

**Final Report to the Lake Pontchartrain and Vicinity  
Hurricane Protection  
Decision Chronology Team**

**On**

**Local Sponsor Considerations &  
Roles in Decision Making**

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**To the**

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Institute for Water Resources**

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## **I. INTRODUCTION**

### **A. HPDC Charter, Local Sponsor Considerations**

To examine organizational and jurisdictional issues that impacted decision-making for the Lake Pontchartrain & Vicinity Hurricane Protection Project (LP&VHPP), the U.S. Army Corps of Engineers (USACE) Institute for Water Resources (IWR) commissioned the Hurricane Protection Decision Chronology (HPDC) Study. It assigned the study to the Hurricane Protection Decision Chronology Team (HPDCT) with the task to document and characterize the record of planning, economic, policy, legislative, institutional and financial decisions that influenced the design, scale, configuration and condition of the LP&VHPP that was in place on the date of Hurricane Katrina. Within the context of the HPDC task, a review of local sponsor considerations related to the local sponsor role in the project decision making was undertaken. This report provides the results of the review of local sponsor considerations and roles in decision making for the LP&VHPP.

### **B. Methodology for Review of Local Sponsors Considerations**

This work was organized into three phases. The first involved in-person interviews with key local sponsor representatives in New Orleans during the period of May 23, 2006, to May 27, 2006. Eight individuals representing a wide spectrum of LP&VHPP experience, history and responsibility were interviewed at length by Doug Woolley of the HPDCT, Scott Tucker and Doug Harrison on May 24-25, 2006.

Others were interviewed by telephone in the days following May 27, 2006.<sup>(67)</sup> In addition, some of those interviewed in person were contacted by phone for follow-up questions. The cooperation and assistance of these individuals is greatly appreciated and acknowledged by the authors as essential to the value of this report. However, consistent with the practice in the overall report, no comments or specific statements are attributed to individuals.

The second phase of the study involved the review of key records and documents integral to the LP&VHPP, the federal/local sponsor relationship, and the decision events which marked the project's progress. These documents included, among other items, the record of Local Contracts of Assurances (LCA), reports, public meetings and hearings, legislative actions, financing actions and appropriations, correspondence, agency meeting minutes, and news media publications. Documents were acquired from several sources, including some of the interviewed individuals and their organizations.

The final phase of the study involved the review and evaluation of the information received and the preparation of this report by Mssrs. Tucker and Harrison. Three draft reports were submitted for comment by the HPDCT and then a final report was filed.

### **C. Limitations**

Planning and implementation of the LP&VHPP has spanned fifty-one years since the project studies were authorized in 1955 <sup>(4)</sup>. Key decision events occurred in the 1950's, 1960's, 1970's, 1980's, 1990's, and 2000's. Many of the individuals who could provide



clarifying insight into the factors driving these decision events are no longer available. Many of those still available were dislocated by Hurricane Katrina, or were otherwise unavailable during the period allocated by USACE for this study. Given the passage of time recollections of events are difficult. For this reason this report, as with the HPDCT report, relies to the maximum extent possible on written documentation to construct decision chronologies and to develop an understanding of the context in which key project decisions were made.

USACE and local sponsor archives were productive in having available helpful documents. However, many key documents were not available. Hurricane Katrina damage impacted many, others were simply too old to be retrievable. Records that may have proved useful were lost for different reasons over the 50 year period.

The inability to speak with many local officials with important linkages to the LP&VHPP, the inability to access many important documents, and the limited time available to complete this report constitute important limitations. Nonetheless, the authors believe the the report does provide important insights into the LP&VHPP decisions and the federal/local project relationship, leading to the status of the project as it existed on August 29, 2005.

## II. OVERVIEW

After the Water Resource Development Act (WRDA) of 1986<sup>(103)</sup> increased local cost sharing responsibility for federal water projects in a significant way, it became increasingly necessary for the federal/local project partnership to deliver a project the local interests have determined they want and are willing to pay for; and, which the federal interest has determined to be consistent with federal objectives, law, policy, and for which the federal government is willing to pay.

The measure of success of the effort is whether such a project is delivered. In the case of LP&VHPP the answer, as of August 29, 2005, was “no”. In fact, as late as October, 1990, there was uncertainty as to what the project was to be.<sup>(8)</sup> The fault does not all rest with the project partnership process, but a good process greatly improves the probability of a good outcome. In the case of the LP&VHPP, the needed project was not delivered, and the process must be seen as a key part of the reason.

The LP&VHPP was a forerunner of the post-1986 process because PL85-500 (1958) required that certain non-federal interests provide 30% of all project construction costs.<sup>(104)</sup> The development of such a federal local partnership, with these kinds of cost obligations, was a new experiment in 1958. This report describes how that federal/local partnership operated over the years for the LP&VHPP.

## **A. The Decision Arena**

A review of the pattern, characteristics and decisions made for a federal/local protection project must begin with an understanding of the arena in which such decisions are made. While the Corps' post-1986 terminology and project management focus is to consider the project initiative a "partnership", there clearly remain two independent sets of decision makers. This was especially the case in the early years of LP&VHPP planning and implementation. One is the family of federal executive, legislative and judicial branch entities with project related planning and implementation authority, the other the array of local agencies and interests bearing project cost sharing, acquisition of right-of-way, operation, maintenance and ownership responsibilities and who realize the direct project benefits or impacts.

Within each family of "decision makers" is an assembly of decision influencers. While the Corps may be the official federal project authority, the Office of Management and Budget, other federal agencies (ie. the Fish and Wildlife Service and Environmental Protection Agency) and the Congress shape the scope and range of the Corps' project decisions. Some of the decisions issues observed over the life of the LP&VHPP arose from this arena of influence on the project decision process. The description of those decisions is the task of the HPDCT.

The focus of this report is on decisions made at the local sponsor level and how these manifested themselves. The local executor of the Local Contract of Assurances (LCA), now termed the Project Cooperation Agreement (PCA), is the formal non-federal

decision maker. This non-federal “decision maker” often is comprised of multiple entities connected by revenue/cost sharing agreements, facilities and systems operating relationships, public (people) and real property interest relationships. Some of the decision issues observed over the life of the LP&VHPP arose from this arena of influence on the project decision process.

The arena in which the decision process functions is shaped by three major forces. These are political forces, technical forces and financial forces.

Political forces reflect and magnify the perceived need for the project and the opposition to it. The political response to the perceived value of the project is the granting, or withholding of the right to proceed and to raise and expend money. While the political component is rarely totally manageable, a project’s decision process must actively address this part of the decision arena. Some of the decision issues observed over the life of the LP&VHPP arose from this area of influence on the project decision process.

Technical forces involve the factors inherent in project formulation, construction and operation. They include the design event, project features, design and construction standards and methods, and operations and maintenance. They also include the project’s interface with existing or planned local infrastructure. There is a need to unify the decision makers on the technical issues, lest there be disputes that manifest themselves within the political and financial elements of the decision process. Some of the decision issues observed over the life of the LP&VHPP were made based on

different understandings between federal and non-federal decision makers on technical matters.

The third major influence in the project decision arena is that of finance. While financial considerations relate to both the federal and non-federal interests, the interest of this report is on how the financial considerations impact the decisions of the non-federal sponsors of the LP&VHPP. How much will the project cost? Who is going to pay; how much? What do we get for what we pay? Where do we get the money? When do we need the money? How can we manage costs? What work is creditable to the non-federal cost share? Each of these questions is significant to both the federal and non-federal project sponsors and influenced project related decisions.

Failure of either the federal or non-federal sponsor to secure the needed budget resources on a timely basis adversely impacts the other project parties, project progress, and adds pressure to the project decision process. That pressure can be manifested within the technical factors and within the political influences. Some of the decision issues observed over the life of the LP&VHPP arose within this arena of influence on the project decision process.

## **B. LP&VHPP Authorization, Formulation, and Post Authorization Changes**

The entity now known as the LP&VHPP existed in varying stages of interest, authorization, modification and construction since 1950.<sup>(30)</sup> It has evolved through major authorization and design

events and has been under construction continuously since 1966, see page 30. As of May, 2005, the project's estimated completion date was 2015 and its construction status was:

Orleans Parish	90%
Jefferson Parish	70%
Chalmette	90%
St. Charles Parish	60% <sup>(51)</sup>

Three public hearings were conducted by the Corps in March, 1956, to receive input on the 1955 hurricane study authorized by Congress. Those hearings produced little substantive comment. <sup>(68)</sup> However, between the first authorization of the hurricane project investigation (1955) and May, 1961, the Barrier Plan concept had evolved and a model was developed and demonstrated to local officials. <sup>(42)</sup> Other evidence indicating an active local role in the 1955-1961 project feasibility and formulation work was not found.

The evidence available indicates that from 1961 until action by the U.S. District Court in 1977 enjoining further construction (pending a revised Environmental Impact Statement), the Barrier Plan concept was supported and actively pursued by the Corps, the State and the local community, St. Tammany Parish excepted. The Court's injunction, however, was a concluding event in a growing volume of project opposition which generally began in earnest in 1971.

That opposition, originating first as a navigation/commerce issue <sup>(40) (41)</sup>, soon expanded to become a pre-eminent environmental impact issue. Interestingly, the August 31, 1976, Report to the

Congress by the Comptroller General <sup>(2)</sup> commented on the significance of the project's opposition. The report noted, "General support of all local groups has not been obtained". The report also stated, "If local support is not obtained, construction of key project elements may not be completed and hurricane induced surges and waves may not be prevented from entering Lake Pontchartrain".

The Corps' inability to develop a satisfactory cost-effective mitigated design for the barrier plan forced the move to the High Level Plan by 1981 <sup>(10)</sup>, in spite of concerns dating to the 1962 Interim Survey Report <sup>(7)</sup> of poor foundation conditions and more difficult construction.

That the Corps had not achieved full concurrence of the local sponsors on the Barrier Plan was noted in the 1982 Report to the Secretary of the Army by the General Accounting Office. <sup>(3)</sup> The Report stated, "[local sponsors] have not always agreed with the Corps' construction priorities and were occasionally reluctant to provide the specific rights-of-way requested by the Corps".

