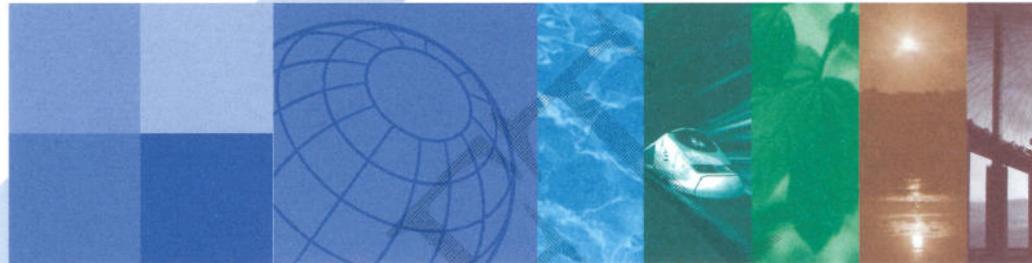


Louisiana Department of Natural Resources

**Guidelines for Permit Consistency with
Louisiana's Master Plan for a Sustainable Coast:**



July 2008

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Summary

Background

Louisiana Executive Order No. BJ 2008-7 states that: "All state agencies shall administer their regulatory practices, programs, contracts, grants, and all other functions vested in them in a manner consistent with the Master Plan and public interest to the maximum extent possible."

This report sets out the framework through which the Louisiana Department of Natural Resources (DNR) Coastal Management Division (CMD) will apply its Coastal Use Permit program to ensure coastal activities meet this requirement for consistency with the Master Plan.

Master Plan Status

In order to ensure the Louisiana Coastal Resources Program (LCRP) is administered in a manner consistent with the State's Master Plan, it is necessary to identify the various program and project level attributes of the Plan that may directly or indirectly affect the viability of future coastal uses.

Having been adopted unanimously by the Louisiana Legislature in May 2007, the Master Plan can now be considered to represent the State's definition of what is 'in the public interest' in terms of future management of Louisiana's coastal zone. This is an important definition for coastal activity regulation.

Consequent from this it is further considered that by definition the Master Plan and its recommended projects are consistent with the State's regulatory processes. As such, it is not the intent of this guidance to define guidance on how Master Plan recommendations should be regulated, rather it is to ensure that other coastal activities do not hinder or contradict successful delivery of the Master Plan and its underlying principals.

Key Issues and Recommendations

The review of both the Master Plan and the existing regulatory processes a number of potential issues and conflicts were been identified. The Key issues and their recommended resolution are summarized in the table below.

Key Issues	Recommended Action
Coastal use regulation currently does not systematically consider the Master Plan in decision making	Include a requirement to determine proximity to Master Plan measure, plus review of consistency with Master Plan program recommendations.
Permit analysts do not currently have data on the measure recommendations of the Master Plan.	Develop complete GIS system, to supplement the existing CUP GIS which has mapping of all Master Plan measures linked to their number, name, description, etc from the Plan.
The uncertainty associated with Master Plan measures should be identified and considered in permit review process.	Develop and apply Master Plan Measure Ranking criteria, to define the 'locational certainty' of a measure.
	Define a 'buffer' area around the mapping of each measure to represent its 'locational certainty'.
Need to determine potential impacts of coastal activities on future implementation of Master Plan measures.	Define best practice for the design of each type of coastal activity in order to avoid potential impacts on Master Plan measures. Use this understanding to determine who should be making the permit decisions.

Key Issues	Recommended Action
Do all activities in close proximity to a proposed measure become a use of 'State Concern'?	Recommend that there is no need to change the definition of 'State Concern'.
How should highly conceptual Master Plan recommendations be considered?	Determine status of measures, and only include those for which likely form and position(s) are known.
How can 'proposed' Master Plan measures be considered in coastal use permit determinations?	Need to review the current legal status and, once resolved, develop wording to place generic wording for adding Conditions to CUP's.
Programmatic Master Plan recommendations need to be incorporated into the review of coastal activities.	Develop best practice guidance for the inclusion of programmatic Master Plan considerations into permit review process.
Need to ensure that the CUP process is delivering consistency with the Master Plan	Define process for periodic external review of permit process to ensure ongoing consistency with the Master Plan measures and principles.
Need a mechanism to assess cumulative and secondary impacts of coastal activities	A process for consideration and review of these impacts should be established. This should include review of activities currently covered by NDSI determinations.

Specific guidance for the implementation of each of these actions is provided in full in Chapters 4 and 5 of the report. These include the incorporation of Master Plan measure GIS database and review guidance into the existing Coastal Use Permit (CUP) process and the identification of a range of programmatic and legal issues that should be resolved in order for coastal activities to be fully consistent with the Master Plan.

Implementation and Review

These recommendations provide the basis for the regulation of coastal activities to reflect the current state of knowledge/resolution of Master Plan recommendations. However, it is important to recognize that the Master Plan program will evolve over time, and as such regulatory activities need to reflect that evolution. To facilitate this evolution of the process a number of implementation and review recommendations are made. These include the following:

- Regular review and update of the Master Plan GIS database to ensure it reflects the improved resolution of measures as they are progressed.
- Systematic capture of best practice related to coastal activity design to avoid impacts on Master Plan measure implementation, also to reflect the resolution of programmatic issues.
- Inclusion, into the CUP GIS, of recommendations from other Statewide initiatives that could affect coastal activities.
- Periodic external review of the CUP process to ensure it is delivering coastal activities consistent with the Master Plan.

3

Key Issues and Recommendations

Based upon the full review of issues presented in Chapter 2, a number of Key Issues and associated mitigations actions have been identified. The recommended actions would provide for regulatory consistency with the State’s Master Plan.

Table 3.1 presents a summary of the Key Issues, the actions recommended to be taken, and a reference to the location in the following report chapters where the guidance on delivering the recommended action is defined. The remaining chapters of this report then present the details of how these actions will be delivered.

Table 3.1: Key Issues and Recommended Actions

Key Issues	Action required	Guidance location
Coastal use regulation currently does not systematically consider the Master Plan in decision making	Include a requirement to determine proximity to Master Plan measures, plus review of consistency with Master Plan program recommendations.	4.2, 4.6
Permit analysts do not currently have data on the measure recommendations of the Master Plan.	Develop complete GIS system to supplement the existing CUP GIS which has mapping of all Master Plan measures linked to their number, name, description, etc from the Master Plan.	4.2, App. B
The uncertainty associated with Master Plan measures should be identified and considered in permit review process.	Develop and apply Master Plan Measure Ranking criteria, to define the ‘locational certainty’ of a measure. This would be represented in the data linked to measures in the GIS system.	4.3, App. B
	Define a ‘buffer’ area around the current mapping of each measure to represent its ‘locational certainty’, i.e. indicates the possible scope for the measure to move when better defined.	4.3, App. B

