



TECHSUMMARY *February 2021*

State Project No. DOTLT1000160 / LTRC Project No. 17-4SS

Dredging Louisiana's Navigable Waterways – A Statewide Systematic Approach to Meeting Dredging Needs

INTRODUCTION

The United States Army Corps of Engineers (USACE) is the primary responsible party for maintenance of the navigable channels to the authorized dimensions. Beginning in 2013, it became apparent that the USACE lacks the adequate financial resources to continue the proper maintenance of this mission at critical levels. The resultant lack of dredging has increased the threat to the commercial viability of Louisiana's waterways and has led to a decrease in commercial tonnage moving along the waterways. The indirect and induced loss of business to deep water, coastal, and inland ports and industry in the respective hinterlands has become more evident as the rate of federal funding has declined. The reduction in tonnage adversely affects Louisiana's ability to successfully compete for already limited federal funds for maintenance of authorized waterways. Additionally, anecdotal evidence suggests that the reduction in dredging has had an adverse effect on traffic conditions and highway infrastructure as the result of increased truck traffic on the highways.

The reduction in maintenance of navigable waterways is not unique to Louisiana. This situation has become a pressing issue for many navigable waterways within the United States. While many studies have been conducted to address this issue, clearly defined and acceptable solutions have yet to be identified, much less implemented. Nonetheless, techniques have been recently attempted in many parts of the country to address this ongoing situation. Attempted solutions include policy considerations, modernized dredging techniques, value engineering, and alternative funding opportunities.

Ports and navigable waterways require continuous maintenance to maintain authorized dimensions and must compete with limited funding from state and federal sources to sustain commerce. In addition, changing maritime trends require additional funds to deepen channels and accommodate modern vessels that will sustain Louisiana's economic future. Currently, shoaled channels have resulted from lack of maintenance and have forced ports to limit the draft of entering vessels, thus decreasing the gross tonnage and constraining economic viability. In many cases, waterborne commerce has been inhibited and transferred to alternative waterways, highways, and/or rail.

Ports cannot sustain commerce and commercial viability without maintaining channels. However, the funding appropriation for maintenance is based on certain priorities, which includes gross cargo tonnage. Lack of maintenance and the proportionate reduction in revenues have become part of a degrading cycle that impacts ports that compete among themselves for needed maintenance funds. An emerging trend nationally suggests that state and local funding is being secured to sustain navigable waterways as a means to compensate for the reduction in federal funding.

LTRC Report 602

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OBJECTIVE

The objectives for this research project were as follows:

- To investigate impacts that insufficient dredging has on commerce, ports, waterways, and supporting infrastructure
- To investigate and recommend possible alternatives to complement current dredging activities and funding opportunities

SCOPE

A thorough literature review was conducted focusing on recent trends in reduced dredging on specific waterways and the resultant local and regional economic impacts. Several dredging technologies and/or alternative engineering solutions were identified that have been developed or are being developed to improve the efficiency of dredging. This review also included the identification of relevant approaches by other states and public entities that may be applicable in Louisiana. In addition, the team identified data relative to the maintenance of navigable waterways within the state such as: historical dredging costs and quantities, waterway frameworks, jurisdictional boundaries, etc. Information was also compiled that addresses legal and policy issues relative to potential conflicts of interest within the dredging industry and incorporates innovative methods of contracting dredging operations to reduce costs.

METHODOLOGY

The team evaluated innovative technologies in the U.S., as well as other countries, that could be beneficial within Louisiana's waterways. Data was collected from multiple stakeholders within the dredging industry, which included USACE, Navigation Data Center, Coastal Protection and Restoration Authority (CPRA), Louisiana Department of Transportation and Development (DOTD), industry publications, and public information centers. Utilizing the ArcGIS API for JavaScript, the data collected was mapped and tabulated. Mapped data is provided separately from this report; whereas, tabulated data is provided herein. In addition, funding strategies and legislative incentives were analyzed to ascertain the most feasible channel to obtain the requisite funds to implement the technologies. A case study was performed on the Ouachita-Black Navigation Project and the Houma Navigation Canal to assess the economic impacts due to the lack of dredging and the benefits of applying innovative technologies to supplement the traditional maintenance activities performed within the region.

RECOMMENDATIONS

The Ouachita-Black Rivers and HNC were analyzed for applicability of innovative technologies described herein. Additionally, the resulting economic impacts of decreased tonnage on these two waterways were evaluated. As a result, the team has developed a recommended path forward for the development of a GIS platform that would serve as a tool to allow for similar analyses to all waterways within Louisiana. The tool would allow interested parties to collaboratively increase the efficiency of dredging projects within the state while also increasing the benefits. Therefore, the tool would directly implement recommendations of Senate Resolution No. 220.

To implement a successful joint project utilizing multiple funding sources, missions, and objectives within the Ouachita-Black Rivers or HNC, local, state, and federal projects need to be accurately mapped and coordinated. Once all projects are identified, current and historical information for all identified projects will need to be compiled and analyzed in a collaborative effort to evaluate project goals, schedules, and constraints. The data identified above in this report will allow the stakeholders to identify jurisdictional and project boundaries, dredge area reaches and volumes, available placement areas, potential pipeline corridors, potential obstructions, sediment types and quantities, and adjacent restoration projects. The identification and mapping of the categories mentioned above will allow local, state, and federal stakeholders to collaborate and align state-funded projects with USACE dredge maintenance funding and to develop a schedule to pair projects for beneficial use of dredge material. After the data is accurately identified and quantified, an engineering evaluation of available technologies and the economic impact of alternative technologies and methodologies can be completed. The economic impact assessment will determine the most cost effective and feasible technology as well as the increase in commerce and revenue generated by coupling the projects. This assessment will provide justification for project costs as compared to the completion of individual projects utilizing traditional technologies. At the completion of the design process, an agreement or memorandum of understanding can be executed between the stakeholders to schedule, coordinate, and complete projects simultaneously utilizing multiple funding sources while maintaining project specific objectives and mission statements.