An indication of why the Corps and local sponsors might not be in unity on project details is also found in the 1982 GAO Report. In outlining their project strategy to address the GAO recommendations, the Corps New Orleans District responders said, "...when a plan is adopted by the Corps. . . meetings with local sponsors are planned to get their concurrence on their respective cost shares".

It appears to the authors that it was the Corps' practice to consult the local sponsors after the project decisions were made, and then primarily for financial support. Additional evidence of this

approach is presented in Section II, E, Guiding Forces and Parameters.

It is not concluded, however, that the Corps was insensitive to local input. During the course of the project's planning and implementation a number of design modifications were considered and/or made in response to local input. These included, among others, the enlargement of the Chalmette levee protected area <sup>(2)</sup>, the enlargement of the barrier unit structures <sup>(47)</sup> and modification of the Seabrook unit <sup>(2)</sup> <sup>(37)</sup>, relocation of the Chef Menteur complex <sup>(2)</sup>, realignment of the St. Charles Parish levee <sup>(38)</sup>, the use of flood walls instead of heightened levees <sup>(69)</sup>, the location of the planned butterfly gate structures in the drainage canals <sup>(53)</sup>, and the rejection of a proposed modification of the LP&VHPP with a floating gate system <sup>(70)</sup>.

Of paramount interest, however, is a) the change not sought by the local sponsors to shift from the Barrier Plan to the High Level Plan,<sup>(10)</sup> <sup>(38)</sup> and b) the change that was sought by the Orleans Levee District as a local sponsor, but denied by the Corps, for cost shared parallel protection on the drainage canals.<sup>(3)</sup> <sup>(43)</sup>

Following Hurricane Betsy in 1965, but as a formal matter in the project's reformulation to the High Level Plan through the 1984 Reevaluation Study, the project's treatment of the drainage canals became an issue requiring a federal/local negotiated resolution. The federal proposal to gate the canals with flow activated butterfly valves left the local community concerned over the inability to pump hurricane induced stormwater out of the City. Over the next six year period little progress was made in resolving the issue, the Corps



determining any improvement to the canals south of the gates to be a betterment and 100% local cost. (43)(53)

This design issue was resolved when a local sponsor secured without Corps consent Congressional approval of parallel levees for the canals, with federal cost sharing.(48) However, in November 1991 the USACE New Orleans District Commander declared his intent to remove design authority granted by Congress to the local sponsor. (45) Subsequently, in late 1992 and early 1993, he initiated an effort to have removed from all Corps project design work, the local sponsor's consulting engineer who helped secure the favorable Congressional action. (45) Evidence of lingering acrimony between the Corps and local sponsor during the early 1990's has been suggested by more than one observer. (48)

Following the Congressional action in WRDA 1990, authorizing the parallel levees on the drainage canals, project formulation has not changed and construction moved forward.

## **C. The Evolution of the Local Sponsor Role:**

### **1. LCA's and Contractual Relationships**

Federally sponsored local protection projects require, pursuant to various congressional mandates, non-federal participation. That participation includes the sharing in project costs up to a determined maximum, which is accomplished by providing the project's lands, easements, rights-of-way, relocations and construction cash.(61) (64)

PL85-500 (1958)<sup>(104)</sup> required that projects like the LP&VHPP include a 30% cost share which included project lands, easements, rights of way, relocation, and construction cash.

Also, the 1965 authorization of the LP&VHPP required that the LCAs specify that after construction, the non-federal interest will assume all operations, maintenance and repair responsibilities which is accomplished pursuant to Corps regulations.<sup>(61)(64)</sup> Projects can generally proceed to the point of construction start without a signed LCA in place. However, because of the urgency created by Hurricane Betsy, construction by the Corps and local agencies was accelerated while the LCA'S were being pursued. <sup>(33) (57) (62)</sup>

The acceptability of a particular non-federal interest as a local sponsor is determined by USACE. In general, the potential local sponsor must demonstrate the fiscal capability to meet the project's construction, operations, maintenance and financial obligations; and, have the legal authority to carry out the requisite LCA duties. Three LCA's signed by the State for St. Tammany Parish and one signed for Pontchartrain Levee District were not approved by the Corps. <sup>(38)</sup>

Because of the location of the project's proposed features, St. Tammany, St. Bernard, Orleans, Jefferson and St. Charles Parishes, and/or Lake Borgne Basin Levee District, Orleans Levee District and Pontchartrain Levee District, and/or the State of Louisiana could have been local sponsors. Between July, 1966, and February, 1997, a total of 30 LCA's and related agreements or designations had been executed among seven non-federal entities. <sup>(62)</sup>

The first to sign (July, 1966) was the Orleans Levee District which executed two LCA's, one for the portion of the Chalmette Plan unit within Orleans Parish, the other for the entire Barrier Plan unit, without limitation to Orleans Parish. (There is a question as to whether Orleans Levee District could expend funds and work outside its jurisdictional area.)<sup>(63)</sup> Shortly after (August, 1966) Lake Borgne Basin Levee District and St. Bernard Parish Police Jury jointly signed an LCA for the portion of the Chalmette Plan located in St. Bernard Parish. <sup>(23)</sup>

In September, 1971, the Orleans Levee District executed a new "Act of Assurances" for the Barrier Plan which limited its local sponsor commitment to Orleans Parish and to a proportionate non-federal cost share of the barrier complexes in St. Tammany and Orleans Parishes. <sup>(63)</sup> This obligation excluded the navigation portion of the Seabrook lock.

In September, 1976, Pontchartrain Levee District signed an LCA to cover the portions of the Barrier Plan located in St. Charles and Jefferson Parishes, and also to pay a proportionate cost share of the barrier complexes in St. Tammany and Orleans Parishes. <sup>(65)</sup> Taken together, Orleans Levee District (67.1%) and Pontchartrain Levee District (30.4%) assumed 97.5% of the non-federal cost share of the barrier complexes located in St. Tammany and Orleans Parishes, and the non-navigation portion (50%) of the Seabrook Lock. <sup>(65) (94)</sup> Responsibility for the remaining 2.5% has not yet been identified.

Subsequently in 1978 and 1979 the Pontchartrain Levee District was partitioned, ultimately to create the East Jefferson Levee District which assumed the LCA responsibility for the Jefferson Parish portion of the Pontchartrain Levee District. <sup>(28)</sup> Between 1985 and 1987, the three local sponsors obligated under the Barrier Plan LCA's executed revised LCA's focused on the High Level Plan. <sup>(62)</sup> In addition, a number of revised LCA documents were executed to add compliance with the Uniform Relocation Assistance Act, to incorporate deferred payment authority, and to update project and local share cost estimates. <sup>(62)</sup>

In total, ten years elapsed from the start of construction in 1966 through 1976 until the full LCA team covering the complete project (excepting 2.5% of the non-federal share of the barrier complexes) was under LCA's. During the first five years of this period, Orleans Levee District may have extended assurances beyond its jurisdictional authority. From September, 1971, to September, 1976, there was no local sponsor for the portion of the Barrier Plan within and allocable to Jefferson and St. Charles Parishes. <sup>(23) (63) (65) (74) (94)</sup> This LCA history may reflect a lack of cohesion among the local interests during a critical phase of the project's life.

The review of the history of the LCA's and contractual relationships suggests an aggressive role was assumed by the State of Louisiana to secure timely construction of the project. In November, 1965, and again in March, 1971, <sup>(37) (38)</sup> the Governor designated the Louisiana Department of Public Works (LaDPW) to act in the role as project coordinator. In May, 1972, and again in

1976 and 1982, the Governor executed an LCA on behalf of St. Tammany Parish, though these were not found acceptable by the Corps. <sup>(38)</sup>

In October, 1976, the Governor designated the LaDPW to lend financial assistance to the project sponsors. <sup>(38)</sup> In November, 1976, the State provided assurance to fund the Pontchartrain Levee District's cost share in excess of \$100,000.

Little further evidence of State project coordination has been discovered thus far concerning the period after adoption by the Corps of the High Level Plan. State representatives have confirmed that other than providing engineering consultation to levee districts with limited resources, the State's primary coordinating function has been to secure capable local sponsors for federal projects and to lend financial assistance where feasible. <sup>(81)</sup>

The State remained involved, however, through the Statewide Flood Control Program, by providing grants to fund eligible portions of the LP&VHPP non-federal cost. This program also requires a plan review by the State of the project feature for which funds are sought. <sup>(29)</sup>

The LCA record cited above indicates that there was a significant effort made from 1965 to 1976 to assemble acceptable local sponsors to manage the project's progress and see it through a period of much tension. The record suggests that, even with the support of the State, there was not sufficient project cohesion and support for the Barrier Plan to survive.

## **2. Project Finances**

Financing of the LP&VHPP is defined for this report as the provision of federal and non-federal funds as required for project design, construction, operation and maintenance. A discussion of project financing must recognize that this issue is separately and jointly relevant to both the federal party and the local sponsors. While the cost of all pre-construction project investigations was borne 100% by the Corps, all construction related costs were shared by the Corps and local sponsors in the percentages established by the Congress (in this case 70% federal, 30% local). <sup>(64)</sup>

The progress of a project is dependent on both the federal and local interests securing funds. Further, project cost escalations, beyond pre-determined limits or capabilities are of concern to both. Relatedly, the failure of one partner to provide its financial performances on time can cause project delays which impact the financing capabilities and obligations of the other.<sup>(1)</sup> This financial interdependency and its related project tensions were observed in the LP&VHPP project decision relationships. The focus of this review is on the impact of project finance issues on local sponsor decision making.

### **Federal Financing:**

To secure project funding for its civil works projects, the USACE budget competes for a share of the total federal budget. On occasion, events of national scope and impact can result in changes in funds availability (such as September 11, 2001). <sup>(16) (17)</sup>

Within the Corps' civil works budget a project must compete for its allocation among other authorized projects, and those unauthorized projects the Congress determines to accelerate. Actual funding depends on Congressional appropriations.

While the Corps has established an objective means of determining project need and Corps capability for annual budgeting, the actual funding received can vary from this amount significantly. From 1966 to 1976, the Corps reported the capability to spend \$84,000,000 on the LP&VHPP, the Chief of the Corps requested \$82,850,000; OMB modified the request to \$61,015,000; the Congress authorized \$74,571,000; \$58,159,000 was actually allocated and \$15,913,000 of the allocated funds was left unspent, leaving \$42,246,000 actually expended as planned, 50% of the Corps reported project capability. <sup>(2)</sup>

During this first eleven years from 1966 through 1976, Corps allocated project funding equaled \$5,300,000± per year. By March, 1982, an additional \$73,000,000± in federal funding had been provided, an annualized allocation of \$12,200,000± <sup>(3)</sup> over this six year period from 1976 to 1982.

