

Planning Unit 4 Maps – Chenier Plain

**Louisiana Coastal Protection and Restoration
Planning Unit 4 Population by Parish and Community**

Community	Year 2000	Year 2005 2nd Quarter	Year 2005 4th Quarter	Year 2050
Cameron	1,962	1,975	1,871	2,008
Carlyss	4,178	4,209	4,209	5,861
Crowley	12,645	12,694	12,802	20,834
Estherwood	1,266	1,233	1,273	1,866
Hackberry	1,699	1,660	1,367	2,340
Iowa	2,679	2,668	2,668	3,183
Jennings	9,820	9,887	9,887	15,007
Kaplan	4,146	4,193	4,193	5,119
Lake Arthur	3,106	3,102	3,102	3,291

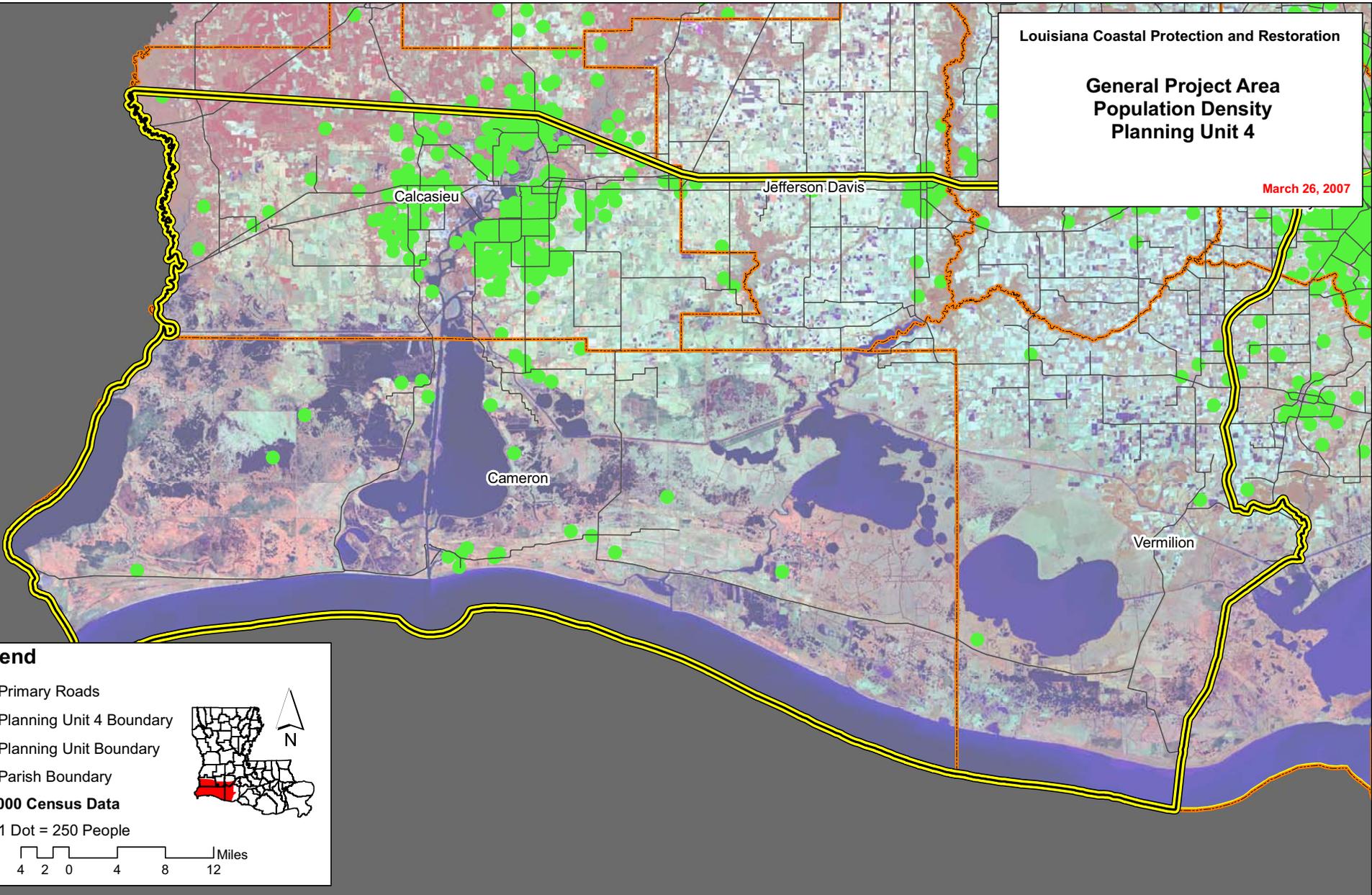
Community	Year 2000	Year 2005 2nd Quarter	Year 2005 4th Quarter	Year 2050
Lake Charles	69,375	68,383	68,384	74,120
Moss Bluff	10,535	10,550	10,550	10,495
Prien	9,203	9,215	9,215	9,388
Rayne	5,186	5,315	5,368	6,622
Sulphur	19,824	19,840	19,840	20,741
Vinton	3,470	3,485	3,485	3,966
Welsh	2,016	1,993	1,993	2,033
Westlake	5,005	5,005	5,005	4,789

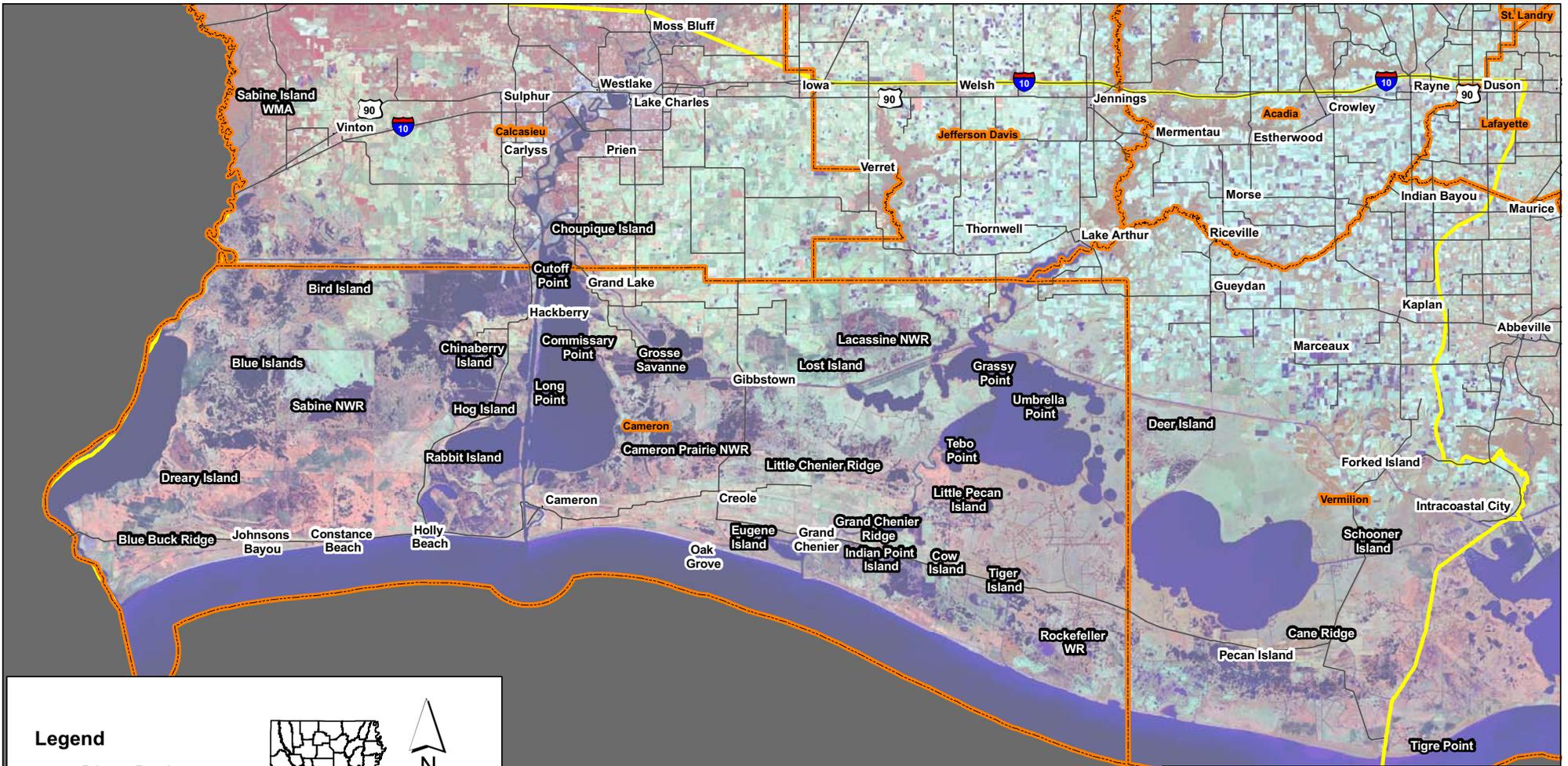
Parish	Year 2000	Year 2005 2nd Quarter	Year 2005 4th Quarter	Year 2050
Acadia	30,943	31,056	31,538	44,719
Calcasieu	164,642	163,638	163,639	188,062
Cameron	9,991	9,960	7,752	13,670
Jefferson Davis	23,239	23,372	23,372	33,732
Lafayette	3,260	3,517	3,827	4,897
Vermilion	14,745	14,979	14,979	21,837
	246,820	246,522	245,107	306,917

Notes:

1. Population for year 2000 and 2005 is based on the U.S. Census.
2. 2nd Quarter 2005 represents the population prior to hurricanes Katrina and Rita; 4th Quarter 2005 represents the population soon after hurricanes Katrina and Rita.
3. Population for the year 2050 is based on Calthorpe's High Employment projection using the Hybrid Land Use Allocation.
4. If portions of a parish were in more than one planning unit, then the population of the parish was divided between the planning units.

