



5.0 TENTATIVELY SELECTED PLAN (*NEPA REQUIRED)

The Tentatively Selected Plan (TSP) for the next phase of construction, is Alternative 3d. This alternative is to deepen the MRSC to a depth of 50 ft LWRP for the 3 crossings located within the footprint of the Port of South of Louisiana and a depth of 50 ft MLLW in the Lower Mississippi River from RM 13.4 AHP to RM 22 BHP. The 9 crossings located within the footprint of the Port of Baton Rouge would remain at 45 ft LWRP. Feasibility-level design will commence after the SMART Planning Agency Decision Milestone and will finish before a Final Report.

5.1 Description of TSP

The TSP would deepen the MRSC from the Gulf of Mexico, beginning at RM 22 BHP, and extending upriver to near Venice, ending at river mile 13.4 AHP. Currently, this reach is routinely dredged to a depth of 48 ft MLLW and, with implementation of the TSP, would be deepened to a depth of 50 ft MLLW. Construction of the channel in this reach to a depth of 50 ft MLLW would closely follow the existing channel alignment and is estimated to result in approximately 18 million cubic yards of dredge material that may be used for beneficial use, within the limits of the requirements of the Federal Standard, by disposing it in lands adjacent to the Mississippi River.

The TSP includes deepening three crossings, Fairview, Richbend, and Belmont, which are located within the footprint of the Port of South Louisiana. Currently, these three crossings are routinely dredged to a depth of 45 ft LWRP. Implementation of the TSP includes construction to deepen the three crossings to a depth of 50 ft LWRP. It is anticipated that deepening the crossings would not result in the need to change the existing alignment. The crossings are dredged in place, with the sediment released back into the river channel, so there is no beneficial use of the dredged material.

5.2 Hazardous, Toxic, and Radioactive Waste

The discharge of dredged material into waters of the United States is regulated under the Clean Water Act (CWA). In the absence of a known Hazardous, Toxic, and Radioactive Waste (HTRW) concern, the proposed action would not qualify for an HTRW investigation.

The USACE Engineer Regulation, ER 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) for Civil Works Projects, states that dredged material and sediments beneath navigable waters proposed for dredging qualify as HTRW only if they are within the boundaries of a site designated by the EPA or a state for a response action (either a removal or a remedial action) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or if they are a part of a National Priority List (NPL) site under CERCLA (NPL is also known as "Superfund").



Dredged material and sediments beneath the navigable waters proposed for dredging shall be tested and evaluated for their suitability for disposal in accordance with the appropriate guidelines and criteria adopted pursuant to Section 404 of the Clean Water Act and/or Section 103 of the Marine Protection Research and Sanctuaries Act (MPRSA) and supplemented by the Corps of Engineers Management Strategy for Disposal of Dredged Material: Containment Testing and Controls (or its appropriate updated version) as cited in Title 33 Code of Federal Regulations, Section 336.1.

The proposed dredge material disposal areas have historically been associated with oil and gas exploration. A review of state and national environmental and natural resources databases revealed the presence of numerous active, inactive, plugged and abandoned oil and gas wells, injection wells, and oil and gas pipelines within the proposed project area. Although they are not considered to be HTRW concerns, they are considered to be Recognized Environmental Conditions that shall be avoided during construction.

Dredge slurry was collected directly from the discharge lines of dustpan dredges performing maintenance on all maintained Deep Draft Crossings during Fiscal Year 2016. The solid and liquid fractions of the slurry were analyzed individually for the presence of EPA priority pollutants including metals, pesticides, PCBs, and semi-volatile organic compounds. Metals were common to both fractions, and were detected at or below background levels in the Mississippi River. Chlordane pesticides and hydrocarbon exhaust products were detected infrequently in the solid samples, but at levels generally at or below 1 part per billion. All contaminant detects in dredge slurry were below regulatory water quality criteria and ecological screening values, and dredging of the crossings is not expected to have a negative impact on human health or the environment.

Based upon a review of the NPL, CERCLA, and environmental databases, contaminant sampling data, the probability of encountering HTRW in connection with this project is low. No portion of the project area proposed for dredging and disposal is included in the NPL. The proposed construction and beneficial use-disposal action does not qualify for further HTRW investigation.