The project chronology prepared by the HPDC Team, citing the Congressional Research Service Report of December, 2005, indicates \$334,100,000 in federal funding was sought for the project for the years 1983 through 2005.<sup>(4)</sup> This represents \$14,600,000± per year. Interestingly, the four year period immediately preceding 2001 saw an average project request/allocation of \$20,500,000±, while the four year period immediately after 2001 saw the annualized

sum fall to \$7,900,000±. <sup>(4)</sup> Both the Orleans Levee District and the Lake Borgne Basin Levee District reported work stoppage on as many as five LP&VHPP units after 2001. <sup>(16) (17)</sup>

Within the normal influences and tensions of the federal budget process, project funding appears to have been impacted by only a few extraordinary circumstances.

- Limitation of appropriations and the Revenue and Expenditure Control Act of 1968. <sup>(5)</sup>
- Post-September 11, 2001, appropriations for homeland security <sup>(4)</sup>
- Settlement time required between levee construction lifts. <sup>(2) (20)</sup>

While the project was substantially behind schedule by the date of the 1976 Comptroller General's Report, the report concluded the delays were not the result of inadequate federal funding as 26% of the allocated funds from 1966 through 1976 had gone unexpended. <sup>(2)</sup> However, a noted limitation on timely project completion is the disconnection between the annual federal budget allocation and appropriation process and a project's targeted completion schedule. <sup>(19)</sup>

The Corps' estimated project completion date went from 1978 to 2008 <sup>(2) (3)</sup>, and as of 2006, was 2016. <sup>(20)</sup> During this time, the Barrier Plan cost estimate, based on the 1982 GAO Report, grew from \$85,000,000 in 1964 to \$924,000,000 in 1982 (2008 dollars), <sup>(3)</sup> excluding the drainage canal costs of \$20,000,000 to \$250,000,000. Following the shift to the High Level Plan in February, 1985, total project cost was revised downward to \$865,000,000, comprised of \$181,000,000 in costs to date and \$684,000,000 in remaining costs. <sup>(10)</sup>



### **Local Sponsor Financing:**

No evidence was found suggesting that a lack of local sponsor financial capability was the cause of project delay. To the contrary, the documentation obtained for this report indicates that local sponsors were working to meet their financial obligations in an expeditious manner, and in some cases to accelerate project completion. (12 (13) (49) (82)

Financial challenges in meeting the non-federal financial requirements were faced by most if not all of the local sponsor units (Orleans Levee District, Ponchartrain Levee District, Jefferson Levee District and the St. Bernard Parish/Lake Borgne Basin Levee District partnership), but addressed differently by each.(1)

Part of the perceived stress was the cash payment obligation specified by the LCA. Because of concern that large payments could be demanded over an expected short construction period, special legislation was sought to extend the repayment period. The Water Resources Development Act of 1974 allowed the sponsors (at this time Orleans Levee District and Lake Borgne Basin Levee District/St. Bernard Parish) to defer their payments until 1977. From 1977 to 1990 installment payments including interest were to be made, with a final balloon payment due in 1991. (2)

Each of the levee district sponsors fund capital and operations expense primarily through the annual levy of an ad valorem property tax (mill levy). This basic revenue source is supplemented by interest earnings, grants, other miscellaneous income, and by the use of bond proceeds. (11) (71) (87) (88) (89)

The Orleans Levee District (OLD) is the strongest and most diverse fiscally of the sponsor entities. It has relied on its mill levy, bonds, and its other miscellaneous internal revenue sources to fund its project obligations. <sup>(11)</sup> <sup>(88)</sup>

Following three failed attempts <sup>(9)</sup> to increase its mill levy to fund its increasing project cost share, the OLD secured a favorable March, 1974, vote to add for 11 years a 3 mill increase to its 2 ½ mill levy which was dedicated to the construction of levees, flood protection and related expenses. <sup>(11)</sup>

The 1974 OLD authorization was linked to a specific \$200,000,000 capital levee and flood protection project list, but excluded the Rigolets and Chef Menteur complexes due to their controversy.<sup>(46)</sup> Subsequently (1983), the District secured voter approval to extend the 3 mill increase for 30 years (2016) and to sell \$50,000,000 in bonds. <sup>(11)</sup> <sup>(12)</sup> Authority was specifically linked to the District's 1984 Interim Hurricane and Flood Protection and Capital Improvement Project. <sup>(12)</sup> <sup>(13)</sup>

Both of these initiatives were to provide funding to construct LP&VHPP compatible units for the Corps and/or pay its construction contributions. The 1983 election was projected to produce \$60,100,000 in cash between 1986 and 1991 to meet project obligations, either of the District's 1984 Interim Plan or the Corps High Level Plan. <sup>(12)</sup> <sup>(13)</sup>

The Orleans Levee District did express concern in January, 1978 that continued delay in the project could cause costs to exceed the District's ability to fully cover its local share obligation. <sup>(1)</sup> While

the new funding authority secured in 1983 tended to resolve this concern, the OLD was seriously impacted in the 1990's by the forced divestiture of the Bohemia Spillway, the loss of the related royalties and the repayment of \$26,000,000 in prior year's royalties. <sup>(14)</sup> <sup>(15)</sup>

Even so, and even given the significant cost escalation from 1965 to 1985, as of May, 2006, OLD representatives believed available resources plus previously accumulated construction credits were adequate to meet their remaining 30% project cost share <sup>(16)</sup> However, these individuals also believe the cost to move the pump stations or modify the canals south of the proposed gate structures was beyond the local ability to pay. <sup>(14)</sup> <sup>(16)</sup> Interestingly, OLD did not appear to make use of the Statewide Flood Control Program grants to finance LP&VHPP obligations, with one possible exception. <sup>(24)</sup>

The Lake Borgne Basin Levee District (LBBLD)/St. Bernard Parish partnership was the second local sponsor to sign an LCA, and may have been the least of the four sponsor units organizationally and financially. Though the two agencies were joint signers, an apparent side agreement between them limited the Lake Borgne Basin Levee District's cost to the first \$2,000,000, including right-of-way credits, of the Chalmette Plan local cost share. <sup>(21)</sup> By April, 1976, this local cost share totaled \$18,270,000 <sup>(22)</sup>, an increase of 299% over the \$4,582,700 cost share cited in the first (August, 1966) LCA. <sup>(23)</sup>

Unlike the Orleans Levee District, LBBLD also had responsibility for interior drainage obligations in addition to its levee responsibilities. It used Statewide Flood Control Program grants

totaling \$6,894,700 <sup>(24)</sup> and local bond issues <sup>(17)</sup> to finance these structures. Apparently, the funding of the LP&VHPP local share was primarily through the mill levy, and state grant funds did not appear to be used for this purpose.

The LBBLD/St. Bernard Parish local sponsor appeared to be in financial difficulty in 1975 when the ability to deliver a required borrow site came into question.<sup>(25)</sup> In an Orleans Levee District letter of January 4, 1978, it was also noted that the LBBLD/St. Bernard parish partnership was in arrears on its LP&VHPP obligations. <sup>(1)</sup> It was reported that by 1992 the entire outstanding balance of the LP&VHPP local share obligation had been waived for Lake Borgne Basin Levee District and St. Bernard Parish. <sup>(17)</sup> <sup>(21)</sup> Further documentation of this event has not yet been located.

The Pontchartrain Levee District (PLD) signed its first LCA in September, 1976, assuming responsibility for the LP&VHPP project units in Jefferson and St. Charles Parishes, and 30.4% of the non-federal share of the barrier complexes. The PLD is also supported by an ad valorem property tax that, in addition to interest and royalties, produced \$5,200,000 in 2005. <sup>(20)</sup>

When its LCA was first executed, the PLD was recognized to have limited financial capability. Consequently, the State of Louisiana, Department of Public Works agreed in September and November, 1976, to lend financial assistance to the PLD when its LP&VHPP expenditures exceeded \$100,000. <sup>(27)</sup> It is not clear if the State was required to make payments pursuant to this agreement, or

if this agreement may have influenced Statewide Flood Control Program grant awards to the District.

The LP&VHPP responsibility of the Pontchartrain Levee District was further reduced when the State legislature in 1978 partitioned the Jefferson Parish area into the Jefferson Levee District (JLD). This 1978 action was effected through a 1979 Agreement of Division, dividing the assets and liabilities, including the State's agreement to lend assistance for LP&VHPP costs in excess of \$100,000. <sup>(28)</sup>

Notably, the PLD has made significant use of the Statewide Flood Control Program to fund its LP&VHPP obligation. As of 2005, PLD's LP&VHPP cost share totaled \$27,300,000, 60% of which was being funded through the State program. <sup>(20) (24)</sup>

In addition to the Statewide Flood Control Program, the Pontchartrain Levee District has secured a project funding agreement from St. Charles Parish equaling 20% of the non-federal share. As a result of these two supplemental funding sources, PLD's LP&VHPP cost share is only 20% of its allocated non-federal cost share, or \$5,400,000, due over the life of the project. <sup>(20)</sup>

The Jefferson Levee District, now for the LP&VHPP the East Jefferson Levee District (EJLD), was the final sponsor unit added to the LP&VHPP. In 1978, it assumed from the Ponchartrain Levee District LCA obligations related to Jefferson Parish. EJLD executed its first individual LCA in January, 1987. <sup>(27)</sup>

The LP&VHPP local cost share assigned to East Jefferson Levee District in the 1987 LCA totaled \$42,600,000 <sup>(27)</sup> There has been no observed evidence of difficulty on the part of the EJLD in

meeting its project cost share obligations required pursuant to its LCA. No evidence has been seen of supplemental funding agreements, use of the Statewide Flood Control Program, or State funding pursuant to the 1976 agreement with Pontchartrain Levee District.