Table 3.1: Key Issues and Recommended Actions

Key Issues	Action required	Guidance location
Need to determine potential impacts of coastal activities on future implementation of Master Plan measures.	<p>Define best practice for the design of each type of coastal activity in order to avoid potential impacts on Master Plan measures. This may simply refer to existing best practices, such as that in the sub-divisions guidance document.</p> <p>Use this understanding to determine who should be making the permit decisions. If the permit is straightforward then the analyst team should determine using generic guidance, whereas some activities may need to be elevated to the IIT (or equivalent). The aim would be to minimize the number of applications that need IIT review.</p>	4.4, 4.5, 4.6
Does the status of the Master Plan mean that all activities in close proximity to a proposed measure become a use of 'State Concern'?	Recommend that there is no need to change the definition of 'State Concern', however need to ensure that activities close to Master Plan measures continue to be reviewed by CMD.	4.4
How should highly conceptual Master Plan recommendations be considered?	Determine status of measures, and only include those for which likely form and position(s) are known.	App. B
How can 'proposed' Master Plan measures (i.e. not yet built) be considered in coastal use permit determinations?	Need to review the current legal status and, once resolved, develop wording to place generic wording for adding Conditions to CUP's where there is a potential for the activity to need removal/modification if a Master Plan measure is sited or affects the same location in the future.	5.9
Programmatic Master Plan recommendations need to be incorporated into the review of coastal activities.	Develop best practice guidance for the inclusion of programmatic Master Plan considerations into the permit review process. To include aspects such as 'wise' development, regional sediment management/beneficial use program, etc. Many of these issues will require further resolution before they can be systematically incorporated into the CUP process.	4.6, Chapter 5
Need to ensure that the CUP process is delivering consistency with the Master Plan	Define process for periodic external review of permit process to ensure ongoing consistency with the Master Plan measures and principles.	6.3
Need a mechanism to assess cumulative and secondary impacts of coastal activities	A process for consideration and review of these impacts should be established. This should include review of activities currently covered by NDSI determinations.	5.3, 6.3

4 Permit Review Process

4.1 *Overview*

The most important first step in ensuring that the regulation of activities in Louisiana's coastal zone is consistent with the Master Plan is the provision of clear useable data and guidelines on the Master Plan's recommendations.

The Master Plan includes both specific projects (measures) for implementation and a range of programmatic recommendations. The implementation of these measures and adherence to the program recommendations has the potential to impact the viability and function of some coastal activities, and *vice versa*.

The following sections identify the recommended changes to the existing Coastal Use Permit review process to ensure that full account of the Master Plan recommendations is taken where appropriate. These recommendations include both modification to the existing CUP Technical Review Form and the development/incorporation of best practice for the design and operation of activities in proximity to proposed Master Plan measures.

The guidance set out below refers explicitly to the CUP process; however it is also recommended that the consideration of Master Plan measures and program recommendations also be built into the Federal Consistency process in a similar manner.

Figure 4.1 presents a flow chart illustrating the steps to be followed as part of the permit review process in relation to the consideration of Master Plan measures.

4.2 *Identify Master Plan Measures in Project Vicinity*

The existing CUP Technical Review process will continue to operate as at present, however consideration of Master Plan measures will be included in the 'Coastal Use Permit Technical Review Form' in 'Part II: Technical Evaluation'. The revised form will require analysts to identify:

Master Plan measures in project vicinity (include Status determination for any measures)

To facilitate this review, a Master Plan measure GIS layer has been added to the existing CUP GIS. This Master Plan dataset is described in full in Appendix B. It provides the location of proposed measures, a buffer area around that location and a scoring for the certainty of its mapped location. Figure 4.2 illustrates a sample area from the Master Plan GIS.