5.3 Real Estate Requirements Associated with the TSP

A Real Estate Plan (REP) describing the real estate requirements and costs for the project can be found in Appendix C.

The current evaluation has determined that construction of the alternatives beyond 48 ft in the Lower Mississippi River reach of the project (RM 13.4 AHP to RM 22 BHP) will potentially require the acquisition of additional dredged material placement areas, either through exercise of the Federal navigation servitude or, if necessary, by the acquisition of a real property interest in privately owned lands. In addition, some portion may be located on lands under the jurisdiction of the LDWF or of the USFWS. If additional dredged material placement areas and/or access areas



are determined to be necessary for construction, the Government intends to maximize use of the Federal navigation servitude, to the extent practicable and in keeping with project needs, for the additional dredged material placement and access requirements for the project. For purposes of selecting the TSP, we have selected several broad areas, as shown in Figure 5-1, that would be examined during the feasibility design phase to identify discrete areas that would be suitable for consideration as dredged material placement areas and/or as access to those areas if such additional areas are needed for project construction. The area identified as “Original Cleared Disposal Area” is 143,264 acres, the proposed expansion area adds an additional 24,054 acres for a combined total of 167,318 acres, shown as the total area with the “Proposed Expanded Disposal Area.” (Figure 5-1).



Figure 5-1 Potential Dredge Disposal Area

Much of this broad area is situated within the lands that are available to the Government under the Federal navigation servitude. However, it appears, preliminarily, that some portion of the area may lie outside of the limits of the navigation servitude. It is possible that portions of the lands that lie



outside of the limits of the Federal navigation servitude are privately owned. If additional dredged material placement or access areas are needed that include those privately owned lands that lie outside of the Federal navigation servitude, the Government may require the non-Federal sponsor to acquire an interest in real property for that purpose over those lands. The determination of whether such additional lands are required for project construction of the TSP will not be made until the final feasibility design phase. If such lands are determined to be necessary, the Government intends, during that phase, to also identify the extent of the Federal navigation servitude as it relates to the additional areas for dredged material placement and access.

Final determination of the privately owned lands that lie outside of the Federal navigation servitude and that will be acquired for construction of the project will not take place until final project design is complete. However, for purposes of this report, the Government has estimated \$2.5M for the land and administration costs associated with acquisition of a temporary work area easement over privately owned lands in order to ensure an appropriate estimate of the cost of construction for the TSP, to inform the public of the potential for the acquisition of additional interests in real property, and to estimate the maximum environmental impact. In the subsequent phase of feasibility design, further refinement of construction and thereby dredged material placement and access requirements will be determined, and more precise dredged material placement and access needs will be available. In so doing, the Government will seek to minimize the acquisition of privately owned properties, and to maximize the exercise of the Federal navigation servitude. And finally, if it is determined during final feasibility that additional dredged material placement areas and access are required for the operation and maintenance of the project, the areas necessary to fulfill that requirement will be identified in terms of availability under the Federal navigation servitude and/or as requiring acquisition of an interest in real property, with preference being given to those lands available within the navigation servitude, to the extent practicable and in keeping with the needs of the project. Such a determination would also address the interest in real property that would be required to serve the OMRR&R needs of the project, the estimated land and administrative costs of such acquisition and the environmental impacts associated with the additional dredged material placement.

If a determination is made to acquire dredge material placement and access real estate interest, it does not appear that this project will displace residential, commercial, industrial, or habitable structures within the project boundaries; therefore, the provisions under Title II of Public Law 91-646, as amended, are not applicable.

5.4 Relocations with the TSP

The relocations for project may consist of relocating pipelines and submarine cables crossing the river at locations that require dredging to achieve the depth of 50 ft for the TSP.



The 1985 Project Authority authorized the channel to a depth of 55 ft. At the time of construction of Phase 1 and Phase 2, impacted utilities would have been relocated to a depth greater than 55 ft. Subsequent to the 1985 authority, permit applications for new utility crossings would have required utilities to be placed at a depth greater than 55 ft, to allow for the future construction of the authorized project. Preliminary research suggests approximately 50 to 70 pipelines may be located within the dredging areas along the Mississippi River. Relocation data for these utilities was collected, tabulated and detailed in the Engineering Appendix C. At this time, it is unknown how many, if any, of these pipelines would require relocation as part of any alternatives under evaluation in this GRR..