The State of Louisiana Statewide Flood Control Program (SFCP) has been a resource of significant value to at least one of the local sponsors in meeting its federal project cost share. Through 2005-06 the program has provided \$162,082,000 to 152 projects in the entire State. <sup>(24)</sup>

For federal/local cost shared projects, the SFCP will fund up to 70% of the non-federal cost share (70% of the 30%). To be approved, project plans must be submitted to the State for review and approval, including those plans prepared by or for the Corps. <sup>(29)</sup> There is some confusion as to whether the State, as a matter of course, reviewed all Corps project plans in its role as the engineering consultant to the levee districts.

### **3. Project Advocacy, Opposition**

The universal recognition of the need for hurricane protection relative to Lake Pontchartrain was common to the entire New Orleans and Lake Pontchartrain environs, North Shore and South Shore. Most all local and State interests supported the idea of a major project constructed quickly. <sup>(30) (33) (37) (57) (58)</sup> The concept of a barrier plan which evolved during project feasibility and formulation work from 1955 to 1962 was out of the range of ordinary, but not revolutionary. <sup>(32)</sup>

The Orleans Levee District, which had initiated its own project benefit/cost analysis in 1950, appeared to support the concept as a reasonable solution to the regional scope of the hurricane risk problem. The OLD was the first local entity to sign an LCA committing to funding the project, exposing itself to cost even beyond its jurisdictional limits. <sup>(62)</sup>

By 1967, OLD had already begun interim protective projects and was pressing the Corps for expediency in constructing the barriers. <sup>(33)</sup> At every step OLD was acting to secure the funding needed for the non-federal share and to move the project to completion. <sup>(11) (12) (13) (34) (57)</sup>

As documented earlier, OLD conducted five tax increase elections (winning two), developed two major capital works programs linked to the LP&VHPP, and actuated a major bond issue in response to abandonment of the Barrier Plan in favor of the High Level Plan. From 1966 until 1976 OLD was the only local sponsor on the Barrier Plan unit of the LP&VHPP. <sup>(23) (62) (63) (65) (74)</sup>

The Pontchartrain Levee District (PLD) became a project sponsor in 1976. <sup>(65)</sup> However, local project interest seemed as likely to be influenced by the desire to avoid the cost and negative impacts of enlarged levees (which would be required by the High Level Plan <sup>(38)</sup>) as the favoring of the barriers. <sup>(35)</sup>

By the time the East Jefferson Levee District became a project sponsor (1979), the focal issue was shifting from Barrier Plan versus High Level Plan to how quickly the planning could be completed and a project constructed. <sup>(4)</sup>

During the period of the late 1960's some North Shore property owners also voiced the need for a lake barrier. <sup>(36)</sup>

The State was also active in exercising encouragement for swift project completion. On November 2, 1965, Governor McKeithen designated the LaDPW as "the agency to coordinate the efforts of the local interests and to see that the local commitments are carried out promptly."; and designated the Orleans Levee District on January 17, 1966, as the agency to provide the local assurances for the project features located in Orleans, Jefferson, St. Charles and St. Tammany Parishes. <sup>(37)</sup> In addition the Governor, in 1972, 1976 and 1982, executed LCA's on behalf of St. Tammany Parish. In each case, however, these documents were rejected by the Corps as incomplete. <sup>(38)</sup>

The State's support role also included acting in the capacity of engineering consultant to the levee districts in preparing levee improvement plans. <sup>(58)</sup> Financially, the State's support included the commitment to lend financial aid to Pontchartrain Levee District when LCA cost exceeded \$100,000. <sup>(59)</sup>

The support of the State administration did not waiver in the face of growing opposition. In a letter to the Corps New Orleans District Engineer, Governor Edwards said, "...notwithstanding the failure of Amendment No. 6 ... the State of Louisiana intends to take whatever action is necessary to carry out its responsibilities with regard to providing its share of the funding required...". In a similar letter, New Orleans Mayor Landrieu said, "...I would like to express my firm support for the concept of additional flood control for Orleans



Parish... I will do all I can to secure local matching funds for additional hurricane protection...”. (39)

The project, and more specifically the Barrier Plan, also had as an advocate the New Orleans Sewerage and Water Board. Insulated from any project cost exposure because of the Orleans Levee District’s local sponsor obligation, the Sewerage and Water Board’s Executive Director stated, “...I cannot agree with your conclusion that we should abandon the Barrier Plan.” He went on to say, “...to construct high level levees around the entire shoreline...would be almost ludicrous...a possible alternative (certainly a safer one) would be to relocate drainage pumping stations 6, 7 and 5 to the lakefront...”. (60)

In general there appeared wide spread interest in a project that could control lake storm surges. But as cited above, the informed committed support was focused in the Orleans Levee District, the Governor’s office, and to a lesser extent the Sewerage and Water Board, presuming their functioning capability remained whole.

The evidence examined did not identify a cohesive Barrier Plan proponency which was able to present a strongly favorable project identity among South Shore interests, nor to bond North and South Shore interests to the mutual benefits of the Barrier Plan. Project opposition arose first from external sources, and later from internal sources. While never strong enough to threaten the loss of the project, opposition to the Barrier Plan did result in tremendous changes in design, delays in construction, and increases in costs.

Initially the opposition began as a navigation/commerce issue related to the Seabrook lock design and its impact on the IHNC. <sup>(40)</sup> It grew to encompass concerns about navigation issues at the Rigolets and Chef Menteur barrier complexes, fears of barrier effects on North Shore flooding and lake ecology, all from the initial opposition of one planning a new shipyard in the Slidell area. <sup>(41)</sup>

Without the support of St. Tammany Parish, which had the benefit of a test run of the Barrier Plan model in 1961 <sup>(42)</sup> as a local sponsor, there was no strong North Shore voice for the project. And without a cohesive team of supporting interests on the South Shore, there was insufficient energy for the survival of the Barrier Plan. <sup>(3)</sup>

After the switch to the High Level Plan, opposition to the Corps design from within the project team extended the delays and the cost increases for six more years to late 1990. <sup>(4)</sup> <sup>(43)</sup> The High Level Plan still proposed flood gates across the three drainage canals (frontage protection) to control hurricane impacts, but left 5,500 acres of the City to flood from other storm related sources. The remedy would require either relocated pumping plants at the mouths of the drainage canals, or modified levees/floodwalls along the length of the canals, all at 100% local cost. <sup>(43)</sup>

Through six years of debate and negotiation from 1984 to 1990, the Corps held firm to the position that any project improvement south of the planned canal flood gates constituted internal drainage and a project produced betterment not eligible for federal funding. <sup>(43)</sup> Facing the risk of being forced to finance improvements to the Sewerage and Water Board system that neither it nor the Sewerage and Water

Board could afford in the short term, the Orleans Levee District sought and obtained congressional relief. <sup>(8)</sup> <sup>(105)</sup>

Through a Washington, D.C. “stealth” maneuver, the Conference Report (H. Rept. 101-966) for the Water Resources Development Act (WRDA) of 1990 directed the Corps to consider favorably parallel protection for the two canals (Orleans and London) and for the federal government to bear part of the costs, but it did not specify what percentage of costs. <sup>(105)</sup> This design (parallel protection) was in opposition to the Corps preference for frontage protection (flood gates) on the Orleans Avenue and London Avenue canals, which had been determined by the Corps to be the least cost solution; and this design was inconsistent with Corps’ determination that the canals themselves were local interior drainage features. The Corps, however, did consent to the 70%/30% cost sharing of the 17<sup>th</sup> Street canal after determining the parallel protection in that case was the least cost option. <sup>(43)</sup> The plan was now finally complete in January, 1991.

Subsequent to the 1990 WRDA<sup>(105)</sup>, the Corps New Orleans District took the position that the federal government financial contribution to parallel protection would be limited to 70% of the cost of the abandoned frontage protection, since that alternative was the least cost solution. That stance, if carried through, would have forced the local sponsor to bear more than 30% of the cost of the more expensive parallel protection alternative. <sup>(43)(45)(53)(105)</sup> Congress further advanced the local interest in the Energy & Water Development

Appropriations Act of 1992 (PL 102-104) by requiring the federal government to pay 70% of the total cost for parallel protection. <sup>(105)</sup>

#### **D. Major Events, Local Decision Opportunities**

Opportunities for local influence on the LP&VHPP were typically linked to formal steps in the federal authorization and implementation of the project. There were eleven major events that, together with less significant occasions, constituted opportunities for local sponsors to influence the project.

The eleven events and a brief comment about each are outlined below.

- 1955-62 Feasibility Study/Interim (Chief's) Report <sup>(4) (7)</sup>
  - Barrier Plan Recommended, High Level Plan evaluated

This phase of the project typically involves an analysis of the need to be addressed by the project, the formulation of alternatives, and the selection of the preferred plan. Usually, there is consultation during this phase by the Corps with the local sponsor, that consultation giving consideration to various features which might comprise alternative projects. At this point for the LP&VHPP, there appeared to be no lead sponsor or sponsor team.
  
- 1965 Report to Congress; Project Authorized <sup>(26)</sup>
  - Barrier Plan Recommended/Authorized
  - High Level Plan rejected due to levee height, bad soils, high cost.

In this step the recommended project is formally defined, representing a presumed unity of expectation as to the project's features, function, protection level and justification over other alternatives. The requested congressional authorization to begin construction is based on this document. However, at this point there was still no apparent LP&VHPP local sponsor leadership. Nonetheless there was a letter of concurrence with the plan as proposed, subject to selected comments, from the state and on behalf of local levee boards included in the document (letter report) that was the basis for the authorization. <sup>(106)</sup> There was also heightened urgency caused by Hurricane Betsy which occurred two months after the report submittal. Congress approved the project one month after Hurricane Betsy <sup>(4)</sup>

- 1967 Chalmette GDM, H&H <sup>(95)</sup>
  - Residual flooding documented (design frequency 200 yr.)

A General Design memorandum is prepared, usually for each major feature of the project. It reveals the engineering details upon which the project formulation is based and upon which the construction plans and specifications are predicated. Local sponsors need capable engineering expertise working on their behalf to accomplish effective review and comment. Only the Orleans Levee District and the State appeared to have access to that capability. (See question A-1)

- 1969 Hurricane Camille <sup>(4)</sup>
  - Post authorization change report, increased levee design by 1 to 2 ft.