Louisiana Coastal Protection and Restoration
**General Project Area
Population Density
Planning Unit 4**
March 26, 2007





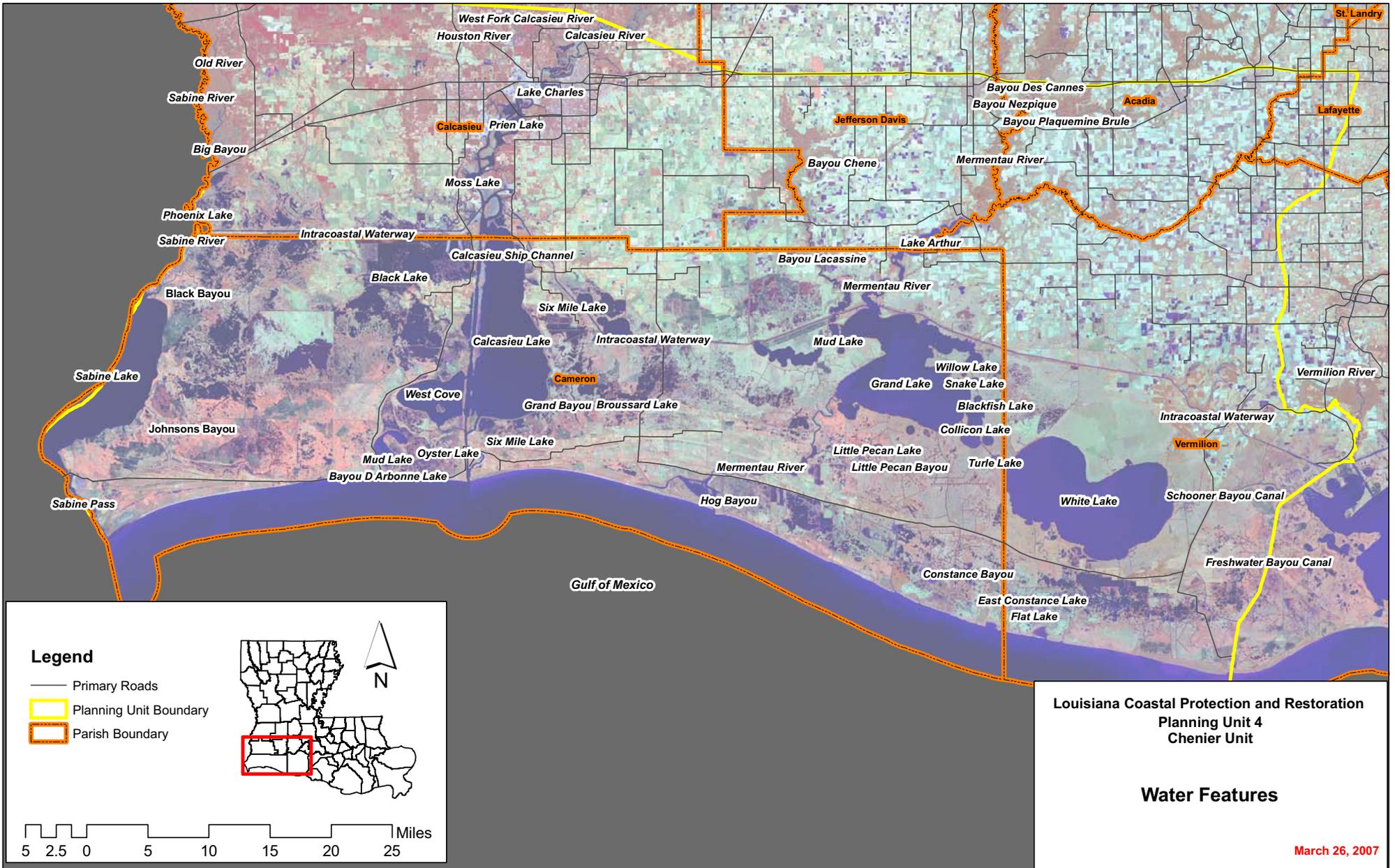
Legend

- Primary Roads
- Planning Unit Boundary
- Parish Boundary

**Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Unit**

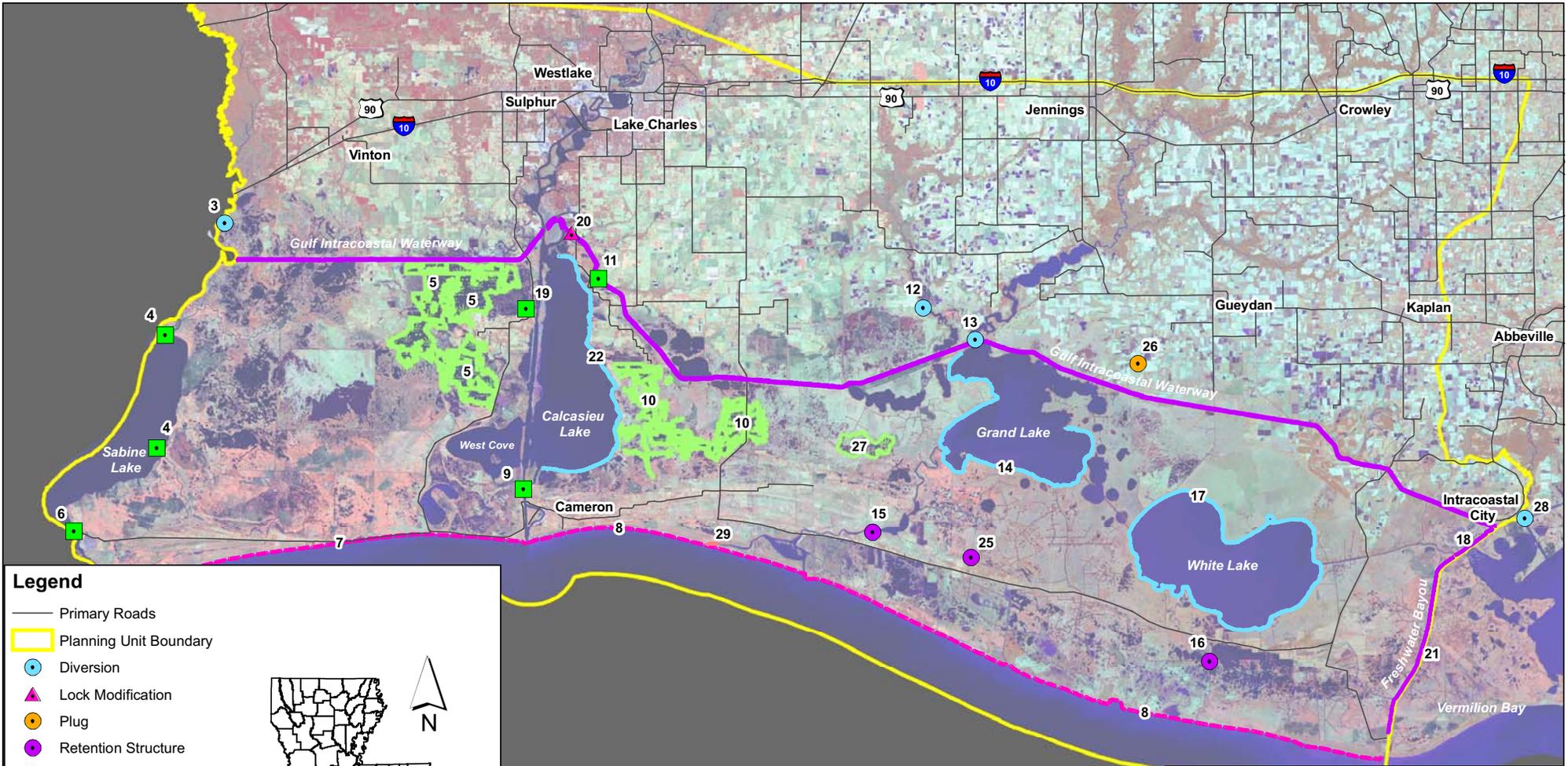
Land Features

March 26, 2007



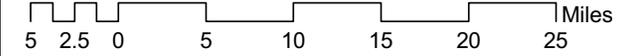
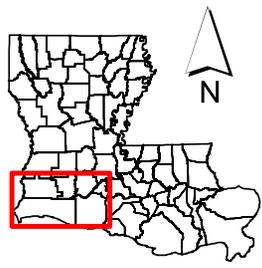
**Louisiana Coastal Protection and Restoration
Planning Unit 4 (PU4) – Coastal Restoration Measures
Alternative 1 (Preliminary Draft State Master Plan)**