The total project costs include \$40,000,000 as an estimated relocations cost to avoid underestimating total project cost. These relocation costs will be further refined to reflect utilities identified for relocation through further coordination with owners and feasibility design in the subsequent phase of the study. , In accordance with memorandum from the Director of Real Estate dated January 10, 2013 SUBJECT: “Real Estate Policy Guidance Letter No. 31 – Real Estate Support to Civil Works Planning Paradigm (3x3x3)”, a compensability determination, in the form of a preliminary attorney’s opinion of compensability, will be performed if the estimated relocation costs exceed 30% of the estimated total project cost. If the estimated total relocation costs do not exceed 30% of the estimated total project cost, the real estate assessment will address compensability.

5.5 OMRR&R Associated with the TSP

Information on the quantities and cost associated with OMRR&R for the TSP can be found in the Engineering Appendix, Appendix C. Comparison of alternatives and selection of the TSP used the incremental difference in OMRR&R cost from the current practices to anticipated requirements once the TSP is implemented.

Hydraulic model results indicated that there was no increase in the annual dredge quantities for the lower portion of the Mississippi from Venice, river mile 13.4 AHP, to the Gulf Mexico at river mile 22 BHP. Additionally, although the lower Mississippi River includes training works such as foreshore rock, jetties, and pile dikes, which must be maintained, the requirement to maintain these does not differ between each of the alternatives. Therefore, the incremental difference in operation and maintenance occurs only from the increase in estimated annual dredge quantities in the crossings.

With the TSP, the three crossings located within the Port of South Louisiana would be constructed and subsequently maintained to a depth of 50 ft MLLW. The three crossings Fairview, Belmont, and Richbend, are estimated to result in approximately 5 million cubic yards of dredge material



annually. This is an increase of 3.1 million cubic yards when compared to the current dredge quantities for the existing depth of 45 ft.

Table 5-1 provides the estimated annual dredge quantities for each of the crossings, and the Engineering Appendix (Appendix C) provides a detailed assessment of the modeling and assumptions used to determine the increase in annual dredge quantities. For all crossings, it is projected that O&M dredging would be accomplished via contract and Government operated dustpan dredges, with the material dredged from the crossings disposed of adjacent to the crossings and put back into the system for the material to be carried downstream and to fallout into deeper holes within the river.

It should be noted that although table 5-1 indicates 0 CY of annual dredge material for Fairview crossing, it is anticipated that this crossing will require dredging during construction to provide the 50 ft channel depth. It is not anticipated at this time that regular annual maintenance of the Fairview crossing will be required during the period of analysis.

Table 5-1 Increase in Annual Dredge Quantities for TSP

Crossing Sites	Average annual quantities for 50ft (CY)	Average annual quantities for 45ft (CY)	Increase in average annual quantities (CY)
RichbBend	1,046,694.00	15,041.00	1,031,653.00
Belmont	4,039,445.00	1,949,741.00	2,089,704.00
Fairview	0	0	0.00
Total	5,086,139.00	1,964,782.00	3,121,357.00

5.6 Benefit Analysis Associated with the TSP

The greatest net benefits would be achieved by implementing Alternative 3d.

Calculated at the FY17 Federal discount rate of 2.875 percent, total average annual costs would be \$21,650,806 and total average annual benefits are \$118,436,481. Total average annual benefits, minus total average annual costs, equals the average annual net benefits of the project. The TSP would have, average annual net benefits of \$96,785,675 and the benefit-to-cost ratio would be 5.47 to 1.0 (Table 5-2).

Table 5-2 Benefits and Cost Summary for TSP

Total Project Construction Cost	\$ 88,971,120
Interest During Construction	\$ 3,910,948
Total Investment Cost	\$ 92,882,068



Interest and Amortization of Initial Investment	\$ 3,524,697
Average Annual Incremental OMRR&R	\$ 18,126,110
Total Average Annual Cost	\$ 21,650,806
Total Average Annual Benefits	\$ 118,436,481
Net Annual Benefits	\$ 96,785,675
Benefit Cost Ratio	5.47

5.7 Risk and Uncertainty Associated with the TSP

Risk and uncertainty are intrinsic in water resources planning and design. This section describes various categories of risk and uncertainty pertinent to the study. Risk and uncertainty will be further considered during feasibility-level design and analysis.