This was an opportunity to reevaluate the project planned in light of real world experience with Hurricane Betsy, September, 1965 and Hurricane Camille, August, 1969. The Corps modified levee heights <sup>(7) (56)</sup>, and the sponsors urged expedient construction <sup>(33)</sup>

- 1975 Barrier Plan EIS Hearing <sup>(18)</sup>
  - Federal court proceeding, injunction re barriers

The enactment of the National Environmental Policy Act (NEPA) in 1969 changed the ground rules for major construction projects. NEPA empowered project opponents and eventually led to a Court injunction in December 1977 based on an inadequate environmental impact statement.<sup>(4)</sup> The environmental process and court proceedings were the precursor to the shift from the Barrier Plan to the High Level Plan.

- 1979 NOAA Report updates SPH and PMH definition, changes CPI from 1959, 1965 <sup>(4)</sup>

This report cites a change in the Central Pressure Index based on Hurricane Camille. There appeared to be no Corps, or local sponsor response to this data.

- 1982 GAO Report <sup>(3)</sup>
  - Total Barrier/Chalmette Project, \$924,000,000/2008
  - Debate over three canals design
  - Request to consider lower design storm, 100 year event

The report highlights the major project issues, (1) Barrier Plan versus High Level Plan, (2) drainage canal plans, (3) delays and (4) escalating cost. By the date of this report, however, the Corps had already surrendered the Barrier Plan because of rising mitigation costs and conducted its first meeting on the alternate High Level Plan <sup>(10)</sup>.

- 1984 Reevaluation Study <sup>(38)</sup>
  - Adopts High Level Plan
  - Revises CPI from 1965
  - Documents 300-200 yr. protection
  - 3 canals unresolved; Corps option \$124,000,000, local option \$250,000,000.

This document in effect became the new Chief of Engineers Report on which new congressional authorization was secured in February, 1985. <sup>(59)</sup> It was a second opportunity for local sponsors to influence the shape and form of the project approval by Congress. Concerns over continued delays and rising costs were strong at this time.<sup>(3)</sup>

- Conference Report (H.Rept. 101-966) for the 1990 Water Resource Development Act <sup>(105)</sup>
  - Forces corps funding of parallel levees
  - Authorized design by local sponsor engineers
 

The local sponsors used the opportunity created by WRDA 1990 to force the Corps to recognize the drainage canals as integral to the flood protection system. By also securing authorization to design project features, they achieved the chance to increase the local voice in the project and accelerate project completion.

By choosing parallel levees instead of frontal gates and relocated pump stations, the lower cost higher risk design was selected. However, this may have been their only option as it may not have been possible to get the more costly pump relocations through the Congress.
  
- 1992 Energy & Water Development Appropriations Act<sup>(105)</sup>
  - Requires the federal government to pay 70% of the costs of parallel protection at the drainage canals, even though that is not the least cost alternative.
  
- 2002 Metairie Hearing <sup>(50)</sup>
  - Proposed feasibility study for Category 5 design storm
 

This was another opportunity to opt for a higher protection level than that built into the LP&VHPP. The



response appeared consistent with earlier opportunities, “a good project soon is better than a great project later.”<sup>(50)</sup> The State proposed to assemble a non-federal coalition to fund to local cost share.<sup>(92)</sup> However, the State ultimately determined that it was not possible to secure the necessary local sponsorship for such an initiative. The reasons given were the extremely high cost and need to first complete the three major ongoing projects, including LP&VHPP, before new projects were pursued.<sup>(81)</sup>

The opportunities for local sponsor input and influence as cited above were both routine opportunities, and event driven opportunities. The pattern of the input and Corps/local decision making appeared consistently focused on getting an effective project, which was affordable, on the ground as quickly as possible.

## **E. Guiding Forces and Parameters**

The decision process related to federal local flood protection projects functions within an institutional framework of law and policy. As discussed and documented below, this framework exerted significant influence on the LP&VHPP decision making process and the federal/local relationship from which decisions were made.

In the case of the Corps, the LP&VHPP was controlled by the Corps’ pre-partnership era culture (see page 40) and its policy and regulatory guidance which defined the Corps limits on acquiescence to local requests. The local sponsors were confined by the legal and

practical limits on raising and spending money, their jurisdictional limits, and their limited organizational capability.

## **1. Corps Policy, Regulations and Practices**

From the perspective of the local sponsors, their ability to influence project formulation, design and construction was limited by a number of Corps policies, regulations, and/or practices among them the following:

- Economic justification of the project

Not only must a project have a positive benefit/cost ratio, so also must each separable unit. <sup>(52)</sup> <sup>(64)</sup> This policy required the LP&VHPP to be economically evaluated as a series of individual units, rather than as a system intended to produce the maximum life and property protection reasonably achievable. (The IPET report states, “The hurricane protection system in New Orleans and Southeast Louisiana was a system in name only.”) <sup>(51)</sup>

The policy precludes the consideration of project features which may be integral to the flood protection goal but which are not strong on the B/C scale.

- Local funding of betterments

In essence, this policy prohibits federal funding participation in any non-project feature that improves the

condition or function of the feature from its pre-project condition, or in a project feature designed to greater than Corps standards. (64) (66)

Until congressional action in WRDA, 1990, (105) this policy, along with that prohibiting federal participation in interior/local drainage, contributed to the six year stalemate on the drainage canal design. (43) (53)

- Prohibition of federal funding of interior/local drainage.(64)

Provision of basic drainage systems to collect and convey local runoff is a non-federal responsibility. (64) This policy concludes that features determined to be dedicated to local drainage functions are outside the limits of congressional flood control spending authorizations. Construction of or modification to such structures, therefore, generally cannot be included in cost shared federal local protection projects. (43) A project might need to modify existing drainage facilities, but the betterment policy would engage, limiting the scope of federal financial participation.

This policy was a factor in directing the Corps away from any project design that incorporated the three drainage canals into the flood control system. Such a design would have added tens of millions to the project costs, 70% of which would have been federal. This issue and its ultimate congressional remedy sought by the local

sponsor appears to be the most significant relationship and decision process issue from 1985 until Hurricane Katrina.

Local interests favored a non-frontal protection option because of the desire to maintain pumping capability during hurricane events, and because of the concern that the butterfly valve gate design was unproven for such an installation. (43)(48)(53)(102)

It is interesting to note that the exemptions to the federal interior/local drainage policy, and the federal “major outlets” policy may have qualified the drainage canal improvements for federal cost sharing. From a cost perspective, the Corps would have been motivated to prevent their eligibility. As local protection features, the federal share would be 70%, as major outlet facilities the federal share would be 50%, and as ineligible interior/local drainage facilities the federal share would be 0%.<sup>(64)</sup>

- Prohibition against construction loans from local sponsors to the Corps.

This policy recognizes such loans, made to accelerate construction pending congressional appropriations, as unauthorized debt. Federal law does allow local construction of project features for credit against the local cost share. However, a sponsor with

cash but without major design and construction capability loses the opportunity to accelerate construction. <sup>(54)</sup>

- Prohibition against funding of backside levee protection.

This practice appears to be based on a determination that the expenditure is making provision for an event greater than the design event and is, therefore, beyond the project's congressional authorization for spending. <sup>(55)</sup>

The result of this practice is evidenced in some of the Katrina driven system failures which resulted from overtopping <sup>(51)</sup>. Interestingly, Corps policy governing the construction of dams is directly contrary to that for levees, requiring significant spillway flood designs and structures to protect the project structure against greater than design storm events <sup>(64)</sup>.

- Transfer of operation and maintenance to local sponsor upon completion of construction.

This practice affects the handoff of completed functional project units to the local sponsor. This handoff occurs upon completion of construction and preparation of an operations and maintenance manual by the Corps which directs the work of the local sponsor. Locals frequently accept partially completed work for weed and grass control, but typically reject full operational acceptance until completion. <sup>(64)</sup> <sup>(66)</sup> (See question A-4)

As the Corps is not structured to administer long term interim local operations, gaps in maintenance of partially completed structures can arise, along with tension between the Corps and local staffs. (48) (96) (97) (98) (99)

The Bayou Dupree Control Structure was the only LP&VHPP feature reported to these authors by local sponsor as complete and accepted for local operation and maintenance. (17)

- Project management: Pre-Partnership culture.

From its origin in 1955 until approximately 1993, the Corps managed the LP&VHPP under its traditional “the Corps decides” culture. In that culture local sponsors were sources of projects, funding, political assistance with the Congress, and operations and maintenance services. The Corps determined project scope, function, and formulation; and either did or approved project design and construction. The Corps consulted the non-federal interests, then made the decisions based on Corps criteria. (2) (43)

Did this process tend to isolate local interests from the significant project decision making and/or isolate features and sponsors from each other? There was no evidence and no local sponsors were aware of an intentional effort to create a project management team for decision making and coordination. (16) (17) (21) (54) (71) (90)

Following enactment of new cost sharing requirements in WRDA 1986 <sup>(103)</sup> Corps leadership embarked on a new partnership culture. Beginning with a national sponsors/corps face-to-face dialogue in Scottsdale, Arizona in 1989 <sup>(6)</sup>, the Corps initiated a four year long process which (1) involved a Partnership Task Force, (2) resulted in the conversion of Local Contracts of Assurances (LCA's) to Project Cooperation Agreements (PCA's) <sup>(66)</sup>, and (3) installed project management disciplines. These modernizations of the Corps culture came after the critical phases of the LP&VHPP.

## **2. Local Sponsor Capabilities**

Non-federal institutional frameworks also confine local sponsors' project management and decision processes.

- Limits on raising and spending money.

Local revenues require elections, or legislation or sometimes both. Similarly the ability to spend may be limited by the amount, location or object of the expenditure. As the earliest local sponsor of the LP&VHPP, the Orleans Levee District was obligated to spend Orleans Parish funds in other parishes for benefits and services to other parishes. <sup>(74)</sup>

Later, the OLD found itself responsible for all costs to protect or enhance the system capability of the Sewerage and Water Board. <sup>(8) (94)</sup> This would have involved spending perhaps tens of millions of dollars on systems and facilities it did not own, operate or have

jurisdictional control over. This may explain in part the lead role taken by OLD in securing federal approval of the parallel levees for the drainage canals.