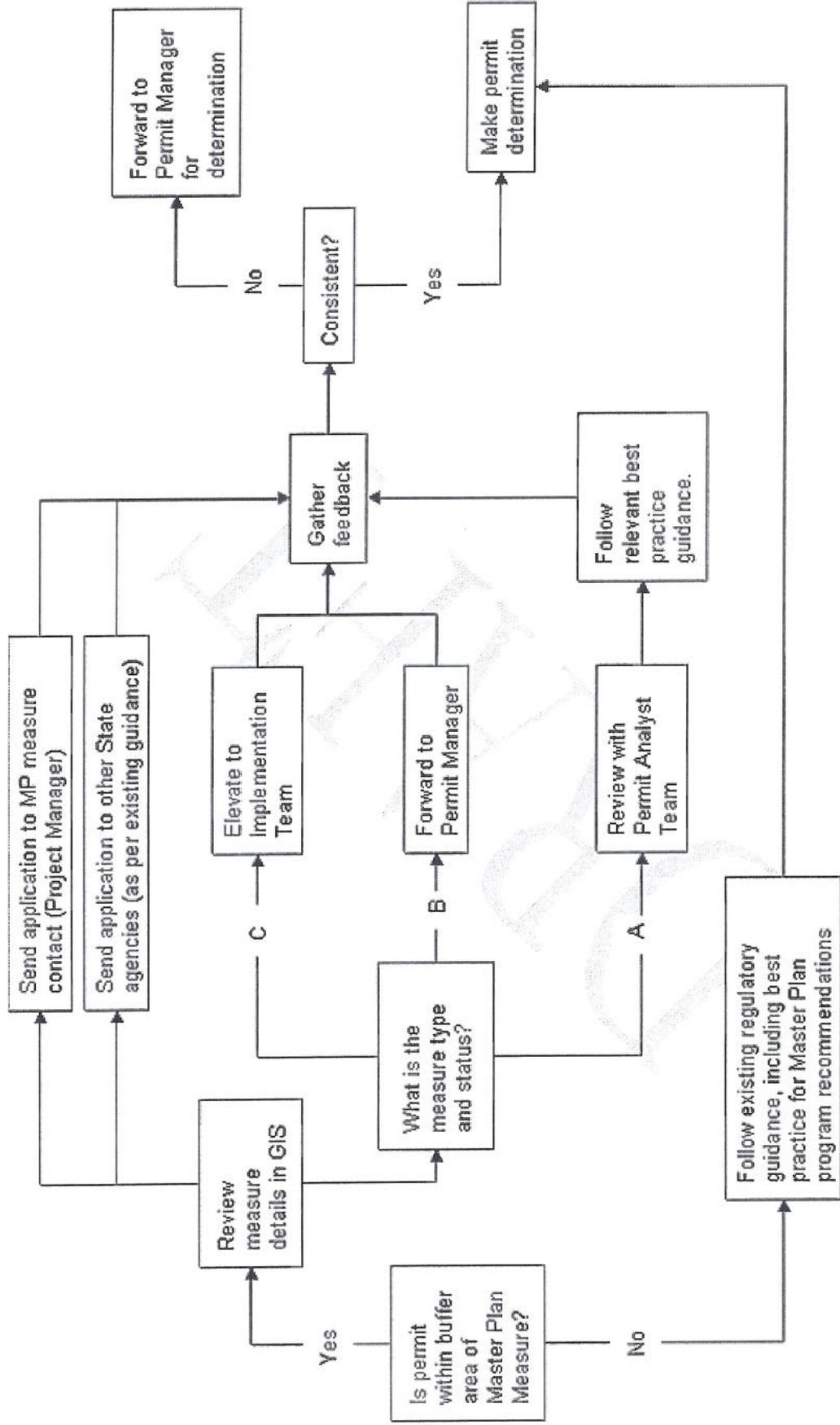


Figure 4.1 Coastal Use Permit Review Process

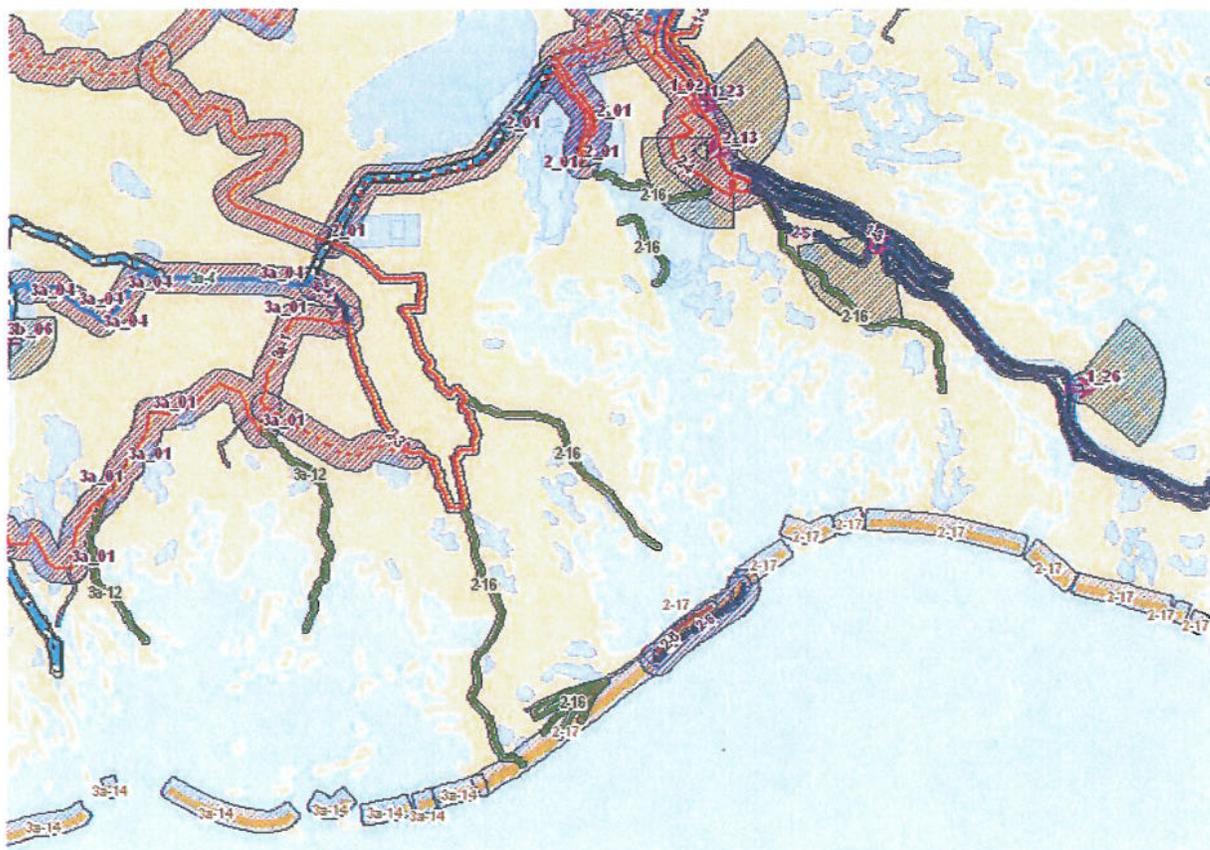


Figure 4.2: Sample of Master Plan measure GIS mapping, including measure locations and buffers

When the permit analyst interrogates the CUP GIS for features in the vicinity of the proposed activity, the report will include information on all Master Plan measures with buffer zones that overlap the proposed activity.

If the activity is not within an assigned buffer area, the existing regulatory guidance will be followed, including consideration of best practice related to programmatic Master Plan recommendations (see Section 4.6).

However, if the activity falls within a Master Plan measure buffer, the permit analyst will review the measure details in the GIS database and determine the type and the status.

4.3

Measure Type and Status

For each Master Plan measure the GIS database will report data as illustrated in Figure 4.3.

This report provides all the data available for the measure as defined in the Master Plan. The important elements for the permit review process are the measure status and its title/description (which provides the measure type).

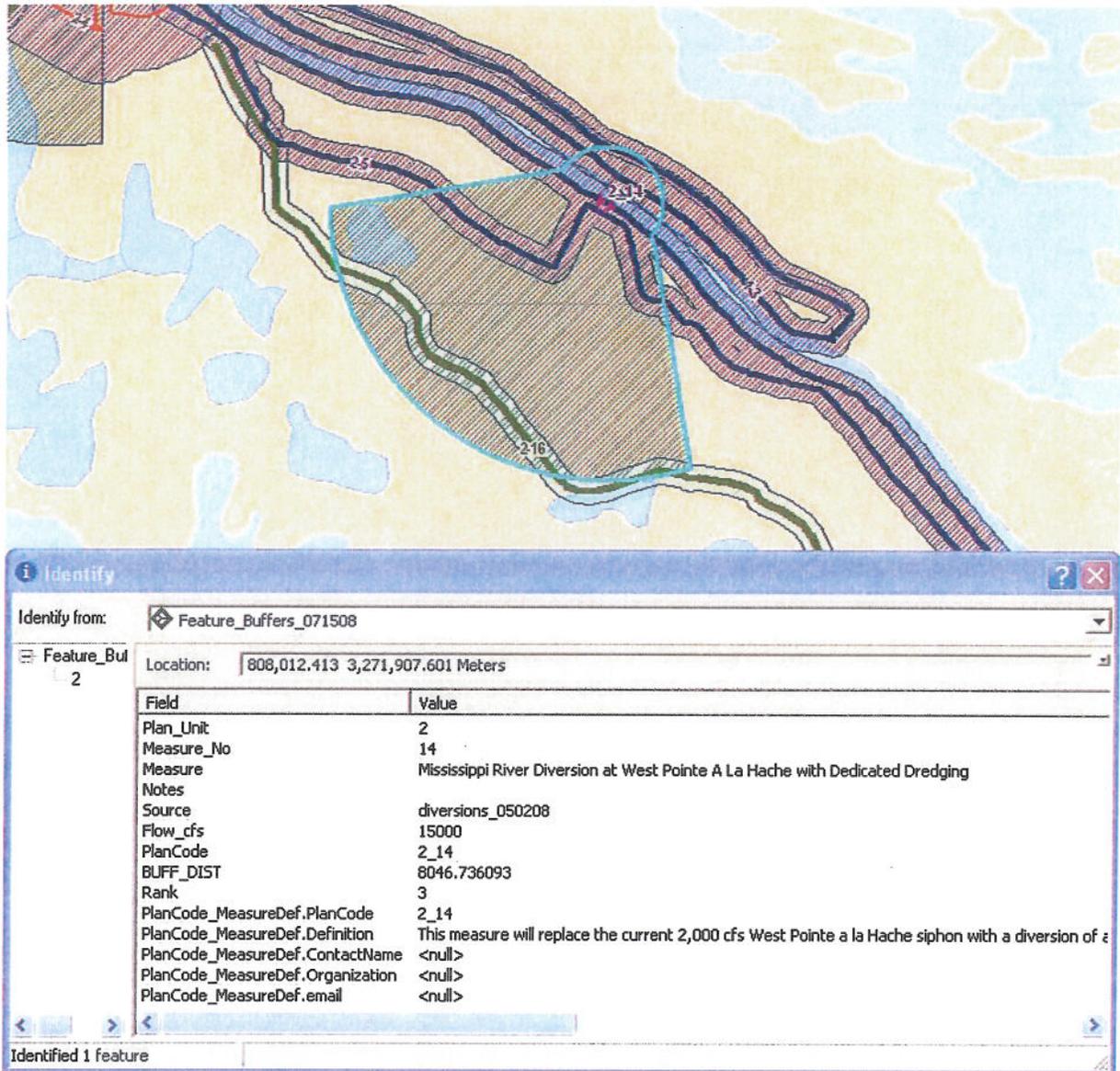


Figure 4.3: Sample measure data table from Master Plan GIS

4.4

Identify Permit Decision Level

The combination of measure status and type can then be used to determine the potential for conflict between the proposed project and the Master Plan measure, and in turn the level at which the permit application should be reviewed.