Code On Map	Measure Description	Measure Type	Alt 2	Alt 3	Alt 4
3	Maximize freshwater inflow from Sabine River	Diversion	X		
4	Salinity control structures along the east shoreline of Sabine Lake near Blue Buck Point, Sabine Island and Black Bayou	Salinity Control Structures			
5	Beneficial uses of dredged material (For Alt. 1 and 2: utilize sediment from Sabine Ship Channel and dedicated dredging for marsh enhancement and construction of terraces; from Calcasieu Ship Channel and Atchafalaya River Navigation Canal for PD 4-15)	Marsh Creation	X	X	X
6	Salinity control structure at Hwy 82 Causeway	Salinity Control Structure		X	
7	Stabilize Gulf shoreline and beach west of Calcasieu River to Sabine River using dredged sediment or breakwaters	Breakwaters	X	X	X
8	Stabilize Gulf shoreline and beach east of Calcasieu River to Freshwater Bayou using dredged sediment or breakwaters	Breakwaters	X	X	X
9	Salinity control structure in Calcasieu Ship Channel near ferry	Salinity Control Structure		X	
10	Beneficial uses of dredged material program: utilize sediment and dedicated dredging for marsh enhancement and construction of terraces in Calcasieu Lake	Marsh Creation	X	X	X
11	Salinity control structures at points on east side of Calcasieu Lake	Salinity Control Structure			
12	Maximize freshwater inflow to tributaries of the Mermentau from outside sources	Diversion	X		
13	Maximize freshwater inflow to Mermentau from outside sources	Diversion	X		
14	Stabilize Grand Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
15	Freshwater introduction/retention structure or sill on Little Pecan Bayou	Salinity Control Structure			
16	Freshwater introduction/retention structure or sill on Rollover Bayou	Salinity Control Structure			
17	Stabilize White Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
18	Stabilize banks from Schooner Bayou to GIWW along Freshwater Bayou and along GIWW near White Lake	Bank Stabilization	X		
19	Salinity control structure on Black Lake Bayou near Hackberry	Salinity Control Structure			
20	Build new chamber for navigation at Calcasieu Lock on GIWW and use old lock to evacuate excess water	Water Management Structure (Lock)	X	X	X
21	Stabilize banks of Freshwater Bayou	Bank Stabilization	X	X	
22	Stabilize eastern shore of Lake Calcasieu	Shoreline Stabilization			
25	Provide water control structures at strategic locations along Hwys 82 and 27	Retention Structure	X	X	
26	Manage watershed to reduce rapid inflows into Mermentau Sub-basin	Watershed Management Plan			
27	Restore marsh by filling abandoned canals	Marsh Creation			
28	Utilize freshwater inflow from Atchafalaya River	Diversion	X	X	
29	Improve hydrology of the old Mermentau River Channel between Mud Lake and Gulf of Mexico	Drainage			
30	Stabilize banks of the GIWW	Bank Stabilization	X	X	X



Legend

- Primary Roads
- ▭ Planning Unit Boundary
- Diversion
- ▲ Lock Modification
- Plug
- Retention Structure
- Salinity Control
- Navigation Stabilization
- Hydrology Improvement
- Shoreline Stabilization
- - - Breakwater
- ▨ Marsh Creation



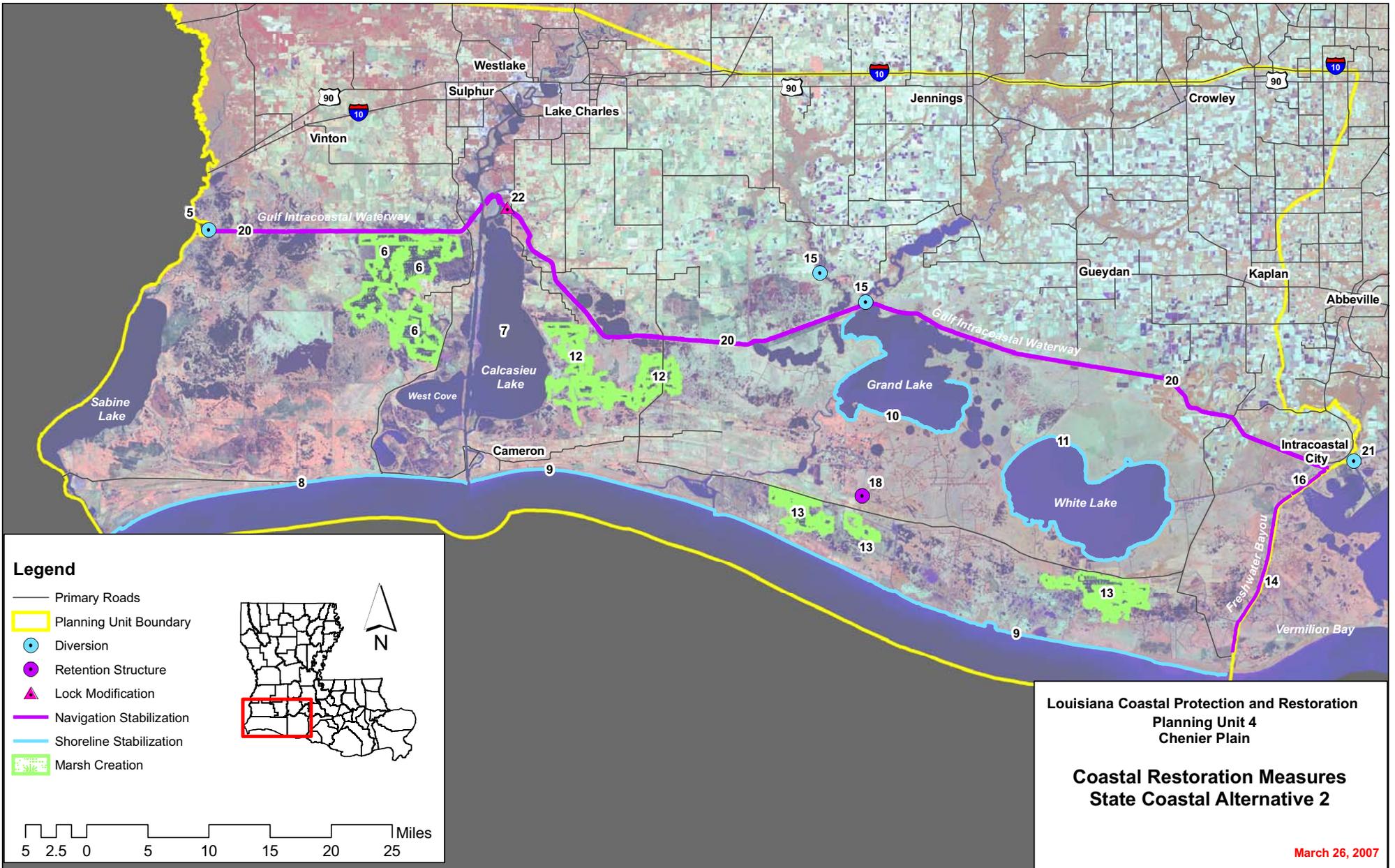
Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Plain

Coastal Restoration Measures
State Coastal Alternative 1

March 26, 2007

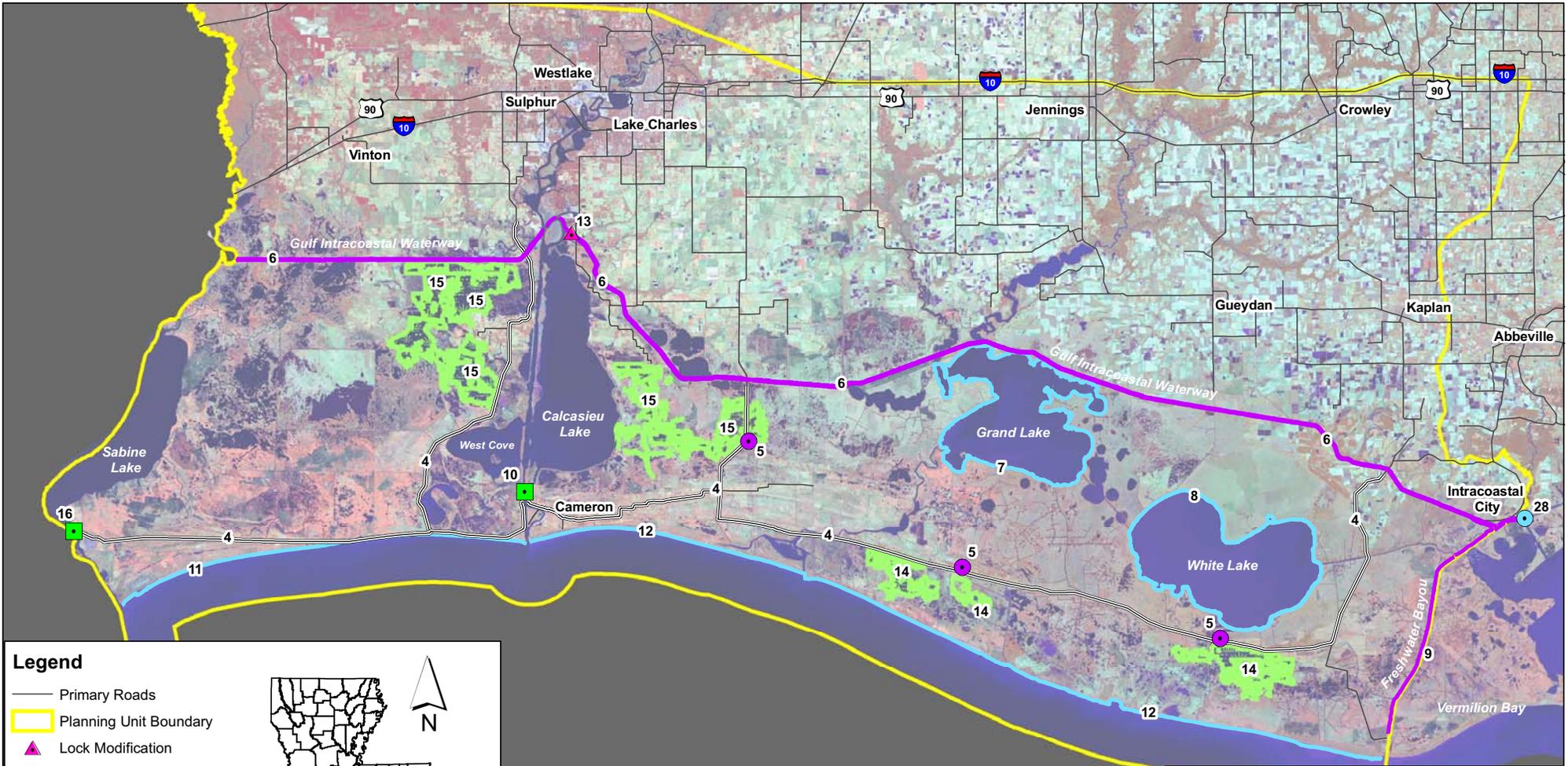
**Louisiana Coastal Protection and Restoration
Planning Unit 4 (PU4) – Coastal Restoration Measures
Alternative 2 (Preliminary Draft State Master Plan)**