- Jurisdictional limitations

While the LP&VHPP was defined as two independent units (Chalmette Plan and the Barrier/High Level Plan), in reality the final project was, at least, five operating units, one in each parish plus the Sewerage and Water Board system interface. But each sponsor came to the project at a different time, under different circumstances, with different connections to the project, and with different project impacts to manage. (62)

Other than the common awareness of the need for a major hurricane protection project, there was little unity or commonality or connectedness among the sponsors.

(16) (17) (21) (54) (71) (90)

- Limitations of organizational capability

A project of the scope and complexity of the LP&VHPP requires the local sponsor to have available experienced engineering resources to oversee its interest in the technical arena. Only the Orleans Levee District had such resources.

The other three sponsors were, in the beginning and continue to be, dependent on the Corps for most project related technical considerations. (17) (54) (71) While the LaDOTD is designated the engineering consultant to the levee districts, the record does not suggest that the



engineering resources and services provided to the sponsors for the project was significant.

In addition, the Sewerage and Water Board, whose systems and services were a major part of the LP&VHPP's design consideration, was a non-sponsor and, therefore, outside any communication/coordination loop that may have existed within the project.

### **III. FOCUS QUESTIONS**

The objective of this report can be summed as an effort to identify, to the extent possible, the nature of the decision making role of the LP&VHPP local sponsors and to characterize the federal/local relationship as it shaped the decision making process. Our task was not to evaluate the propriety of jurisdictional, political or personal relationships concerning the project, or the appropriateness of the technical decisions, but to document where possible project related decisions, and decision processes and environments.

Ultimately, such information should be helpful in perfecting the functionality of the federal/local partnership process through which critically important local flood protection projects are birthed and realized. To achieve this result, fundamental questions must be answered.

- Did the federal/local partnership work to the maximum benefit of the collective local/federal interest?

- Was the Corps (and its processes and procedures) an effective and reliable resource for the local entities?
- Did the local entities perform rationally and well given the circumstances of the project?

This section of the report is intended to assist in the answering of the questions above by focusing attention on the following more specific questions.

- A. What was the character of the federal/local sponsor relationship; how did it change over time?
- B. What decision opportunities existed wherein local sponsors were able to influence project formulation and construction?
- C. What factors (resources, pressures, issues, limitations) most influenced local sponsor decisions?
- D. What Corps related factors (policy, project management, funding, scheduling) most significantly influenced the project decision process?

The analysis of these questions is presented in the following pages in a more detailed question, answer, and documentation/background format.

**A. What was the character of the federal/local sponsor relationship; how did it change over time?**

**Question A – 1: (IWR No. 1)**

How did local sponsors view their relationship with the Corps – as a partnership with significant project design/construction input, or something else?

**Answer:**

PLD, EJLD and LBBLD had little engineering staff capability and in general relied on the NOD to provide the expertise needed to design and construct the project. They were limited partners to the extent they provided right-of-way, local cost share, maintenance of facilities and other LERRD requirements; but little project input. The NOD evaluated alternatives, formulated the project, prepared the GDM and advised the local sponsors how much their share would be. The OLD was a more active partner in providing project design/construction input as well as providing the LERRD requirements because they had some in-house engineering capability and strong consulting assistance.

However local sponsors did have some design and construct capabilities, and on occasion did design and construct hurricane protection works on their own. They would then seek credit for that work to the extent those features were eventually included as a part of the federal project. There would have been interaction between

local sponsor representatives and NOD engineers to coordinate such efforts.

### **Documentation and Background:**

With exception of Orleans Levee District the other Levee Districts had little or no engineering support on staff. This made it difficult for them to interact with the NOD with regard to technical issues.

East Jefferson Levee District has about 60 employees: no engineers, five in administration, 32 in maintenance, and 25 police officers. <sup>(77)</sup>

Lake Borgne Basin Levee District has about 30 employees including an executive director, administrative assistant, and maintenance personnel. <sup>(17)</sup>

Pontchartrain Levee District has no engineer on staff to work with NOD. They have relied on NOD up to this point. <sup>(54)</sup>

Orleans Levee District has a Chief Engineer, Assistant Chief Engineers and engineers on staff. A review of minutes from OLD Engineering Committee meetings held monthly reveal detailed presentations by staff and OLD consultants and discussion about design and construction project details. For example, the Chief Engineer, two Assistant Chief Engineers, and an engineering staff person were present at a meeting on July 31, 1990. <sup>(53)</sup> Another example is the minutes of the November 5, 1991 Engineering Committee Meeting where the Chief Engineer, two Assistant Chief Engineers and three from the engineering staff were present. <sup>(78)</sup>

The 1982 GAO report indicated that when NOD develops a plan and cost estimates they will meet with local sponsors to get their concurrences on their respective cost shares <sup>(3)</sup>. There was no indication in the GAO report of meetings with local sponsors to obtain input in developing the plan. The Chief's office believed more study was needed before the Corps decided which plan to pursue – barrier or high level. Again, the indication is that the Corps was the decision agency, not local sponsors.

Except for OLD there was no evidence of substantive local participation in design/construction issues on a regular ongoing basis. However, there was periodic involvement of local interests in designing and building hurricane protection features. For example, local interests in Jefferson Parish provided frontage protection for four pump stations. It was determined that this locally performed work met Corps criteria and fell within the purview of the project, and could be cost-shared as part of hurricane protection project related work. <sup>(38)</sup>

<sup>(79)</sup>

**Question A. 2:** (IWR No.2)

How was local sponsor coordination achieved by the Corps during project formulation (1955 – 1965); and project reformulation (1977 – 1990)?

**Answer:**

During initial project formulation from approximately 1955 to 1965, NOD held a series of public hearings on March 13, 1956, March 15, 1956 and March 20, 1956 on problems caused by hurricanes in coastal/tidal Louisiana. Limited public input was received.

The Louisiana Department of Public Works was consulted through-out the formulation phase (1955-1965). OLD was also consulted, and they provided important information. The OLD reviewed the plan of protection and expressed general concurrence with Corps' recommendation. In May 1961 the Barrier Project concept had evolved and a model was developed and demonstrated to St. Tammany Parish officials. There was no evidence of involvement of other levee districts or local interests.

During project reformulation from approximately 1977 to 1990, NOD was coordinating with local sponsors in various ways. A public hearing was held on February 22, 1975 on the EIS. Considerable opposition was expressed to the Barrier Plan, but there was opportunity for local sponsors to present their views. Following the Federal Court injunction in 1977 and modification of the injunction in 1978 the Corps began to reconsider the High Level Plan option. The

Barrier Plan and High Level Plan were discussed with OLD and the public at a meeting on November 30, 1977. In 1980 the NOD held discussions with the OLD about drainage canal options, but the talks were inconclusive. The NOD indicated they would make further attempts to resolve the canal issue with the local sponsors, and that when the NOD adopted a plan they would meet with local sponsors to get their concurrence on local cost contributions.

The Corps also worked with OLD in design of project elements in Orleans Parish. In 1984 the OLD retained Design Engineering, Inc (DEI) to design and coordinate portions of the Corps adopted hurricane protection plan. On behalf of and under the general direction of OLD, DEI designed project elements and worked with the Corps in obtaining their approval of the designs.

### **Documentation and Background:**

Corps Public Hearing Minutes document the proceedings from the March 1956 public hearings. <sup>(68)</sup> The May 1961 Barrier Project model demonstration to St. Tammany Parrish officials at Waterways Experiment Station is documented in a September 5, 1973 letter by Col. Hunt of the NOD. <sup>(42)</sup>

Documentation of the involvement of OLD and Louisiana Department of Public Works is found in the March 1964 Chief's Report. <sup>(80)</sup>

The project's formal change from the Barrier Plan to the High Level Plan occurred through the 1984 Reevaluation Study. As the opposition to the Barrier Plan continued to build through the 1970's

and into the 1980's the Corps began to consider the High Level Plan again. A public hearing was held on February 22, 1975 on the EIS. <sup>(18)</sup> Considerable opposition to the Barrier Plan was expressed. In December 1977 a Federal Court injunction stopped construction of the Barrier Plan and in March 1978 the injunction was modified to allow continued construction of all portions of the project except the barrier complexes at Chef Menteur Pass and The Rigolets. <sup>(3)</sup> <sup>(38)</sup> As of March 1978, the viability of the Barrier Plan was in question.

The Corps participated in a public meeting at the OLD on November 30, 1977 to discuss and answer questions regarding the Barrier Plan and High Level Plan options. <sup>(100)</sup>

In 1980 NOD held discussions with local sponsors about drainage canal alternatives, but the discussions were not conclusive. The NOD indicated they planned to reinstate technical discussions with the local agencies and develop a recommended solution for the canal problem by the end of 1982. The NOD also indicated that when a hurricane protection plan is adopted by the Corps, meetings with local sponsors were planned to get their concurrences on their respective cost shares. <sup>(3)</sup>

A public meeting was held by the Corps on November 21, 1981, to discuss the plans under consideration, reflecting a planning shift from the Barrier Plan to the High Level Plan. Most testimony was in favor of the High Level Plan. <sup>(10)</sup> <sup>(38)</sup> A second public meeting was held on April 12, 1984 in New Orleans to formally present the tentatively selected plan (High Level Plan) to the public. Attendees clearly preferred the High Level Plan to the Barrier Plan. <sup>(38)</sup> Both of



these public meetings provided an opportunity for local sponsors to go on record with their views.

Local sponsors were in the process (1984) of providing frontage protection in Jefferson Parish at four pumping stations which the Corps determined met Corps criteria and could be cost shared. <sup>(38)</sup> Local interests had also raised the lakefront levee by means of levee work and steel sheet piling to 14 feet for interim protection. The work was permitted by the Corps because the work did not affect the stability of the Federal levee. However, the Corps did not consider the parish to have design storm protection because the designs did not meet Corps criteria <sup>(38)</sup>. These efforts by local sponsors, and review of these efforts by the Corps indicates the Corps was involved and working directly with Jefferson Parish local interests.

The Corps continued to work with the OLD on the canal issues as evidenced by minutes from OLD Engineering Committee and Board meeting minutes. <sup>(43)</sup> <sup>(53)</sup> The OLD retained DEI in 1984 to design and coordinate hurricane protection projects which OLD was designing with approval of the Corps. <sup>(91)</sup> The OLD and NOD were working together in the coordination of these projects.

