fact of the second	
Problems ID: Damages suffered events.	by nurricane-induced sur	ge and wave attack; Pote	ential future damages fro	m storm and hurricane
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 Developm	nent			
a. Beneficial Impacts (1) Damages Prevented	Alternative would result in	Alternative would	Alternative would	Alternative would reduce
(1) Damages Fleventeu	continued flooding in Pecan, MS.	moderately reduce flood damages in Pecan, MS.	moderately reduce flood damages in Pecan, MS.	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		¢1 400 000	CE 240 000	¢4.4c0.000
(1) Total Project First Costs (2) Average Annual First	\$0	\$1,400,000	\$5,340,000	\$4,160,000
Costs (2) Interest During	\$0	\$78,173	\$298,175	\$232,286
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 manmade 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.	
(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. Altternative 1: No Action Alternative 2: Highflow Alternative 3: Bridge Alternative 4: Purchase and Removal Diversion Construction (11) Public Services Alternative would have no Alternative would have no Alternative would have no Alternative would have no anticipated effect on public anticipated effect on public anticipated effect on public anticipated effect on public services services services services (12) Cultural and Historical Alternative would have no Alternative would have no Alternative would have no Alternative would have no anticipated effect on cultura anticipated effect on cultural anticipated effect on cultura anticipated effect on cultural Preservation and historical preservation and historical preservation and historical preservation and historical preservation (13) Total Quality of the Alternative is anticipated to Alternative would have Alternative would result in Alternative is anticipated to Environment have no signicant positive some positive effect on positive effect on existing have no signicant positive or or negative impacts on the and future biological negative impacts on the existing biological resource total quality of this resources total quality of this environment environment 3. Regional Economic Development (RED) (1) Impact on Sales Volume Alternative would provide Alternative would provide Iternative would provide \$ \$3,948,750 in additional \$12,201,931 in additional n additional sales volume t he local economy. sales volume to the local sales volume to the local the local economy. Alternative would provide Alternative would provide (2) Impact on Income Alternative will no impact to Alternative would provide \$6 the local economy. \$770,107 in additional local \$2,379,688 in additional in additional local income to income to the local local income to the local the local economy. economy economy. Alternative will no impact to Alternative would provide 2 Alternative would provide 6 Alternative would provide 0 (3) Impact on Employment new jobs to the local the local economy. new jobs to the local new jobs to the local conomy conomy (4) Tax Changes Alternative would result in Alternative would result in Alternative would result in Alternative would result in no change in taxes no change in taxes no change in taxes no change in taxes 4. Other Social Effects (OSE) a. Beneficial Impacts Alternative would result in (1) Security of Life, Health, and Alternative would result in Alternative would result in Alternative would result in continued risks to life, continued risks to life, continued risks to life, health continued risks to life, health and safety health and safety health and safety. and safety. Alternative is anticipated to Iternative would improve (2) Community Cohesion Alternative is anticipated to Alternative is anticipated to the total quality of life for the have no negative impacts have a positive impact on have a positive impact on on community cohesion community cohesion by community cohesion by residents by evacuating beyond those imposed by virtue of the community virtue of the community hem from the floodplain. the occurrence of Hurricane observing that their coastal observing that their coastal resources are being Katrins and its aftermath resources are being restored. restored (3) Tax Values Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have possible minor have no increase in prehave no increase in prehave no increase in prenegative impact on tax Katrina tax values. Katrina tax values. Katrina tax values. value due to reduced habitat for fishing industry. (4) Community Growth Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to have little effect on have no effect on have no effect on have little effect on community growth community growth. community growth. community growth Property Values Alternative is not anticipate Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to to result in impact to have no effect on property have no effect on property have no effect on property property values. values. values. values (6) Displacement of Businesses Alternative is not anticipated Alternative is not anticipated Alternative is anticipated to Alternative is anticipated to to result in any major impac to result in any major impact have a minor positive effect have a minor positive effect to businesses. to businesses. on business displacement on business displacement versus the no-action versus the no-action alternative. alternative. (7) Public Facilities Alternative is not anticipated Alternative is not anticipated Alternative is not anticipated Alternative is not anticipated to result in any major impac to result in any major impact to result in any major impact to result in any major impact to public facilities. to public facilities. to public facilities. to public facilities. (8) Injurious Displacement of Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to Farms have no effects on have no effects on have no effects on have no effects on displacement of farms displacement of farms displacement of farms displacement of farms b Preservation of loss of life Alternative is not anticipated Alternative is not anticipated Alternative is not anticipated Alternative is not anticipated to contribute to loss of life. to contribute to loss of life. to contribute to loss of life. 