Table 4.1 provides a matrix of groupings of coastal activity types (on the y-axis) and measure types (on the x-axis). For each combination of coastal activity and Master Plan measure as appropriate level at which the permit application should be reviewed is identified. These levels are determined by the likelihood for the proposed coastal activity to have a detrimental impact

upon the implementation of the Master Plan measure. For some measures the certainty score is also a factor in determining the decision level.

Three levels of permit review are identified:

A – Permit Analysts Team

Where the CMD Permit Analysts Team is recommended to review the application, then the normal procedure of analysts collectively reviewing applications should be followed. In these instances it is considered likely that the activity impacts will be minor

B – Permit Manager

If the CMD Permit Manager is identified then it will be appropriate for the application to be elevated directly to the permitting group manager (or designate) for consideration. These combinations of activities and measures have some potential for impacts.

C – Implementation Team

Where the Implementation Team is identified as the appropriate level for review of the application, then it is considered likely that the proposed activity could have an impact on the implementation of a Master Plan measure. These permit applications would be elevated directly to the CPRA Implementation Team (or any successor body) as they will be best placed to determine the likelihood of impacts based on the current design of the measure.

Over time, it may be appropriate to change the level at which some applications are reviewed, based upon lessons learned from application of this guidance and the complexity of the decisions that were required.

In addition to reviewing the permit application with CMD and/or the Implementation Team, the application should also be forwarded to the relevant project manager for the Master Plan measure to obtain their input. This will only be possible where the measure is being actively developed, in which case contact details should be provided in the measure description of the GIS database (Figure 4.3). However, note that contact details are not yet populated in the initial Master Plan GIS.

With regard to the Local Coastal Programs, it should be noted that the Master Plan does not change the definition of activities of ‘State Concern’. However, it is important the Parishes continue to forward applications for activities close to Master Plan measures (this will now use the defined measure buffers) to DNR CMD for their comment. In this way it can be ensured that the application will be reviewed at the appropriate level, as CMD will consider Table 4.1 in determining who should comment.

Table 4.1 Matrix identifying the level at which permit decisions should be made

		Master Plan measure type														
		Flood Protection Levee, incl. Locks & floodgates		Pump Station; and Salinity control structure		Elevate Evacuation Routes	Barrier Islands	Ridge Restoration	Marsh Creation	Shoreline Stabilization	Navigation waterway stabilization	Freshwater management area	River diversions			
Legend: A = Permit Analysts Team B = Permit Manager C = Implementation Team		<i>Measure Status</i>		1,2	3,4	1,2	3,4	All	All	All	All	All	All	All	1,2	3,4
Coastal Activity Type	Flood Protection Levee	B	C	A	B	A	A	A	A	A	A	A	A	B	B	C
	Linear pipeline > 8" (non-removable)	B	C	A	B	A	A	A	A	A	B	B	A	A	B	C
	Linear pipeline ≤ 8"; also new cables, utility lines, wires, etc (removable)	A		A		A	A	A	A	A	A	A	A	A	A	B
	Maintenance of existing Slips, channels, canals or plugs; also dedicated dredge for restoration	A		A		A	A	A	A	A	A	A	A	A	A	
	New Slips, channels, canals or plugs; incl. channels associated with a crevasse; also Trenasses	A B	C	A		A	A	A	A	A	A	A	A	B	A	
	Wave dampening fences in shallow water (removable)	A		A		A	A	A	A	A	A	A	A	A	A	
	Compensatory mitigation project (e.g. marsh creation, shore protection, freshwater diversion, etc)	A B	C	A		A	A	A	A	A	A	A	A	A	A	
	Subdivision development	B	C	A		A	A	A	A	A	A	A	A	A	B	C
	Marina development	A B	C	A		A	A	A	A	A	A	A	A	A	B	C
	Bulkhead development	A		A		A	A	A	A	A	A	A	A	A	A	B
	Oil & gas infrastructure (e.g. platforms, landing pads, ring levees, board-roads, etc).	A B	C	A		A	A	A	A	A	A	A	A	A	B	C
	Seismic surveys (assume temporary impacts, with restoration)	A		A		A	A	A	A	A	A	A	A	A	A	
	Emergency repair	A		A		A	A	A	A	A	A	A	A	A	A	
	Major Infrastructure (e.g. port expansion, new road, etc.)	B	C	A	B	B	A	A	A	A	B	B	B	B	C	
	Minor Infrastructure (e.g. road sign pads, utilities, etc.)	A	B	A		A	A	A	A	A	A	A	A	A	B	

4.5

Review Best Practice

Through this process, the presently available information on the Master Plan measure(s) that could potentially be impacted by the proposed activity will have been collated, together with information on all other relevant coastal features. This information can then be used to inform the permit determination.

The consideration of Master Plan recommendations in the determination of coastal activity proposals is a process that will inevitably evolve over time, as decisions gradually provide best practice and precedents for the appropriate design of coastal activities to ensure consistency with the Master Plan. This best practice can then provide a reference for use in subsequent analyses.

As part of this current effort, it has not been possible to develop new best practice guidance on the appropriate design of coastal activities to avoid impacts on future implementation of Master Plan measures and compliance with Master Plan principles. However, there is existing best practice such as that provided for subdivision developments that will remain valid. This guidance should be supplemented over time with the guidance arising from decisions for different combinations of coastal activity and Master Plan measure, but recognizing that each set of conditions will be different depending on the local conditions.

Table 4.2 provides a high level review of the likely potential for generic coastal activity types to have a detrimental impact on the implementation of Master Plan measures when located within the buffer area of such a measure.

The rationale for these potential impacts is then identified in Table 4.3 to 4.16.

These notes will provide an initial reference and can form the basis for recording best practice and precedents as they are set through the determination of coastal activity permit applications.

However, initial permit decisions may require input from planning and engineering staff within the IIT in order to ensure that proposed activities are designed and constructed in a manner to avoid impacts on Master Plan measures and intent. These will necessarily be reviewed on a case by case basis.

Table 4.2: Potential for coastal activities to impact Master Plan measure implementation.