**Question A-3:** (IWR No. 7)

Did the existence of multiple state/local project interests/sponsors play a significant role in project design/construction decisions?

**Answer:**

The record available, and as supplemented by interviews with local officials, suggests that the existence of many project interests and the absence of a strong project management presence negatively influenced the projects' decision making process. Ideally, the complication introduced to the decision process by a large number of active interests could have been ameliorated by an inclusionary team-based project management structure. The Corps was not known for such a management approach prior to the early 1990's.

**Documentation and Background:**

From 1965 until 1997, there were at least thirty contracts, agreements and State executive designations executed among the Corps and seven non-federal entities to create and define the LP&VHPP federal/local relationship. <sup>(62)</sup> In addition, there were at least two additional agreements involving four of the local entities addressing the sharing of project costs. <sup>(20) (28)</sup> Further, at least two other local agencies had significant influence on the project though they never executed formal project agreements (St. Tammany's Parish and the Port of New Orleans).

In addition to these governmental entities with direct roles or interests in securing realization of the project, there were as many more governmental and non-governmental interests directly connected to potential project impacts. (e.g., Louisiana Wildlife and Fisheries Commission, Regional Planning Commission, League of Women Voters, Sierra Club, among others). <sup>(18)</sup> In scope, the project area encompassed more than one million inhabitants, the third largest port in the world, a heavily developed tidal basin and a history of two hurricanes every three years. <sup>(2)</sup>

The critical phases of the project's formulation and design predated the Corps' adoption of its current partnership based project management approach. The record suggests that the variety of project design interests were addressed almost in isolation of each other from 1955 to 1993.

**Question A. 4:** (IWR Nos. 11 and 12)

Which features of the project, in view of the local sponsors, have been completed and turned over by the Corps for local operation and maintenance?

**Answer:**

Based on discussions with representatives of each of the local sponsor entities, only one project feature had been identified as being completed and turned over for local operation and maintenance. That unit was the Bayou Dupree Control Structure in the Lake Borgne Basin Levee District. <sup>(17)</sup> All other local sponsors indicated they had accepted project units for “grass and weed” control only.

**Documentation and Background:**

The submission of a “functional portion of the Project” for local operation and maintenance is a formal process requiring a written notification to the sponsor along with submission of the OMRR&R manuals for the completed structure. <sup>(64)</sup> <sup>(66)</sup> It is possible that the representatives interviewed were unaware of certain prior submissions. If this is the case, the formality of the Corps’ mandatory procedure should provide a clear record. However, it should be noted that by the Corps’ own determination none of the four parish project units (St. Bernard, Orleans, Jefferson and St. Charles) were complete as of August 29, 2005. <sup>(51)</sup>

### **QUESTION A. 5:**

Did the State undertake/fill a role as project coordinator? Was this influential in the flow of project management?

### **ANSWER:**

In the context of this question, project coordination is interpreted to imply a facilitation of the project's partners toward common design, construction and funding objectives.

While the record contains much evidence of the State acting to enlist local entities as project sponsors and to secure funding to meet local project cost shares, there is little in the record seen to date that indicates the State acted in any other project coordination capacity among the local entities and with the Corps.

The overall experience of the LP&VHPP suggests the absence of a lead project coordinating role was a significant factor.

### **Documentation and Background:**

The governor of the State of Louisiana, immediately (November, 1965) upon federal approval of the LPVHPP (October, 1965), designated the LaDPW to act in the role of project coordinator to "coordinate the efforts of local interests and to see that the local commitments are carried out promptly...".<sup>(37)</sup> As of that date, however, there were no local entities formally contracted as project sponsors.<sup>(62)</sup>

In a letter to the LMNED District Engineer following the statewide defeat of the Orleans Levee District's 1972 mill levy

increase to support the project, the Governor declared the intent of the State to "...take whatever action is necessary to carry out its responsibilities...". (39)

The Governor designated the LaDPW as project coordinator again in 1971, and in October, 1976, designated LaDPW to lend financial assistance to the local sponsors. In addition, the State executed four LCA's on behalf of two local entities from 1972 to 1982, though none of these appeared to have been accepted by the Corps. (38)

The State Legislature in 1982 enacted the Statewide Flood Control Program to provide substantial annual funding to secure flood protection objectives, including the provision of the local cost share on federal projects. The program included a requirement for State review of the plans of those projects to receive funding. (29)

Prior to the October, 2002, public meeting in Metairie on the potential interest in a Category 5 design storm feasibility study, the State offered to "form a coalition of affected...communities...to go forward with the project". (92) However, the State ultimately determined that it was not possible to secure the necessary local sponsorship for such an initiative. The reasons given were the extremely high cost and the need to first complete three major ongoing projects, including the LPVHPP, before new project changes are pursued. (81)

## **QUESTION A. 6:**

What was the impact of delays on the federal/local project decisions?

### **Answer:**

The project has suffered a total slippage in estimated completion date from 1978 to 2016, 38 years. Concurrently, it experienced a \$780,000,000 increase in estimated project costs, 917%. Except for a brief period from 1978 to 1982 when the Orleans Levee District felt a major design change might be required to save the project, all local decisions appeared focused on raising the funds necessary to build the selected plan (first the Barrier Plan, then the High Level Plan) and to expedite construction.

### **Documentation and Background:**

The 1976 report of the Comptroller General <sup>(2)</sup> reported that between the 1965 authorization of the project and the 1976 report, the project's estimated date of completion had slipped from 1978 to 1991. The 1982 GAO Report <sup>(3)</sup> reported an expected project completion date of 2008. In its 2005/2006 report on the LPVHPP status in St. Charles Parish, the Ponchartrain Levee District reported that the project completion date had slipped from 2009 to 2016. <sup>(20)</sup>

The schedule slippage from 1978 to 1991 carried with it an increase in project costs from \$85,000,000 to \$352,000,000. <sup>(2)</sup> From the 1991 completion cost estimate, the estimated completion cost rose to \$865,000,000 in 2008 dollars (High Level Plan excluding the

drainage canal costs) <sup>(10)</sup> The estimated completion cost associated with the schedule change to 2016 is unknown at this writing. <sup>(20)</sup>

In essence, delays in completion from 1978 to 2016 have carried with them an increase in construction cost of \$780,000,000±. This represents a \$234,000,000± increase in the local cost share. Over this period the local sponsors, working through the Congress, <sup>(2)</sup> the State <sup>(38)</sup> <sup>(58)</sup>, and their own local voters <sup>(11)</sup> <sup>(72)</sup> have made provision to handle the higher costs and to expedite construction.

Only in the 1978 <sup>(1)</sup> to 1982 <sup>(3)</sup> period did the local sponsors (Orleans Levee Board) feel that a major design change would be necessary to save the project. No other evidence from the records seen to date suggests that the delays and related cost increases impacted any decisions other than to expedite the planned construction and to pursue the necessary funding.



## **B. What decision opportunities existed wherein local sponsors were able to influence project formulation and construction?**

### **Question B. 1: (IWR No. 6)**

Did local sponsors ask the Corps to reduce its design protection level/construction standards; and if so why? How did Corps respond?

#### **Answer:**

There is only one evidence in the record seen to date of the local sponsors requesting consideration of a reduced design storm protection level. The Corps considered the request, but ultimately determined to maintain the SPH design storm for the project. No evidence has been seen of a specific request to reduce construction standards, though that may have possibly been implied from the design storm request circumstance.

#### **Documentation and Background:**

By January, 1978, the LP&VHPP was suffering significant opposition from North Shore, navigation and environmental interests, and the court had enjoined work on the project. <sup>(4)</sup> <sup>(18)</sup> <sup>(101)</sup> The project was substantially delayed, cost estimates had quadrupled and local sponsors were concerned their financial capability couldn't keep pace. <sup>(1)</sup> <sup>(2)</sup> <sup>(3)</sup>

It was reported that St. Tammany Parish had refused to pay its project share, Ponchartrain Levee District had to secure a State funding guarantee, Lake Borgne Basin Levee District/St. Bernard Parish were in arrears on their project payments, and federal approval of deferred/installment payments had been requested. Orleans Levee District's project funding was still financially viable, but it was thought only for a short time. <sup>(1) (2) (28)</sup>

These collective circumstances caused the OLD to conclude in a January 4, 1978, letter, "What this probably means is that the project as it has been developed by the USACE by Congressional mandate is no longer viable". <sup>(1)</sup> By November, 1981, the Corps had dropped the Barrier Plan as too expensive and held its first public meeting on the High Level Plan. <sup>(10)</sup>

In this context and in comments for the 1982 GAO review, "one sponsor believed that Corps standards may be too high to obtain adequate, affordable, and speedy protection". <sup>(3)</sup> Specifically, OLD officials recommended the Corps "lower its design standards to withstand a hurricane whose intensity might occur once every 100 years rather than ...once in 200-300 year occurrence. This, they believed, would make the project more affordable, provide adequate protection, and speed project completion". <sup>(3)</sup>

By October, 1990, local sponsor funding concerns for all except the Lake Borgne Basin Levee District/St. Bernard Parish partnership were apparently proving manageable. Orleans Levee District was proceeding with the Corps on plans based on the 300 year event, and formally endorsed that standard in its Resolution No. 1-10170 <sup>(8) (53)</sup>.

It has been suggested that project cost concerns caused local officials to request reduced construction standards below Corps standards (“I” walls vs. “T” walls; floodwalls vs. levees; shallow piles vs. deep piles) to contain costs. These authors have seen no evidence of such requests, but some evidence (such as with respect to question No. C. 4) may suggest the opposite conclusion on occasion. On its face, the record seen to date seems to suggest a rather typical on-going effort by both the Corps and local interests to keep a watchful eye on their specific cost exposure.

## **QUESTION B. 2:**

Were design changes requested by local sponsors accepted/implemented by the Corps?

### **Answer:**

The focus of this question is twofold. The first seeks to determine the Corps' responsiveness to its local partners. The second seeks to determine whether the Corps modified its construction standards at the request of local sponsors.

The record suggests the Corps was responsive over the years to local input, both from local sponsors and project detractors, introducing several significant design changes. The record also suggests that the Corps decision process was done in isolation from their local partners, making the decisions alone and then announcing them to the local sponsors. The record further indicates that when a local request was at variance with Corps policy, the Corps was not hesitant to reject it.