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. Alternative 2: Highflow Alternative 3: Bridge Alternative 4: Purchase Altternative 1: No Action Construction and Removal Diversion C. PLAN EVALUATION 1. Contributions to Planning Objectives a. Recovery of lost environmental Alternative will result in Alternative will result in Alternative will result in Alternative will result in resources continued loss of some recovery of recovery of 8 acres of recovery of 8 acres of environmental resouces emergent tidal wetland emergent tidal wetland environmental resources. with the agregation of habitat. habitat. sediment over time. b. Recovery of shore erosion Alternative result in Alternative will result in Alternative will result in Alternative will result in continued erosion some protection against protection against erosion protection against erosion protection measures erosion for small storm for small to medium storm for even large storm events events. events. 2. Response to Planning Constraints a. Avoid environmental impacts and Alternative will result in the Alternative is anticipated to Alternative is anticipated to Alternative is anticipated to minimize induced damages continued loss of prehave a beneficial effect on have a beneficial effect on have a beneficial effect on Katrina environnmental environmental resources. environmental resources. environmental resources. resources b. Institutional Acceptability Alternative is not supported Alternative is supported by Alternative is supported by Alternative is supported by by state or local government local and state governments local and state governments local and state governments 3. Response to Evaluation Criteria Alternative supports goals a. Acceptability Alternative does not meet Alternative supports some Alternative supports goals goals and objectives of of the goals and objectives and objectives of County and objectives of County County or State Recovery of County and State and State Recovery Plans and State Recovery Plans Plans Recovery Plans b. Completeness Alternative does not provide Alternative provides solution Alternative provides solution Alternative provides solution any solution to identified to prevention of future to identified problems; to identified problems; problems functions as two elements. functions as two elements. erosion ecosystem restoration and ecosystem restoration and prevention of future erosion prevention of future erosion Alternative is effective at c. Effectiveness Alternative is ineffective at Alternative is only effective Alternative is effective at addressing any of identified at dealing with future dealing with issues of dealing with issues of ecosystem restoration, but problems ecosystem restoration and erosion only partially effective at coastal erosion coastal erosion d. Efficiency (Cost-Effectiveness; i.e., Alternative does not incur Alternative will incur outlay Alternative will incur outlay Alternative will incur outlay most efficient use of Federal and Non any outlay of funds for of funds (at DMR cost) for of funds for construction. of funds for construction. construction, but will require construction. Would also Would also require Would also require reduced Federal Funds) a significant increase in the require fuutre outlay of significant outlay of funds for outlay of funds for operation future outlay of funds for funds for operation and operation and maintenance and maintenance of the of the project. Annual project. Annual wetland future erosion and maintenance of the project. ecosystem recovery efforts wetland monitoring costs monitoring costs are are estimated at \$5,000. estimated at \$5,000. e. Integration Alternative will not require Alternative will require Alternative will integrate with Alternative will integrate with integration with any other integration with future the Govonor's long-term DMR plans for short term plans wetland restoration efforts marsh creation goal erosion protection measures and the Govonor's long-term marsh creation goal f. Reversibility Alternative could be Alternative could be Alternative could be This issue does not apply reversible, given means to reversible, given means to reversible, given means to remove placed material remove wetland and remove wetland and structural features structural features This alternative does not Structural elements would Structural elements would Elements would be joint D. Implementation be responsibility of the be joint Federal/Non-Federal/Non-Federal have any implementation Responsibility esponsibilities Mississippi Department of Federal implementation implementation Marine Resources responsibility. responsibility. This alternative would This alternative would This alternative would This alternative would E. State and other Nonrequire State and other require no State or other require limited, if any, State require State and other Federal Coordination Non-Federal coordination or other Non-Federal Federal coordination Federal coordination activities coordination activities activities activities