		Master Plan measure type (and reference number)									
		1. Flood Protection Levee, incl. Locks & floodgates	2. Pump Station; and Salinity control structure	3. Elevate Evacuation Routes	4. Barrier Islands	5. Ridge Restoration	6. Marsh Creation	7. Shoreline Stabilization	8. Navigation waterway stabilization	9. Freshwater management area	10. River diversions
Legend:											
Y = Impact on measure implementation likely											
N = Impact unlikely											
Coastal Activity Type	Flood Protection Levee	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Linear pipeline > 8" (non-removable)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Linear pipeline ≤8"; also new cables, utility lines, wires, etc (removable)	N	N	N	N	N	N	N	N	N	Y
	Maintenance of existing Slips, channels, canals or plugs; also dedicated dredge for restoration	N	N	N	N	N	N	N	Y	N	N
	New Slips, channels, canals or plugs; incl. channels associated with a crevasse; also Trenasses	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Wave dampening fences in shallow water (removable)	N	N	N	N	N	N	N	N	N	N
	Compensatory mitigation project, e.g. marsh creation, shore protection, freshwater diversion, etc	N	N	N	N	N	N	N	N	N	N
	Subdivision development	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Marina development	Y	Y	N	Y	Y	Y	Y	Y	N	Y
	Bulkhead development	Y	N	N	Y	Y	N	Y	Y	N	Y
	Oil & gas infrastructure (e.g. platforms, landing pads, ring levees, board-roads, etc).	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Seismic surveys (assume temporary impacts, with restoration and with no new dredging)	N	N	N	N	N	N	N	N	N	N
	Emergency repair	N	N	N	N	N	N	N	N	N	N
	Major Infrastructure (e.g. port expansion, new road, etc.)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Minor Infrastructure (e.g. road sign pads, utilities, etc.)	N	N	N	N	N	N	N	N	N	N	

4.5.1

Potential Impacts of Activities

For each type of coastal activity identified in Table 4.2, the following tables briefly identify the likely sources of impacts on Master Plan (MP) measure implementation.

Within each table the “Measure type reference #” refers to the Master Plan measure numbering used in Table 4.2, as follows:

1. Flood Protection Levee, incl. Locks & floodgates
2. Pump Station; and Salinity control structure
3. Elevate Evacuation Routes
4. Barrier Islands
5. Ridge Restoration
6. Marsh Creation
7. Shoreline Stabilization
8. Navigation waterway stabilization
9. Freshwater management area
10. River diversions

Table 4.3: Flood Protection Levees

Measure type reference #	Potential impact on implementation by Flood Protection Levees
1	Could affect the implementation of MP measures by duplication or by not keeping up with required and adequate flood protection standards. The proposed alignment may be in conflict with the MP alignment.
2	The permitted activity may interfere with implementation of a recommended MP measure.
3	Permitted activity may alter the requirements to elevate/maintain hurricane evacuation routes, or the design of such measures
4	Permitted activities will not allow for natural geomorphologic processes to occur if implemented on a barrier island
5	Flood protection levees and ridge restoration projects must be planned and implemented in recognition of their combined effects on regional hydrology to avoid increasing flood risk.
6	The flood protection levees may alter regional hydrology and affect sustainability of created marshes if not properly designed. Flood protection levees may have primary impacts on created

Measure type reference #	Potential impact on implementation by Flood Protection Levees
	marshes.
7 & 8	Levees and associated borrow canals may compromise the integrity of adjoining shoreline stabilization.
9	Flood protection levees may be in conflict with MP measures seeking to provide for increased water storage in upland drainage basins.
10	Effective implementation and realization of the intended results from river diversions may be affected by local protection levees.

Table 4.4: Linear Pipeline >8"

Measure type reference #	Potential impact on implementation by Linear Pipelines >8"
1 & 2	Relocation cost is cost prohibitive and therefore there is considerable impact. Improperly designed and constructed pipelines may undermine the integrity of the flood protection system.
3	The impacts exist, however, foreseeable since we know the location and corridors of hurricane evacuation routes. Adequate conditions can be framed during the permit processing to avoid conflicts.
4	Relocation costs can be prohibitive while considering restoration of barrier island measures. Construction activities may adversely impact island sustainability by altering geomorphic processes.
5	Relocation cost can be prohibitive.
6	Pipeline construction will have primary impacts on constructed marshes. Permitted activities may also alter footprint of future marsh creation projects, but this should not necessarily preclude granting the permit.
7 & 8	Improperly designed and constructed pipelines may undermine the integrity of the existing shoreline stabilization projects. Permitted activities may increase construction costs of future shoreline stabilization projects due to increased engineering required at crossings.
9	R-O-W and the orientation of the pipeline alignment may limit the geographic footprint available to implement these measures.
10	Relocation cost will be prohibitive. Pipelines affect the positioning of the diversion points and outflow management.

Table 4.5: Linear Pipeline <8”

Measure type reference #	Potential impact on implementation by Linear Pipelines <8”
1 - 10	Impacts are minimal since the relocation is possible during the implementation of the Master Plan measures.

Table 4.6: Maintenance of Existing Slips, channels, canals or plugs; incl. channels associated with crevasse, also trenasses

Measure type reference #	Potential impact on implementation by maintenance of slips, channels, canals, or plugs; dedicated dredging for restoration
1 - 7	No significant impacts
8	The integrity of existing slips, channels, canals or plugs, crevasses, and trenasses in the vicinity of stabilized navigation channels must be maintained in order to prevent breaching into wetland areas and possible flanking and undermining of stabilization projects.
9 & 10	No significant impacts

Table 4.7 New Slips, channels, canals or plugs; incl. channels associated with crevasse, also trenasses

Measure type reference #	Potential impact on implementation by new slips, channels, etc
1	Will have significant impact on implementation of all Master Plan measure types. The proposed flood protection levees including locks and floodgates will be affected if new slips, channels, and plugs are placed in the buffer areas.
2	Proposed Master Plan pump stations and salinity control structures should be considered prior to permitting new slips, channels, etc.
3	Location of coastal activity types can have major impacts on elevating evacuation routes. The elevation of the roadway requires additional foot print for the roadway and the permitted activity should not be on the buffer area of the proposed measure.
4	The proposed coastal activity should be considered carefully when they are proposed on Barrier Island. Natural sustenance of barrier islands is affected by such local coastal activity.
5	Presence of new slips and channels will be hindrance to implement ridge restoration measures. In addition, the intended use of the slips and channels will not be realized when ridges are restored at locations where slips and channels existed. Therefore, new slips

Measure type reference #	Potential impact on implementation by new slips, channels, etc
	and channels should not be permitted within the buffers of the proposed ridge restoration locations.
6	Permitting process of new slips and channels should consider the proposed marsh creation areas and best management practices should be adopted in such a way that the Master Plan measures be implemented without major issues with regard to hydrology.
7	Great care should be exercised in the vicinity of stabilized navigation channels or the channels that are proposed to be stabilized. New slips and channels should not get in the way of fulfilling the restoration objectives of shoreline stabilization.
8	New slips and channels should not get in the way of fulfilling the restoration objectives of navigation waterway stabilization. Navigation waterway stabilization is intended for freshwater conveyance among other objectives. Considerable loss of freshwater can be effected by the presence of new slips and channels
9	Freshwater management area objectives such as hydrological restoration can be affected by permitting new slips and channels.
10	Proposed river diversions can impact new slips and channels in the vicinity by increased siltation and related effects. In addition, great care should be exercised during the permitting of new slips and channels in the buffer areas of river diversion structures and their outflow areas.

Table 4.8: Wave damping fences in shallow water

Measure type reference #	Potential impact on implementation by wave damping fences
1 - 10	These activities have no impact on the Master Plan measures.

Table 4.9: Compensatory Mitigation Project (marsh creation, shore protection, freshwater diversion, etc.)

Measure type reference #	Potential impact on implementation by mitigation projects
1 - 10	These activities are not anticipated to have negative impacts on implementation of MP measures.