5.7.1 Environmental Factors

Relative Sea Level Rise: There is uncertainty about how much sea level change (SLC) would occur in the region. The magnitude of sea level rise could have impacts on shoaling rates and safety in the navigation channel, particularly in the region of from Venice to the Gulf of Mexico (river mile 13.4 AHP to river mile 22 BHP).

As relative sea level rises, the slope of the river will decrease. This could increase the aggradation of the natural channel in the lower delta. In addition, with higher sea levels, flows could be lost to the bays. Currently, large amounts of flows are lost in the lower delta south of Pointe a la Hache. This condition would likely get worse in the future without closing off the large openings.

Saltwater Intrusion:

Deepening of the channel could have impacts on the frequency and location of the salt-water sill that occurs in the deep draft channel. Comparison of alternatives initially considered the frequency of implementation of the sill for salt-water intrusion impact. However, the evaluation determined that there would be limited, if any, change in the frequency of construction of the sill for all of the alternatives. The evaluation determined that historically through the process of using localized reference gages, as described in chapter 3, the channel has been deepened from a depth of 45 ft. to a depth 48 ft, without an apparent change in the frequency of the construction of the sill. Since the construction of Phase I the frequency of construction of the sill has not changed. The frequency of enacting the sill is still on a 10 yr. basis.

The USACE will continue to investigate salt water intrusion with additional modeling under feasibility design, but there is no risk to plan selection since all alternatives considered in the final array and optimization include an action of deepening the lower Mississippi from RM 22 BHP to RM 13.4 AHP from a 48 ft depth to a 50 ft depth. The mitigation plan as outlined in the 1983



Chief's Report, and as implemented in accordance with General Design Memorandum No. 1 supplement No. 6, if constructed, operated, and maintained as planned is adequate for all alternatives considered in this GRR. Therefore, this report does not presently provide for alternative mitigation measures. If the sponsor does not perform OMRR&R as required, the sponsor may choose alternative methods of potable water delivery at its own cost.

The TSP will be evaluated using a 3D model in order to determine the project's impact on salinity intrusion and shoaling. The 3D model will consider the impact of sea level rise and will focus on validating prior salinity intrusion evaluations and verify the increase in probability or frequency at which mitigation would be needed.

5.7.2 Engineering Factors

Hydraulic Modeling: As part of the analysis of proposed channel deepening in the Mississippi River, the AdH model (coupled to SEDLIB) that was developed for the Mississippi Hydrodynamic and Delta Management Study is being applied to address the potential dredging impacts associated with channel deepening in the Mississippi River below Baton Rouge. Selection of the TSP considered the sedimentation requirements for dredging based on results of a 1D model and historical dredge quantities. The risk of using the 1D model is that it does not consider the spatial distribution of the dredge quantities within the crossing. Further, the 1D model did not provide consistent results for some of the crossings when compared to the historical dredge quantities; therefore, a dredging index was applied to recent historical quantities to determine the anticipated increase in annual O&M dredging associated with a deeper channel.

A 2D model was used to address the effects of spatial heterogeneity on dredging requirements in the crossings. For example, if dredging in a particular crossing is a result of the encroachment of a point bar in to the dredge cut, rather than the (more) uniform filling of the cut by pure deposition, this non-uniform filling could alter the effect of deepening on the dredging requirements.

The results of the 2D and 3D model will be used in feasibility level design of the TSP, and may have impacts on the final selected plan.

Design of the Crossings: Selection of the TSP did not consider the use of training works such as "soft" dikes in the crossings. Further, it did not consider if there is a need to shift the crossings upriver or down river from the current location, or to change the length or alignment of the existing crossings.

Soft dikes are constructed with sand-filled geotextile material and may be beneficial in reducing long term OMRR&R cost. Soft dikes currently exist in the Redeye and Medora crossings, and may be considered for implementation in other crossings. A review of using dikes to reduce long-term



OMRR&R costs will be conducted on the TSP during the final feasibility design phase. There is uncertainty regarding whether or not there will be a perceptible difference using dikes. At each location, and at each depth, the upfront construction cost would have to be compared to long-term OMRR&R savings to determine if it is cost effective to include the dikes.

Preliminary Engineering Assessments of the crossings indicates there would not be a need to shift the crossings from their current alignments or lengths due to deepening. This will be investigated further in feasibility level design of the TSP.