Code On Map	Measure Description	Measure Type	Alt 1	Alt 3	Alt 4
5	Maximize freshwater inflow from Sabine River	Diversion	X		
6	Beneficial uses of dredged material (For Alt. 1 and 2: utilize sediment from Sabine Ship Channel and dedicated dredging for marsh enhancement and construction of terraces; from Calcasieu Ship Channel and Atchafalaya River Navigation Canal for PD 4-15)	Marsh Creation	X	X	X
7	Allow Calcasieu Lake and surrounding area to become and remain brackish to saline	Salinity Control			
8	Stabilize Gulf shoreline and beach west of Calcasieu River to Sabine River using dredged sediment or breakwaters	Breakwaters	X	X	X
9	Stabilize Gulf shoreline and beach east of Calcasieu River to Freshwater Bayou using dredged sediment or breakwaters	Breakwaters	X	X	X
10	Stabilize Grand Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
11	Stabilize White Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
12	Beneficial uses of dredged material program: utilize sediment and dedicated dredging for marsh enhancement and construction of terraces in Calcasieu Lake	Marsh Creation	X	X	X
13	Dedicated dredging from the Gulf of Mexico for marsh creation and enhancement	Marsh Creation		X	
14	Stabilize banks of Freshwater Bayou	Bank Stabilization	X	X	
15	Manage watershed to reduce rapid inflows into Mermentau Sub-basin	Watershed Management Plan	X		
16	Stabilize banks from Schooner Bayou to GIWW along Freshwater Bayou and along GIWW near White Lake	Bank Stabilization	X		
18	Provide water control structures at strategic locations along Hwys 82 and 27	Retention Structure	X	X	
20	Stabilize banks of the GIWW	Bank Stabilization	X	X	X
21	Utilize freshwater inflow from Atchafalaya River	Diversion	X	X	
22	Build new chamber for navigation at Calcasieu Lock on GIWW and use old lock to evacuate excess water	Water Management Structure (Lock)	X	X	X



**Louisiana Coastal Protection and Restoration
Planning Unit 4 (PU4) – Coastal Restoration Measures
Alternative 3 (Preliminary Draft State Master Plan)**

Code on Map	Measure Description	Measure Type	Alt 1	Alt 2	Alt 4
4	Maintain Hwy 82 for marsh protection	Elevated Road			
5	Provide water control structures at strategic locations along Hwys 82 and 27	Retention Structure	X	X	
6	Stabilize banks of the GIWW	Bank Stabilization	X	X	X
7	Stabilize Grand Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
8	Stabilize White Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
9	Stabilize banks of Freshwater Bayou	Bank Stabilization	X	X	
10	Salinity control structure in Calcasieu Ship Channel near ferry	Salinity Control Structure	X		
11	Stabilize Gulf shoreline and beach west of Calcasieu River to Sabine River using dredged sediment or breakwaters	Breakwaters	X	X	X
12	Stabilize Gulf shoreline and beach east of Calcasieu River to Freshwater Bayou using dredged sediment or breakwaters	Breakwaters	X	X	X
13	Build new chamber for navigation at Calcasieu Lock on GIWW and use old lock to evacuate excess water	Water Management Structure (Lock)	X	X	X
14	Dedicated dredging from the Gulf of Mexico for marsh creation and enhancement	Marsh Creation		X	
15	Beneficial uses of dredged material (For Alt. 1 and 2: utilize sediment from Sabine Ship Channel and dedicated dredging for marsh enhancement and construction of terraces; from Calcasieu Ship Channel and Atchafalaya River Navigation Canal for PD 4-15)	Marsh Creation	X	X	X
16	Salinity control structure at Hwy 82 Causeway	Salinity Control Structure	X		
17	Fortify spoil banks on GIWW in St. Mary and Vermilion Parish, Freshwater Bayou Canal	Bank Stabilization			
28	Utilize freshwater inflow from Atchafalaya River	Diversion	X	X	



Legend

- Primary Roads
- ▭ Planning Unit Boundary
- ▲ Lock Modification
- Water Control Structure
- Salinity Control
- ▬ Elevated Road
- Navigation Stabilization
- Shoreline Stabilization
- ▨ Marsh Creation

5 2.5 0 5 10 15 20 25 Miles

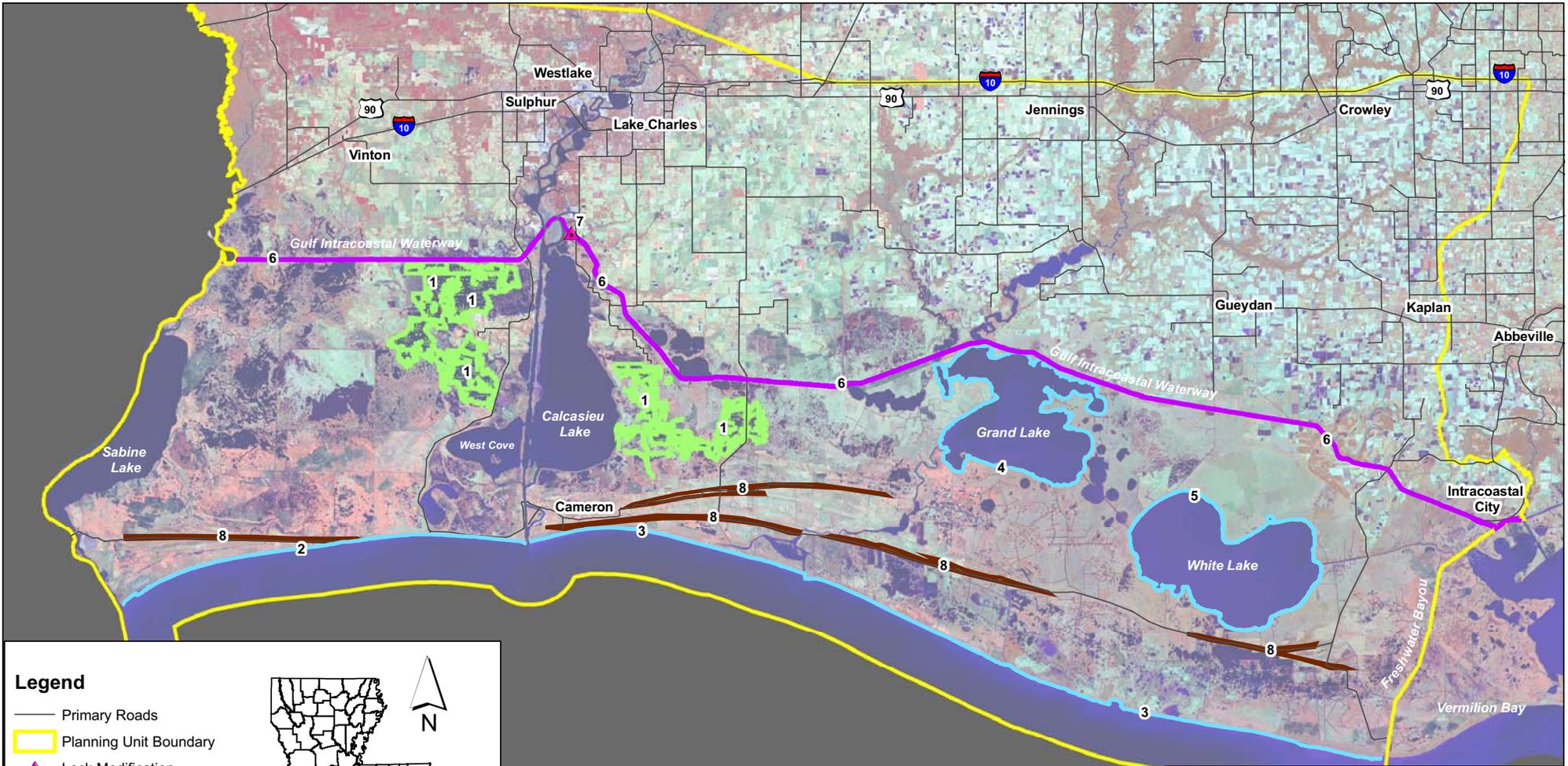
**Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Plain**