Table 4.10: Subdivision Development

Measure type reference #	Potential impact on implementation by subdivision development
1 -3	Flood protection levees may trigger new development inside the newly protected areas. Subdivision developments that induced by new flood protection structures are against the intent of the master plan. New subdivision development plans should not be in the buffer areas of proposed master plan measures.
4	Subdivision development on barrier island, except for Grand Isle is inconsistent with the master plan.
5	Most of the subdivision plans occur on uplands, which can conflict with the proposed ridge restoration areas. Best management practices are to be adopted to accommodate both subdivision development and ridge restoration.
6	Subdivision development in the proposed marsh creation sites is inconsistent with the Master Plan. However, by adopting BMPs, risks to the new subdivisions and associated assets should be minimized.
7-8	Subdivision development should be permitted in such a way that the stabilized waterways and proposed stabilizations are not compromised.
9-10	Subdivisions should be permitted to make sure that the risks are minimized by adopting best management practices. Risks include high water elevations and flood hazards.

Table 4.11: Marina Development

Measure type reference #	Potential impact on implementation by marina development
1	Not much of an impact. Generally, the flood protection levees do not exist in the proximity of land-water interface.
2	Location of pump stations (Master Plan measure) could be affected by permitted marinas.
3	No significant impacts.
4	Marina development on the barrier islands can have significant impacts, e.g., Grand Isle.
5	Impacts are possible.
6	Marina development and resulting secondary and cumulative impacts could affect the existing marshes and proposed Master Plan marsh creation measures.

Measure type reference #	Potential impact on implementation by marina development
7 & 8	Marina Development can impact shoreline stabilization measures without implementing best management practices.
9	No significant impact.
10	Diversion location positioning will be affected by these activities.

Table 4.12: Bulkhead Development

Measure type reference #	Potential impact on implementation by bulkhead development
1 - 3	Minor impacts.
4	Barrier island measure implementation can be affected by implementation of proposed bulkhead construction.
5	Ridge restoration can be affected by proposed local activity such as bulkhead development.
6	No impacts
7 & 8	Bulkhead features can affect shoreline stabilization measures.
9	No impacts.
10	River diversion positioning can be affected by bulkhead construction.

Table 4.13: Oil and Natural Gas Infrastructure

Measure type reference #	Potential impact on implementation by oil and gas infrastructure
1-10	<p>Relocation cost can be prohibitive. All measure types can be affected by the local activities. Almost all the time these infrastructure facilities occur in low lying areas.</p> <p>Best management practices shall be adopted to make sure that the risks are minimized.</p> <p>The local activities related to oil and natural gas infrastructure should not be permitted in the buffer areas where there are restoration type such as nos. 1, 2, and 10. Alternative approaches should be explored so that the activities can be located outside the buffer zones of these restoration types.</p>

Table 4.14: Seismic Surveys

Measure type reference #	Potential impact on implementation by seismic surveys
1 - 10	Seismic survey activities are temporary in nature. Significant impacts are not anticipated in relation to Master Plan implementation.

Table 4.15: Emergency Repairs

Measure type reference #	Potential impact on implementation by emergency repairs
1 - 10	Repairs are on existing activities. No significant impacts.

Table 4.16: Major Infrastructures (e.g., Port expansion, new roads, etc.)

Measure type reference #	Potential impact on implementation by major infrastructure
1 - 10	<p>Major potential for impacts on Master Plan implementation of measures. Thorough review of proposed activities will be required to make sure that any potential impacts on the implementation of Master Plan measures, or conflicts with the principles or objectives of the Master Plan are identified and resolved.</p> <p>The breadth of activities covered by this category make it inappropriate to attempt to determine examples of impacts that should be considered.</p>

Table 4.17: Minor Infrastructures (e.g. utilities, etc.)

Measure type reference #	Potential impact on implementation by minor infrastructure
1 - 10	Unlikely that changes to or addition of minor infrastructure such as pads for new road signs or utility infrastructure will have significant impacts on the implementation of Master Plan measures.

4.6***Consideration of Master Plan Principles***

In addition to the site specific measure recommendations of the Master Plan, there are a number of programmatic (coastwide) recommendations that should be taken into consideration in the review of coastal activity permit applications. These recommendations are identified in Chapter 5 and include:

- avoiding 'unwise' infill development (Section 5.4);
- sustainable management of coast wetland forests (Section 5.5); and
- programmatic compensatory mitigation (Section 5.8)

Resolution of these issues will be required in order for each to be appropriately accounted for in the regulatory process, through the definition of appropriate best practice guidance for activities.

Consequently, the best practice guidance developed pursuant to Section 4.5 should include appropriate guidance on these programmatic considerations.

4.7***Permit Determination***

Once the proposed coastal activity has been reviewed against existing features of the coastal zone and potential impacts on the implementation of Master Plan measures, and feedback has been received from other agencies and the nominated measure contact, it will be possible to make the permit determination.

Following best practice and advice from DNR engineers where appropriate, the design, location, etc. of the activity should be reviewed to determine if any alterations would be necessary in order to make it consistent with the Master Plan.

Where it is considered that the proposed coastal activity would have a detrimental impact on implementation of a Master Plan measure, it may be appropriate to issue a conditional permit, requiring removal of the activity ahead of measure implementation. This would require resolution of the legal issue identified in Section 5.2.1.

It is also possible that implementation of the Master Plan measure could impact the viability of the proposed activity. In this case it would be necessary to inform the permittee of this potential future impact.

Once the decision has been further reviewed at the appropriate level (permit manager or the implementation team) for consistency, the decision document can be finalized and issued.

Appendix B

Master Plan GIS

B.1

Introduction

In order to facilitate the consideration of Master Plan measure recommendations into the Coastal Use Permit (CUP) review process, a GIS database has been developed for incorporation into the existing CUP GIS and DNR's online SONRIS system:

http://sonris-www.dnr.state.la.us/www_root/sonris_portal_1.htm

The Master Plan GIS incorporates the following data:

- Measure name and number, including Planning Unit reference;
- Measure description as presented in Appendix A of the Master Plan (2007);
- Locational certainty status for the measure, describing the current level of analysis of the measure, and hence the certainty regarding its final form and location;
- Mapped location (footprint) of measure, including alternative locations where necessary;
- Mapped 'buffer' area round measures to reflect both the uncertainty of their location and the areas that they are likely to directly impact; and
- Contact details for individuals or agencies currently involved in developing the measure (where the measure is being progressed).

The majority of this information has been extracted from the 2007 Master Plan and its appendices, however the locational certainty ranking and buffer areas have been developed specifically for this regulatory process.

The following sections provide the definitions used in preparing this GIS data, together with measure descriptions taken from the Master Plan.

B.2

Measure Status Ranking

In order to ensure that measures proposed as part of 'Louisiana's Comprehensive Master Plan for a Sustainable Coast' are taken into account in the regulatory activities associated with the Louisiana Coastal Resources Program (LCRP) it will be necessary for GIS mapping of project locations to be available to permit applicants and those charged with reviewing those applications. However, the mapping alone does not provide sufficient information about a Master Plan measure on which to determine its potential impact on a proposed coastal activity. As such, it is proposed to supplement the existing Coastal Use Program (CUP) GIS with a Master Plan measures based GIS system providing measure descriptions and an indication of the status of each measure.