5.8 Implementation Requirements

5.8.1 Preconstruction Engineering and Design

Cost for detailed design of the project will be shared between LaDOTD and USACE. All detailed design will be in accordance with USACE's regulations and standards.

5.8.1 Construction and LERRD

Construction would be in accordance with USACE's regulations and standards. Lands, easements, right-of-ways, relocations, and disposal areas (LERRD) would be the responsibility of the NFS (Appendix C).

5.8.2 Cost Sharing

The LaDOTD is the non-Federal NFS for the feasibility study. The cost-share during the feasibility phase is 50% Federal and 50% non-Federal. The cost share for construction of the project will be 50% Federal and 50% non-Federal. The NFS must provide all project LERRD required for the project. OMRR&R of the project would be a 100% Federal responsibility up to a depth of 50 ft. The reference to the 50 ft depth does not include advance maintenance and over depth. As of WRDA 1992 this depth is defined to MLLW in the reach described in this report as the Lower Mississippi River reach and in reference to the LWRP in the crossings within the Port of South Louisiana. A full description of the non-Federal and Federal responsibilities after the feasibility phase of the project is contained in Chapter 8 of this report.

5.9 Mitigation Plan & Adaptive Management & Monitoring (AM&M)

Dredge disposal of material associated with construction will be placed to the maximum extent practicable in lands and waters within the navigational servitude. There will be impacts to shallow open water and water bottoms and a level of reduction in ecological value of the existing condition. However, the end state of dredge disposal is a net increase of ecological benefits that far exceed those impacted by the disposal (refer to WVA located in Appendix A-7). The total benefits of the



emergent marsh provide net positive contributions to a large component of the ecosystem, and as described in Chapter 4, mitigation is not required.

The purpose of adaptive management is to insure performance of restoration plans in order to insure the benefits endure throughout the period of analysis and that the investment is secure. Since ecosystem restoration is not a purpose of the project there is no adaptive management for this component of the plan. Further, if the placed material subsides or erodes and loses the estimated ecological benefits, the end state would be to reestablish water bottoms returning the system to the pre-project condition.

5.10 Views of the Non-Federal Sponsor

The NFS, LaDOTD, supports and recognizes the importance of the deep draft navigation project for the Mississippi River Ship Channel. Their statement of intent provided verbally during the TSP milestone and subsequently provided in writing is as follows:

“While the Louisiana Department of Transportation and Development, as the non-federal sponsor of the Mississippi River Ship Channel, supports the next phase of the federal plan to deepen the Mississippi River Ship Channel to 50 feet through the Port of South Louisiana, the Department is surprised that the expectations, from a national benefits perspective, of going to Baton Rouge is not included in this phase.

The Department gives its support, provided that the Corps continue to validate through an IEPR, the data relative to benefits and cost for continuing the channel at 50 feet through Baton Rouge. This would include a facility by facility analysis of current and future needs for a channel to 50 feet.

The Department would like the Corps to include in its specific charges [of the IEPR] going through the Port of Baton Rouge at 50 feet in the next phase.

The Department would like the Corps to cite and include in its Tentative Selected Plan Report the total national benefits/costs figures from recognized economist studies as mentioned on slide 19 [of the TSP milestone presentation], which reads: ‘Although not reflected in this analysis, there are real and tangible benefits to be gained.’

The Department would like to have included in the TSP a brief explanation as to why the cost of dredging annual accumulation of sediment from 50



feet is significantly more than dredging the same amount of annual accumulation of sediment from the current 45 feet.

With these stipulations the Department supports moving forward with the IEPR process for the TSP.”

While LaDOTD indicated support for the TSP they also displayed hesitation in the ultimate implementation of a plan that does not include the Port of Baton Rouge. To that concern, they have requested further analysis of the potential to extend construction through the Port of Rouge. In response to this statement, MVN is committed to continue working with LaDOTD throughout public review of the draft report, Agency Technical Review (ATR), and Independent External Peer Review (IEPR) to continue evaluation of study data and to confirm the feasibility of the TSP. Those efforts will determine whether deepening to 50 ft beyond Port of Louisiana is justified as the NED plan. If further economic analysis is deemed warranted the FCSA would require amendment to include additional alternative analysis and funding. If a new analysis is deemed appropriate a second draft public review would be required.