**Coastal Restoration Measures
State Coastal Alternative 3**

March 26, 2007

**Louisiana Coastal Protection and Restoration
Planning Unit 4 (PU4) – Coastal Restoration Measures
Alternative 4**

Code On Map	Measure Description	Measure Type	Alt 1	Alt 2	Alt 3
1	Beneficial uses of dredged material (For Alt. 1 and 2: utilize sediment from Sabine Ship Channel and dedicated dredging for marsh enhancement and construction of terraces; from Calcasieu Ship Channel and Atchafalaya River Navigation Canal for PD 4-15)	Marsh Creation	X	X	X
2	Stabilize Gulf shoreline and beach west of Calcasieu River to Sabine River using dredged sediment or breakwaters	Breakwaters	X	X	X
3	Stabilize Gulf shoreline and beach east of Calcasieu River to Freshwater Bayou using dredged sediment or breakwaters	Breakwaters	X	X	X
4	Stabilize Grand Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
5	Stabilize White Lake shoreline and land bridge	Shoreline Stabilization	X	X	X
6	Stabilize banks of the GIWW	Bank Stabilization	X	X	X
7	Build new chamber for navigation at Calcasieu Lock on GIWW and use old lock to evacuate excess water	Water Management Structure (Lock)	X	X	X
8	Restore Chenier Forests	Chenier Restoration			



Legend

- Primary Roads
- ▭ Planning Unit Boundary
- ▲ Lock Modification
- ▭ Shoreline Stabilization
- ▭ Navigation Stabilization
- ▨ Marsh Creation
- ▭ Ridge Restoration

5 2.5 0 5 10 15 20 25 Miles

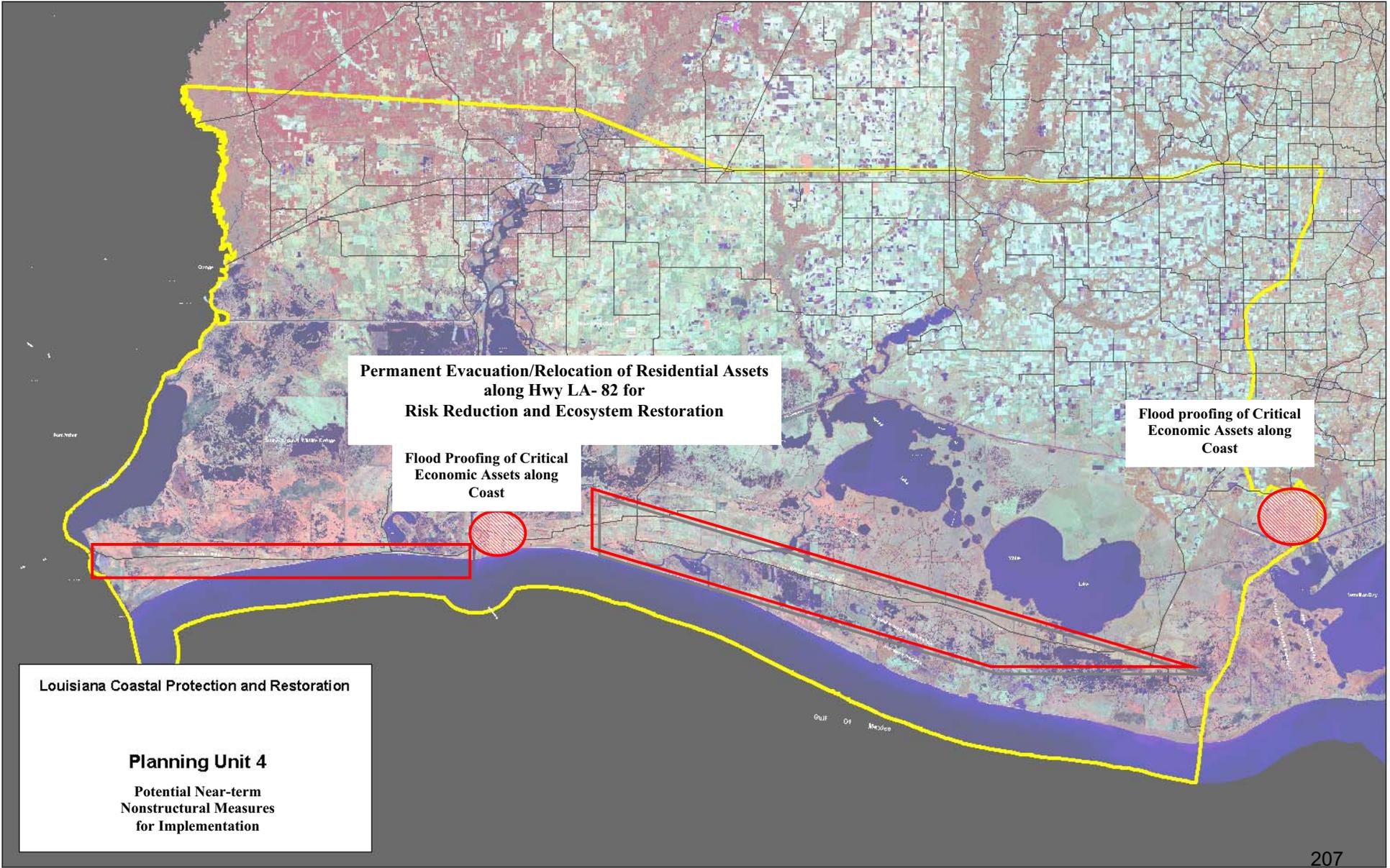
Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Plain

Coastal Restoration Measures
Coastal Alternative 4

March 26, 2007

**LACPR Basic Plan Formulation Considerations
Non-Structural Measures Concepts**

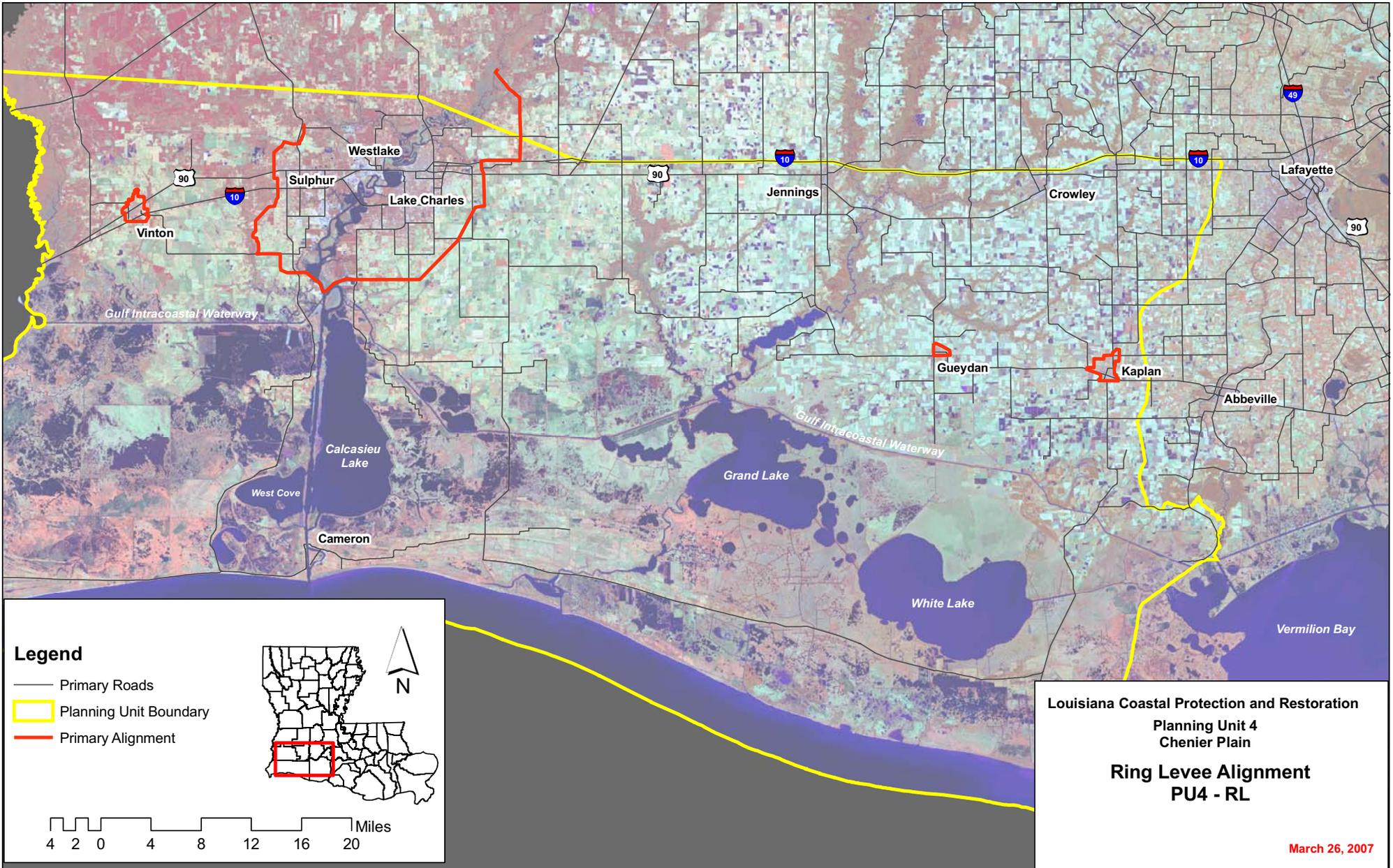
Concepts for Universal Application				
<ul style="list-style-type: none"> • Collaboration with local, State and Federal agencies for application of all nonstructural measures • Incentive program to elevate above ABFE/BFE to + mean sea level for new construction and reconstruction/relocation in collaboration with other agencies • Technical assistance/information/workshops on implementation of nonstructural measures • Ringwalls/berms surrounding private property • Evacuation/Buyout of V zones • Flood Proofing Critical Facilities and Critical Economic Assets 				
Potential Near-Term Nonstructural Measures for Implementation				
Planning Unit 1	Planning Unit 2	Planning Unit 3a	Planning Unit 3b	Planning Unit 4
<p>Concepts for Application Throughout</p> <ul style="list-style-type: none"> • Buyouts in areas of deep flooding > 13/15 feet • Raise-in-Place in areas of flooding < or = 13/15 feet • Ringwalls/Berms • Wet- and Dry-Flood proof for shallow, low velocity flooding • Relocation to flood-free sites • Cluster structures in flood free areas 	<p>Larose to Golden Meadow - Elevation of New Construction, Raising-in-Place Existing Structures</p> <p>Along Coast - Flood Proofing of Critical Economic Assets</p>	<p>Along Coast</p> <ul style="list-style-type: none"> • Raising - in - place • Buyout • Relocation • Wet/Dry Flood Proofing of Structures 	<p>Erath / Delcambre / Henry Nonstructural Pilot Communities Project</p> <ul style="list-style-type: none"> • Raising - in - place • Buyout • Relocation • Wet/Dry Flood Proofing of Structures 	<p>Permanent Evacuation / Relocation of Residential Assets along Hwy LA - 82 for Risk Reduction and Ecosystem Restoration</p>