B.2.1

Ranking criteria

The table below sets out the criteria for assigning a 'Measure Status' score to all measures identified in the Master Plan. The approach taken builds on the 'Measure Status' definitions presented in the FY 2009 Annual Plan Urgent Early Actions identification (Appendix B, pg. 59/60). Where relevant

Rank 1	Measure planning and design are complete. Location is clearly defined and areas of influence are understood. Measure can be considered as existing in permit review.
Rank 2	<p>Measures with Rank 2 should be considered to have their location determined as being within a certain corridor/area. The exact location is unknown.</p> <p>Any proposed activities, likely to inhibit measure implementation, should not be permitted within the defined corridor/area and the activities have to be categorized into a group where permit analysts will be able to come up with conditions for the activities with certainty regarding measures.</p> <p>The measures under this category can be equated to projects that are considered under CWPPRA, Phase 1, 30% to 90% completion level. This phase comprises of design of project features.</p>
Rank 3	<p>Measures do not have a set location.</p> <p>Given the existence of a more than one potential location, it will be important for the permit applicant to be made aware of the potential for measure construction in the location however the permit should not be refused on the grounds of the proposed measure. The permit should contain a condition that if the measure is implemented the activity should be relocated at the applicants own expense.</p> <p>The measures under this category can be equated to projects that are considered under CWPPRA, Phase 0 and up to Phase 1 30% completion. This phase comprises of planning and alternative analysis of project components.</p>
Rank 4	<p>Concept to be evaluated before detailed appraisals can be undertaken. Ultimate location and outcomes highly uncertain.</p> <p>Multi-component measures, with components of uncertain location and outcomes.</p>

B.2.2

Multi-component Measures

A number of the measures defined in the Master Plan consist of a number of discrete components, some of which may be more advanced in planning/design than others.

The existing CUP GIS includes project data from those agencies involved in the development of coastal projects, so it is probable that the more defined and certain components of a measure will already be represented in the CUP GIS data. When the Master Plan data is incorporated into the CUP GIS, these better defined (existing) measure components will be treated as overriding the Master Plan

measure. In this way the more detailed information will be used in the permit analysis process where appropriate.

These multi-component measures are given a rank of 4 to reflect uncertainty in the location and design of certain elements of the measure.

B.2.3

Master Plan Measures and Certainty Ranking

Based upon knowledge of the measures defined in the Master Plan, and discussions with the CPRA Implementation Team, a certainty rank has been assigned to each Master Plan measure to represent its current status.

The table below identifies the rank for each measure.

Measure number and name	Certainty Rank				
	Multi-Component?	1	2	3	4
Planning Unit 1. East of the Mississippi River					
PU1.1. Lake Pontchartrain Barrier Plan: Caernarvon to Pearl River Hurricane Protection	Yes				x
PU1.2. Caernarvon to White Ditch Hurricane Protection		x			
PU1.3. Pointe a la Hache to Phoenix Hurricane Protection		x			
PU1.4. St. Bernard 40 Arpent Levee		x			
PU1.5. West Shore of Lake Pontchartrain Hurricane Protection	Yes				x
PU1.6. Lake Pontchartrain and Vicinity Hurricane Protection		x			
PU1.7. North Shore of Lake Pontchartrain and Lake Maurepas Hurricane Protection				x	
PU1.8. Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems		x			
PU1.9. Mississippi River Diversion at Hope Canal				x	
PU1.10. Mississippi River Diversion at Convent/Blind River				x	
PU1.11. Shoreline Stabilization on Maurepas Landbridge	Yes				x
PU1.12. St. Tammany Marsh Restoration	Yes				x
PU1.13. Shoreline Protection on South Shore of Lake Pontchartrain			x		
PU1.14. East Orleans Landbridge Restoration	Yes				x
PU1.15. Close Mississippi River Gulf Outlet (MRGO) at Bayou La Loutre Ridge		x			
PU1.16. Mississippi River Gulf Outlet (MRGO) Shoreline Stabilization	Yes				x
PU1.17. Central Wetlands Restoration				x	
PU1.18. Marsh Restoration Using Dredged Material at Golden Triangle				x	
PU1.19. Mississippi River Diversion at Violet				x	

Measure number and name	Certainty Rank				
	Multi-Component?	1	2	3	4
PU1.20. Maintain MRGO-Lake Borgne Landbridge	Yes				x
PU1.21. Modify Authorization of Caernarvon Diversion				x	
PU1.22. Maintain and Restore the Breton Sound Marshes				x	
PU1.23. Mississippi River Diversion at White Ditch				x	
PU1.24. Maintain and Restore the Biloxi Landbridge and Barrier Reef			x		
PU1.25. Restore Bayou La Lautre Ridge				x	
PU1.26. Mississippi River Diversion at Bayou Lamoque				x	
PU1.27. Barrier Shoreline Restoration: Chandeleur Islands					x
Planning Unit 2- Mississippi River to Bayou Lafourche					
PU2.1. Donaldsonville to the Gulf Hurricane Protection				x	
PU2.2. West Bank Vicinity Hurricane Protection	Yes				x
PU2.3. Larose to Golden Meadow Hurricane Protection		x			
PU2.4. Oakville to Myrtle Grove Hurricane Protection				x	
PU2.5. Myrtle Grove to Venice Hurricane Protection		x			
PU2.6. Grand Isle and Vicinity Protection and Shoreline Stabilization	Yes				x
PU2.7. Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems		x			
PU2.8. Upper Barataria Basin Hydrologic Improvements at Highway 90					x
PU2.9. Move Freshwater to Terrebonne Basin from Barataria Basin via GIWW				x	
PU2.10. Mississippi River Diversion at Bayou Lafourche				x	
PU2.11. Mississippi River Diversions at Strategic Locations in Upper Barataria Basin	Yes				x
PU2.12. Modify Authorization of Davis Pond Diversion				x	
PU2.13. Mississippi River Diversion at Myrtle Grove with Dedicated Dredging				x	
PU2.14. Mississippi River Diversion at West Pointe a la Hache with Dedicated Dredging				x	
PU2.15. Marsh Restoration Using Dredged Material in Barataria Basin				x	
PU2.16. Ridge Habitat Restoration in Barataria Basin				x	
PU2.17. Barrier Shoreline Restoration: Barataria Basin	Yes				x
PU2.18. Bankline Protection for Gulf Intracoastal Waterway (GIWW)				x	
Planning Unit 3a: Bayou Lafourche to Bayou de West					
PU3a.1. Morganza to the Gulf Hurricane Protection	Yes				x
PU3a.2. Gibson to Houma Hurricane Protection				x	
PU3a.3. Morgan City to Gibson Hurricane Protection			x		