Louisiana Coastal Protection and Restoration - Planning Unit 4 – Chenier Plain
Ring Levee Alignment
PU4-RL

General Description: Ring levee alignment variation.
Population Receiving Risk Reduction Benefits: Communities in Abbeville, Kaplan, Vinton, Sulphur, Westlake, Lake Charles, and Gueydon.
National and Strategic Resources: Strategic Oil Reserve, Natural Gas Facilities

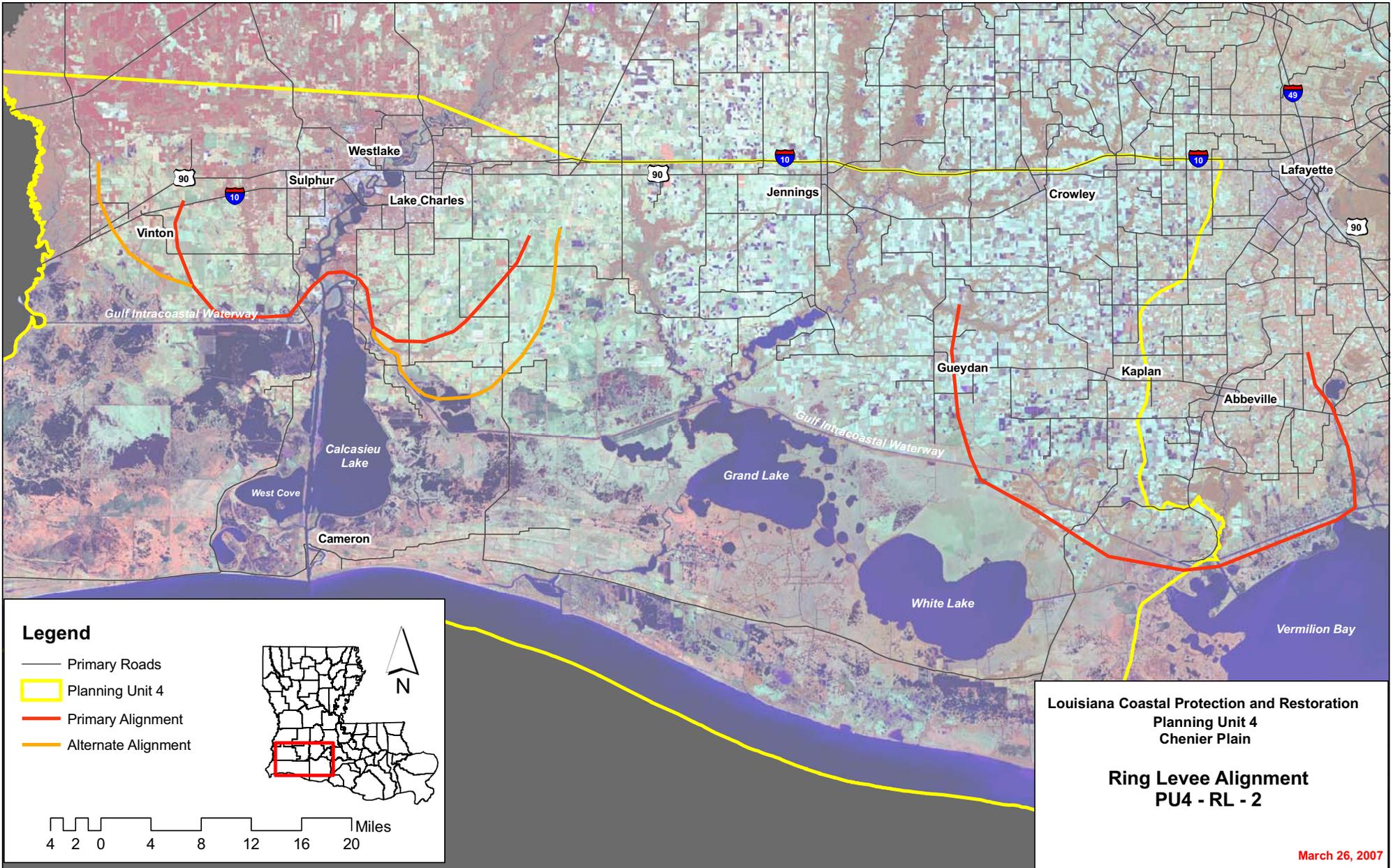
Line Color on Map	Legend Description	General Location of Reach	Alignment Description	New or Existing Alignment	Structures Required	Beneficial Considerations	Challenges
Red	Primary Alignment	Around communities in the northeast and northwest parts of planning unit 4.	Ring levees	New	110-ft lock and 63-ft sector gate on the Calcasieu River	<ul style="list-style-type: none"> Focuses risk reduction on concentrated assets Less environmental impacts than continuous levee Could be non-structural opportunities in same areas 	<ul style="list-style-type: none"> Less population receiving risk reduction than with continuous levee Interior drainage concerns False sense of security for population within ring levees



Louisiana Coastal Protection and Restoration - Planning Unit 4 – Chenier Plain
Ring Levee Alignment
PU4-RL-2

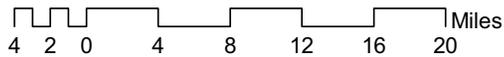
General Description: Ring levee alignment variation. Similar to Alternatives S-6 and S-7 in the Southwest Coastal Louisiana Reconnaissance Study, which is currently being recommended to move into a feasibility phase.
Population Receiving Risk Reduction Benefits: Communities in Sulphur, Westlake, Lake Charles, Vinton, Gueydon, Abbeville, and Kaplan.
National and Strategic Resources: Strategic Oil Reserve, Natural Gas Facilities

Line Color on Map	Legend Description	General Location of Reach	Alignment Description	New or Existing Alignment	Structures Required	Beneficial Considerations	Challenges
Red	Primary Alignment	Around communities in the northeast and northwest parts of planning unit 4.	Ring levees	New	<ul style="list-style-type: none"> 42-5'x5' sluice gates on various canals 11-56' sector gates on various canals 110' sector gates on the Calcasieu and Vermilion Rivers 8-63' tainter gates on the Calcasieu River 	<ul style="list-style-type: none"> Focuses risk reduction on concentrated assets Less environmental impacts than continuous levee Could be non-structural opportunities in same areas 	<ul style="list-style-type: none"> Less population receiving risk reduction than with continuous levee Interior drainage concerns False sense of security for population within ring levees



Legend

- Primary Roads
- Planning Unit 4
- Primary Alignment
- Alternate Alignment



Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Plain

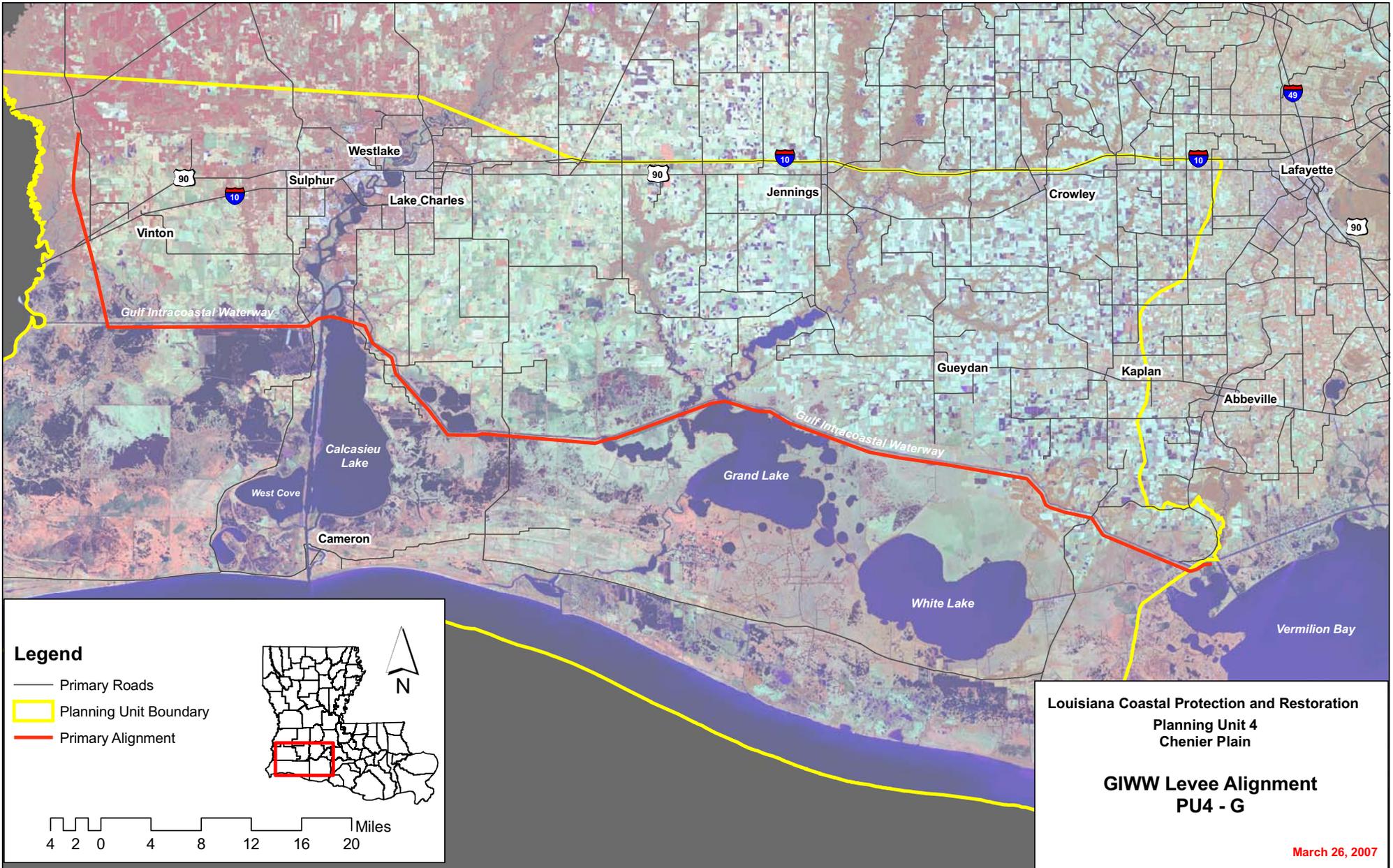
Ring Levee Alignment
PU4 - RL - 2

March 26, 2007

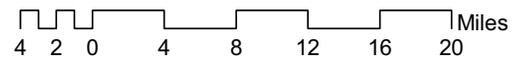
Louisiana Coastal Protection and Restoration - Planning Unit 4 – Chenier Plain
GIWW Levee Alignment
PU4-G

General Description: New levee alignment from Abbeville to Texas border along the GIWW. Similar to Alternatives S-1 and S-2 in the Southwest Coastal Louisiana Reconnaissance Study, which is currently being recommended to move into a feasibility phase.
Population Receiving Risk Reduction Benefits: All communities north of the GIWW from Abbeville to the border of Texas including Kaplan, Lake Charles, Westlake, Sulphur, etc.
National and Strategic Resources: Strategic Oil Reserve, Natural Gas Facilities

Line Color on Map	Legend Description	General Location of Reach	Alignment Description	New or Existing Alignment	Structures Required	Beneficial Considerations	Challenges
Red	Primary Alignment	From Patterson/Berwick to Abbeville	Along the GIWW	New and existing	<ul style="list-style-type: none"> • Freshwater Bayou (110-ft sector gate) • Worth Prong (56-ft sector gate) • Isk Mayronne (3-5 x 5 sluice gates) • Warren Canal (3-5 x 5 sluice gates) • Gueydon Canal (56-ft sector gate) • Mermentau River (110-ft sector gate & 63-ft TG) • Bayou Misere (56' sector gate) • Belle City Drainage Canal (56' sector gate) • Calcasieu River (110-ft sector gate & 63-ft TG) • Alkali Ditch (56' ft sector gate) • GIWW near Black Bayou (110-ft sector gate) • Vinton Drainage Canal (56-ft sector gate) 	<ul style="list-style-type: none"> • Maximum risk reduction for area • Ease of construction access 	<ul style="list-style-type: none"> • High cost • Greatest overall environmental impact • Low density population



- Legend**
- Primary Roads
 - ▭ Planning Unit Boundary
 - Primary Alignment



Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Plain

GIWW Levee Alignment
PU4 - G

March 26, 2007

Louisiana Coastal Protection and Restoration - Planning Unit 4 – Chenier Plain
Hwy 82 Alignment
PU4-H

General Description: New levee alignment from Vinton to Abbeville along Highway 82. This alignment was proposed under the Southwest Coastal Louisiana Reconnaissance Study, which is currently being recommended to move into a feasibility phase. The feasibility report would evaluate the elevation of Highway 82 used in combination with breakwaters, other structural solutions, and coastal restoration features.

Population Receiving Risk Reduction Benefits: All communities north of Highway 82 from Abbeville to the border of Texas including Kaplan, Lake Charles, Westlake, Sulphur, etc.

National and Strategic Resources: Strategic Oil Reserve, Natural Gas Facilities

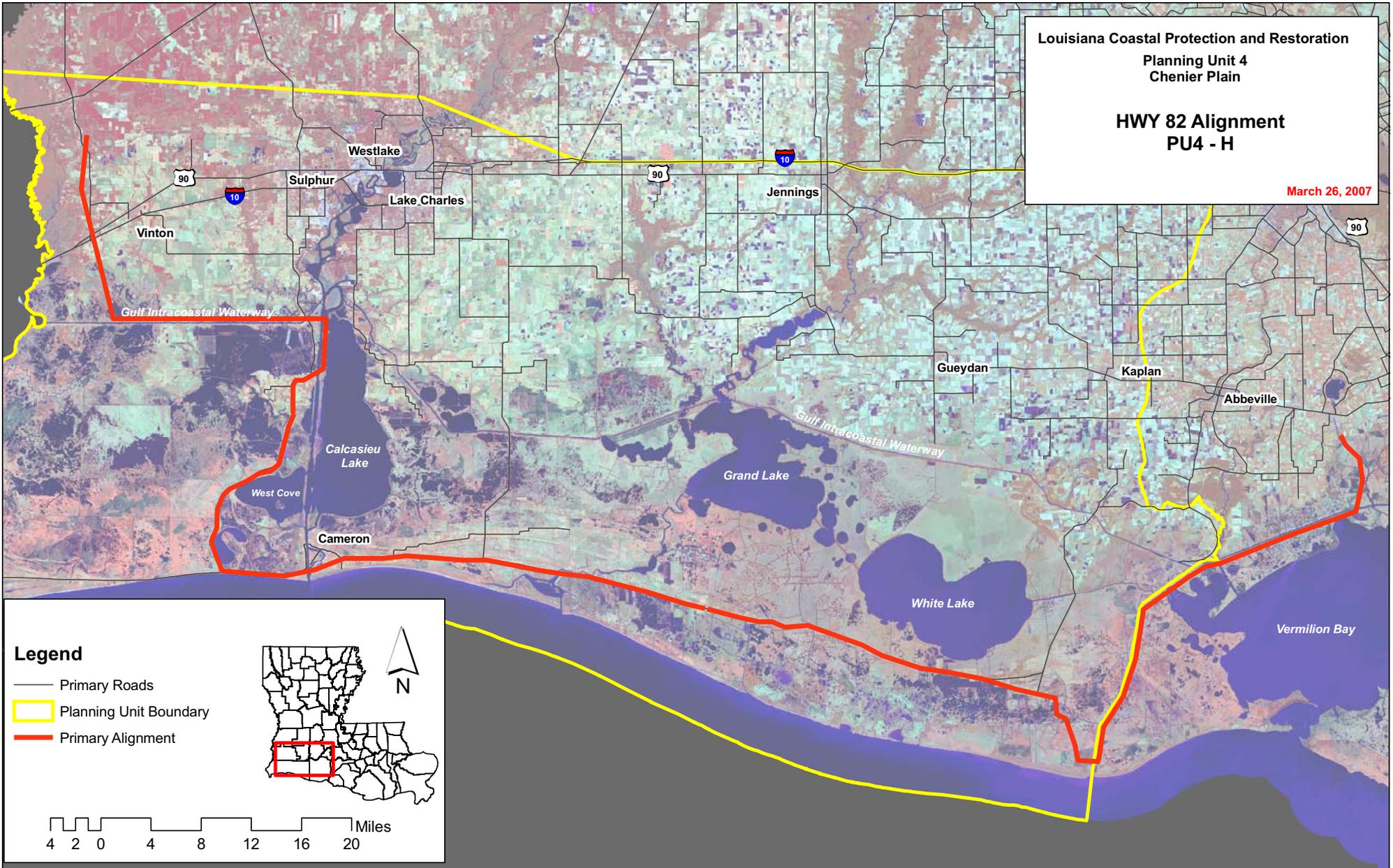
Line Color on Map	Legend Description	General Location of Reach	Alignment Description	New or Existing Alignment	Structures Required	Beneficial Considerations	Challenges
Red	Primary Alignment	From Vinton to Abbeville	Along Highway 82	New	<ul style="list-style-type: none"> To be determined 	<ul style="list-style-type: none"> Alignment would protect the coastal wetlands from further erosion and saltwater encroachment as well as providing protection from storm surge. 	<ul style="list-style-type: none"> High cost Low density population Disrupts natural hydrology

Louisiana Coastal Protection and Restoration

Planning Unit 4
Chenier Plain

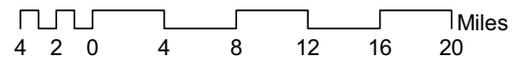
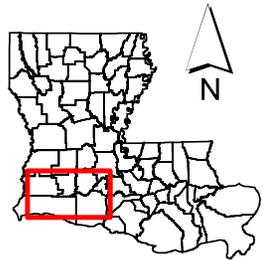
HWY 82 Alignment
PU4 - H