Measure number and name	Certainty Rank				
	Multi-Component?	1	2	3	4
PU3a.4. Houma and Vicinity Hurricane Protection				x	
PU3a/PU2.3. Larose to Golden Meadow Hurricane Protection		x			
PU3a.5. Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems		x			
PU3a.6. Bankline Protection for Houma Navigation Canal (HNC)				x	
PU3a. 7. Multipurpose operation of the Houma Navigation Canal (HNC) Lock				x	
PU3a.8. Bankline Protection for Gulf Intracoastal Waterway (GIWW)	Yes				x
PU3a.9. Marsh Restoration Using Dredged Material in Terrebonne Basin	Yes				x
PU3a.10. Chacahoula Basin Plan	Yes				x
PU3a.11. Freshwater Introduction via Blue Hammock Bayou				x	
PU3a12. Ridge Habitat Restoration in Terrebonne Basin	Yes			x	
PU3a.13. Maintain Landbridge Between Caillou Lake and Gulf of Mexico	Yes			x	
PU3a.14. Barrier Shoreline Restoration: Terrebonne Basin	Yes				x
PU2-9./PU3b.6. Move Freshwater to Terrebonne Basin from Barataria Basin via GIWW				x	
Planning Unit 3b: Bayou de West to Freshwater Bayou Canal					
PU3b.1. Lafayette and Vicinity Hurricane Protection				x	
PU3b.2. Wax Lake Outlet to New Iberia Hurricane Protection					x
PU3b.3. Maintain existing Levee Protection for Morgan City and Berwick		x			
PU3b.4. Raise/Maintain Evacuation Routes Located Outside the Hurricane Protection Systems		x			
PU3b.5. Barrier Shoreline Restoration: Point Au Fer Island				x	
PU3b.6. Convey Atchafalaya River Water Eastward via GIWW to Benefit Eastern and Lower Terrebonne Marshes				x	
PU3b.7. Bankline Stabilization of Freshwater Bayou from Belle Isle Bayou to Freshwater Bayou Canal Lock		x			
PU3b.8. Increase sediment Transport Down Wax Lake Outlet				x	
PU3b.9. Southwest Pass Shoreline Stabilization				x	
PU3b.10. Barrier Shoreline Restoration: Freshwater Bayou to South Point/Marsh Island	Yes				x
PU3b.11. Bankline Protection for Gulf Intracoastal Waterway (GIWW)	Yes				x

Measure number and name	Certainty Rank				
	Multi-Component?	1	2	3	4
PU3b.12. Raynie Marsh Restoration				x	
PU3b.13. Convey Atchafalaya River Water Westward via GIWW				x	
PU3b.14. Marsh Restoration Using Dredged Material at Weeks Bay				x	
PU3b.15. Marsh Restoration Using Dredged Materials at Marsh Island				x	
PU3b.16. Marsh Restoration Using Dredged Material at Point Au Fer				x	
PU3b.17. Stabilize Shoreline of Vermilion, East and West Cote Blanche Bays				x	
PU3b.18. Freshwater Introduction into Central and Lower Terrebonne Marshes				x	
PU3b.19. Fortify Spoil Banks of GIWW and Freshwater Bayou				x	
Planning Unit 4: Freshwater Bayou Canal to Sabine River					
PU4.1. Lake Charles and Vicinity Hurricane Protection					x
PU4.2. Abbeville to Lake Charles Hurricane Protection					x
PU4.3. Raise and Maintain Highways 82 and 27	Yes				x
PU4.4. Bankline Protection for Gulf Intracoastal Waterway (GIWW)	Yes				x
PU4.5. Restore the Mermentau Lakes Basin Integrity				x	
PU4.6. Stabilize Grand Lake Shoreline				x	
PU4.7. Stabilize White Lake Shoreline				x	
PU4.8. Bankline Stabilization of Freshwater Bayou				x	
PU4.9. Salinity Control Structure at Calcasieu Pass				x	
PU4.10. Barrier Shoreline Restoration: Sabine River to Calcasieu Pass				x	
PU4.11. Barrier Shoreline Restoration: Calcasieu River to Freshwater Bayou				x	
PU4.12. Marsh Restoration Using Dredged Material South of Highway 82				x	
PU4.13. Beneficial Uses of Dredged Material From Calcasieu Ship Channel				x	
PU4.14. Salinity Control Structure at Sabine Pass				x	
PU4.15. Fortify Spoil Banks of GIWW and Freshwater Bayou	Yes				x
PU4.16. Stabilize Calcasieu Lake Shoreline	Yes				x
PU4.17. Stabilize Sabine Lake Shoreline	Yes				x
PU4.18. Mermantau Basin Watershed Management Plan to retain Freshwater Resources					x
PU4.19. Sabine Basin Watershed Management					x
PU4.20. Hydrologic Improvements in Mermantau Basin at Highways 82 and 87				x	

B.3

Buffer areas for Master Plan Measures

In order to ensure that the impacts of proposed coastal activities close to the proposed location of a Master Plan measure are adequately taken account of, it is necessary to define the area around the proposed location within which an activity could potentially impact upon implementation of the measure. The way this is represented in the CUP GIS is through the definition of 'buffer' areas around a measure location.

The table below sets out the default buffers that have been incorporated into the first iteration of the Master Plan GIS. These buffers provide a generic potential impact area for each measure based upon its type and certainty rank. Where there is a lower certainty (i.e. higher rank) the buffer will be larger to reflect uncertainty in the final location of the measure.

Where a measure has a higher certainty the buffers used are consistent with those currently used in the CUP GIS for existing features (as these measures have a relatively well defined location).

Where there are multiple potential alignments for a measure (e.g. Rank 3 measures), all potential alignments will be mapped together with appropriate buffers on each.

These buffers are not intended to define the maximum or minimum area within which coastal activities will impact implementation of the measure, or the area over which the measure will exert an impact. Rather the buffers are intended provide a mechanism to identify the proximity of a proposed coastal activity to a Master Plan measure. Once that proximity has been established, it will then be necessary to review the activity and measure to determine whether there are any potential impacts.

Measure type	Status	Buffer size	Notes
Linear levee/floodwall alignment	1, 2	As existing CUP GIS (1,500 ft both sides)	Location known.
	3, 4	1 mile both sides	Buffer used to represent potential variation in location upon further design.
Lock; Floodgate	Determined by the levee with which they are associated.		
Pump Station	All	500ft	Few of these are included in the MP, and they are well defined. Buffer used to ensure proximity to station is identified by analyst.
Raise/Maintain	All	500ft on both sides	Buffer to accommodate potential

Measure type	Status	Buffer size	Notes
evacuation route			footprint increase if elevated. These buffers will need to be considered appropriately as some sections will not need elevating.
Barrier Islands	All	3,200 ft seaward and 1500 ft landward	Location of islands is known. The buffers are based on a typical barrier island restoration footprint, including marsh fill on the leeward side.
Ridge restoration	All	1,000ft, both sides of waterway	Location known.
Marsh Creation	All	None.	Measure definition already includes buffers as the full measure is somewhat conceptual.
Shoreline Stabilization (lakes, etc), and Navigation waterway stabilization	1,2	1,500 ft, both sides	Some critical erosion locations are well defined, eg sections of GIWW
	3,4	1,500ft both sides, plus 1 mile linear extension along shore at each end	Some stabilization measures are more conceptual with alongshore extent to be resolved.
Salinity control structure	All	500ft either direction along waterway	Limited areas within which these features can be located.
Freshwater management	All	None	Measure definition already includes buffers as the full measure is largely conceptual.
River diversions	1,2	Impact area (5 mile cone for >10,000cfs; 3 mile cone for <10,000cfs)	Structure location is known, but affected area will include the water/sediment recipient area – area determined by cfs of diversion. The 3 and 5 mile cones are used as a conservative estimate of the area over which diversion discharges will have a significant impact on hydrology.
	3,4	1 mile either side along river bank, plus impact area (as above)	Buffer along river to represent location uncertainty, plus the impact area.