March 26, 2007



Legend

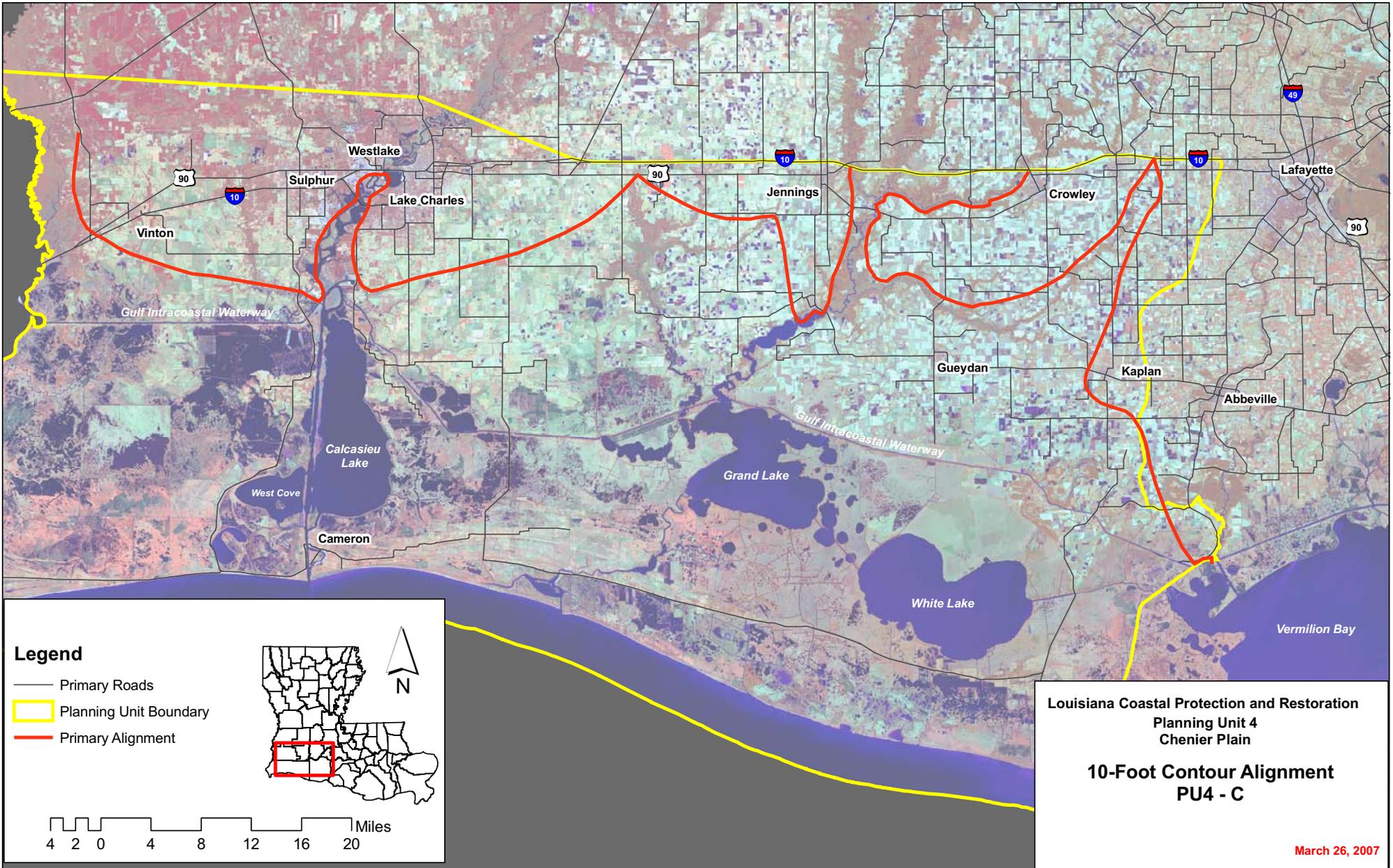
- Primary Roads
- Planning Unit Boundary
- Primary Alignment



Louisiana Coastal Protection and Restoration - Planning Unit 4 – Chenier Plain
10-Foot Contour Alignment
PU4-C

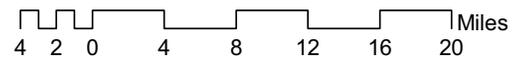
General Description: New levee alignment from Abbeville to Texas border along the 10-ft contour.
Population Receiving Risk Reduction Benefits: All communities north of the GIWW from Abbeville to the border of Texas including Kaplan, Lake Charles, Westlake, Sulphur, etc.
National and Strategic Resources: Strategic Oil Reserve, Natural Gas Facilities

Line Color on Map	Legend Description	General Location of Reach	Alignment Description	New or Existing Alignment	Structures Required	Beneficial Considerations	Challenges
Red	Primary Alignment	From Abbeville to Texas	Along the 10-ft contour	New and existing	<ul style="list-style-type: none"> GIWW west of Leland Bowmann Lock (110-ft sector gate) Calcasieu River (110'ft sector gate) Vinton Drainage Canal (56'ft sector gate) 	<ul style="list-style-type: none"> Don't have to build levee as high 	<ul style="list-style-type: none"> Longer levee (high O&M costs and greater environmental impacts) Interior drainage issues



Legend

- Primary Roads
- ▭ Planning Unit Boundary
- Primary Alignment



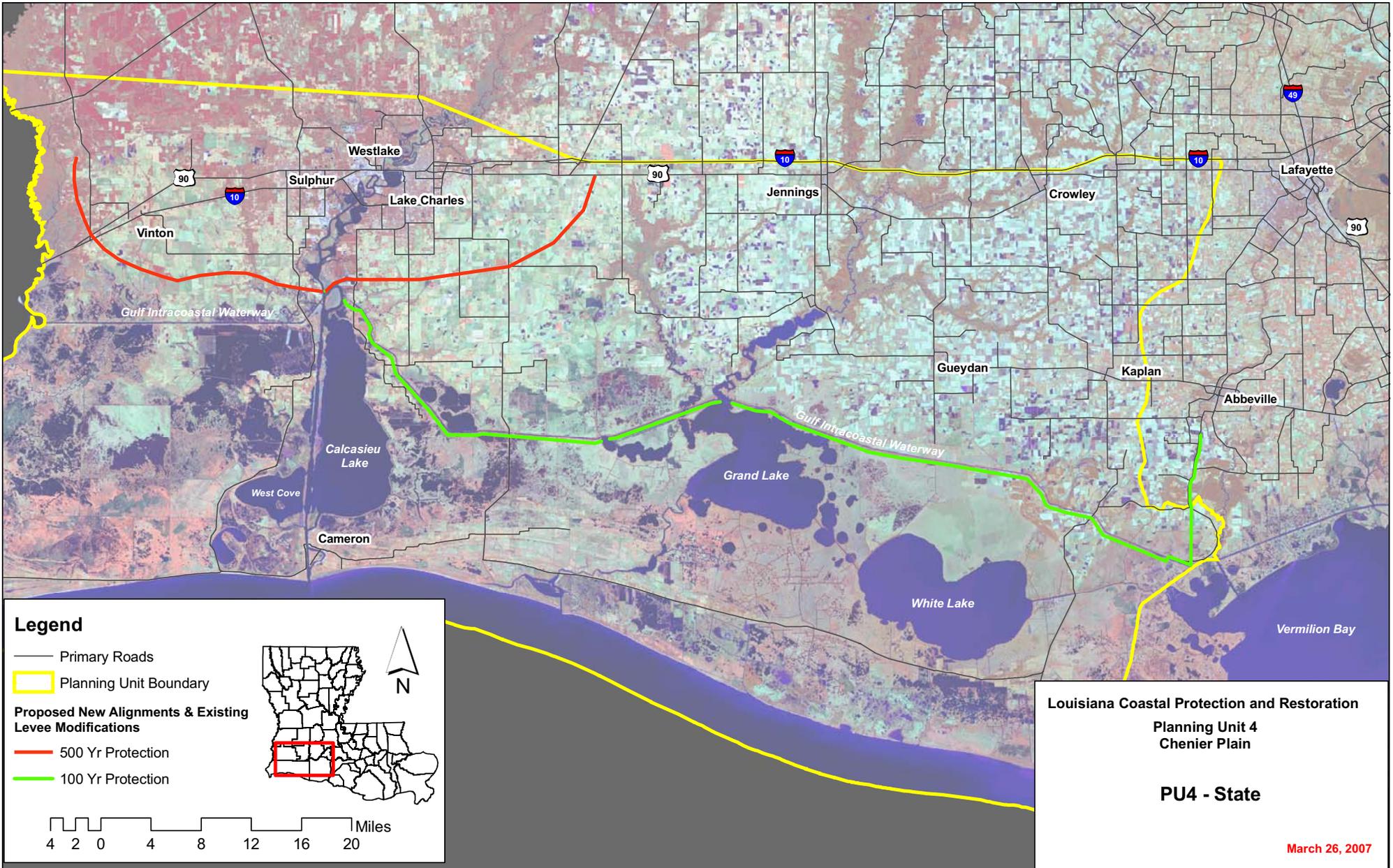
Louisiana Coastal Protection and Restoration
Planning Unit 4
Chenier Plain

10-Foot Contour Alignment
PU4 - C

March 26, 2007

Louisiana Coastal Protection and Restoration - Planning Unit 4 – Chenier Plain
Preliminary Draft State Master Plan Alignment
PU4-State

See updated information on the State Master Plan at
<http://www.louisianacoastalplanning.org>



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