Finally, there was no evidence seen suggesting that local sponsors requested or that the Corps granted deviations from its construction standards.

### **Documentation and Background:**

During the course of the project's life a number of design modifications were considered and/or made in response to local input. These included, among others, the enlargement of the Chalmette levee protected area <sup>(2)</sup>, the enlargement of the barrier unit

structures <sup>(47)</sup> and modification of the Seabrook unit <sup>(2)</sup> <sup>(37)</sup> , relocation of the Chef Menteur complex <sup>(2)</sup>, realignment of the St. Charles Parish levee <sup>(38)</sup>, the use of flood walls instead of heightened levees <sup>(69)</sup>, the location of the planned butterfly gate structures in the drainage canals <sup>(53)</sup>, and the rejection of a proposed modification of the LP&VHPP with a floating gate system <sup>(70)</sup>.

The decision making process employed by the Corps was formed in the Corps' traditional, "the Corps decides" culture. Discussion would occur among the Corps and locals, the Corps would withdraw to its offices, make its decision, then announce to the sponsors what they must do in response to the Corps decision. <sup>(3)</sup> This pattern was not unique to the LP&VHPP experience, but to all Corps/local sponsor relationships nationwide. <sup>(6)</sup>

The Corps also made major project decisions that were not favored by the local sponsors. Of significance was the shift from the Barrier Plan to the High Level Plan, and the change sought by the local sponsors but denied by the Corps for cost shared protection on the drainage canals.

Two significant reasons exist for the isolated approach to decision making used by the Corps. The first is that the Corps is so bound by federal laws, regulations, policies, standards, practices and procedures little room exists for acquiescence to requests for variance. <sup>(43)</sup> The area's pumping capability was the only form of flood protection system redundancy <sup>(51)</sup>, but the Corps could not treat it as an integral (cost shared) project feature because of the Corps interpretation of its local drainage and betterments policies. <sup>(43)</sup>

Secondly, the Corps inherently believed their's was the pre-eminent authority, and voice of expertise and experience in matters of local flood protection. (48)

The determination of whether the local sponsors asked and the Corps acquiesced to use construction standards less than the Corps standards is unclear. IPET says, “the system was generally built as designed and design approaches were consistent with local practice.” (emphasis added). (51)

Relatedly, the Independent Levee Investigation Team states, “There was a persistent pattern of attempts to reduce costs of constructed works at the price of corollary reduction in safety and reliability.”, implying a local interest in reduced standards (73). However, the IPET Report also concludes that the Orleans Canal, also designed under local contract, used more conservative standards than those used for the 17<sup>th</sup> Street Canal. (51) (53)

On the construction sites it was reported the Corps was always the final authority, was “dismissive” of local interests and slow in completing plan reviews. (48) The normal practice of designing in accordance with the Corps handbook (75), and debate as to the level of Corps involvement in final construction plan approval has been reported. (78) Experience of the authors of this report suggests that Corps acquiescence in deviations from established design and construction standards, even if requested by local sponsors, would be most unusual and well documented if granted.

### **Question B. 3**

What role, if any, did local sponsors play in the determination of the final “I” wall designs (eg. tip elevations for sheetpile) along the outfall canals? How did the Corps respond?

#### **Answer:**

In the record seen to date, there was no evidence of local sponsor involvement in such a level of design detail.

#### **Documentation and Background:**

An example of the type of detail engaged by local sponsor policy authorities is seen in the minute record of the Engineering Committee of the Orleans Levee Board for July 31, 1990. <sup>(53)</sup> This is not to suggest that staff and consultant representatives did not discuss construction standards. But pursuit of deviations from the Corps minimum standards without thorough documentation and policy level involvement would be most unusual and, no such activity has been evidenced thus far.

The record does evidence the discussion of flood walls versus levees. That topic is addressed in question No. C. 4, and to a lesser extent in question B. 1.

**C. What factors (resources, pressures, issues, limitations) most influenced local sponsor decisions?**

**Question C. 1:** (IWR No.3)

Among the local sponsors, was there a lead sponsor, acting as a project coordinator or lead project proponent?

**Answer:**

After authorization of the project, the State was designated by the Governor as project coordinator (1965), and in 1966 the OLD was designated by the Governor to provide local cooperation in Orleans, Jefferson, St. Charles, and St. Tammany Parishes. OLD signed such an LCA that year. The OLD was communicating with the Port of New Orleans regarding navigation related issues, and also was consulted by NOD in the development of the 1964 Chief's Report to provide local input on the development of the recommended plan.

While technically on the hook for work in other parishes, it was unrealistic for OLD to provide LERRDs in the other Parishes and by 1971 other local sponsors were involved. The LBBLD and St. Bernard Parish became joint local sponsors for the portions of the Chalmette project in St. Bernard Parish in August, 1966.

Acting independently, the PLD was constructing interim Lakefront Protection in Jefferson Parish <sup>(49)</sup>.

There was also interest in 1967 to expedite work on a levee in St. Charles Parish. The State of Louisiana and the PLD were the lead in this activity.



Our conclusion is that from 1966 forward there was not a lead local sponsor that acted as project coordinator or lead sponsor. By 1966 the work in St Bernard Parish on the Chalmette levee was the formal responsibility of LBBLD and St. Bernard Parish, and work on the Lake Pontchartrain Levee in Jefferson Parish was being accomplished by PLD. There is no indication of involvement by St. Tammany Parish at this point in time.

### **Documentation and Background:**

Designation of OLD as lead local sponsor is documented in a letter dated July 21, 1967 from Col. Bowen. <sup>(37)</sup>

As cited in question A. 2, the NOD looked primarily to OLD to provide local input in the development of the March 1964 Chief's report. No other local interests were referenced as having been consulted in the Chief's report and no records were found to support other local involvement prior to publication of the Chief' report. The exception is the modeling demonstration for St. Tammany Parish officials in May 1961. <sup>(42)</sup>

The LCA dated August 18, 1966 was executed between the Corps, LBBLD, and St. Bernard Parish. The local sponsors agreed to comply with all required LERRDs and the 30% cost share for the portions of the Chalmette project located in St. Bernard Parish. <sup>(23)</sup>

The PLD levee work in Jefferson Parish is documented in a resolution adopted by the Jefferson Parish Council, a draft letter from Col. Bowen to Congressman Boggs, and related correspondence

regarding soil borings for investigative work on the existing levee as recommended by NOD. (49) (82) (83)

Another example of PLD involvement with NOD was the levee raising issue in Jefferson Parish in the spring of 1968. (37) (58) (84) The PLD had planned to raise the levee four feet with earth fill but the residents protested because it required a much larger base which had a greater impact on local properties. The NOD had previously approved using earth fill, but indicated they would review a revised plan if submitted.

With regard to St. Charles Parish there was interest in expediting construction of the St. Charles Parish levee. It was indicated that the LaDPW or the Corps would initiate surveys for the levee alignment in St. Charles Parish early in fiscal year 1968. Neither the LaDPW nor the NOD could handle the project because of manpower problems so the PLD requested the NOD to retain private engineering consultants to perform the engineering and that the PLD would pay for the engineering as part of the local cooperation requirements. (85)

## **QUESTION C. 2:**

What role did local sponsor financial capability play in shaping local decisions concerning project design/construction?

### **Answer:**

The record suggests that, ultimately, local financial capability had little influence on the project's design or construction, except as to the drainage canals and related pump stations. Project formulation (development of the Barrier Plan) and authorization was accomplished before any local entity was obligated for any project cost. The change to the High Level Plan, at least at the public policy level, was driven by Corps policy determinations, slightly reduced costs (\$924,000,000 down to \$865,000,000, 6.8%), and a slightly shorter time to complete the requisite environmental studies. <sup>(38)</sup>

However, as to the drainage canals, to not incorporate the canals and pumps as integral (cost shared) units of the project, presented the local sponsors with up to \$250,000,000 in additional local costs to keep the pumps on during major hurricanes. This, in the authors' opinion, exceeded their capability and forced the pursuit of a less desirable (the parallel levees plan) option.

The record is replete with evidence that both the Corps and local sponsors gave continuing attention to the broad issue of cost control. Also, the record shows that local sponsors, after the 1984 project change event, either had the funds needed on hand, or took steps to secure the needed funds.

## **Documentation and Background:**

Project formulation and authorization were completed in 1965, but the first LCA's weren't signed until 1966. <sup>(62)</sup> While locals may have been consulted as to design preferences, the Barrier Plan's selection was clearly governed by the Corps because of the Plan's collective superiority over the High Level Plan. <sup>(7)</sup>

The shift to the High Level Plan was apparently decided as a result of the Corps inability to economically define and mitigate perceived environmental impacts of the barriers, <sup>(3)</sup> <sup>(38)</sup> not local financial capability.

The 1982 GAO Report stated that, based on the revised project cost estimates, the total local cost share by the 2008 completion date would be \$295,000,000, of which \$40,000,000 had already been paid. <sup>(3)</sup> The balance of \$255,000,000 would be paid over 26 years at an average annual rate of \$9,800,000 per year; a doable sum given existing voter authorized mill levies. However, an additional cost of \$250,000,000 for the drainage canals and pump modifications appears to have been beyond current capability.

With the exception of the poorly defined canal/pump modification costs, the local sponsors maintained the financial capability needed to continue project construction. The Lake Borgne Basin Levee District/St. Bernard Parish partnership secured a forgiveness of its local share. <sup>(17)</sup> <sup>(21)</sup> Orleans and East Jefferson Levee Districts secured new voter approved mill levy increases <sup>(11)</sup> <sup>(72)</sup>. Ponchartrain Levee District secured state and local funding commitments <sup>(20)</sup> <sup>(28)</sup>, and escrowed its cash in advance of the Corps

need for it. <sup>(54)</sup> While project costs were consistently a concern, local sponsors consistently sought the resources needed to complete the project.

**Question C. 3:** (IWR No. 5)

How did local sponsors plan to finance their cost shares; how did they actually finance them?

**Answer:**

The levee district sponsors planned to, and did finance their cost shares primarily through the annual levy of an ad valorem property tax (mill levy) supplemented by interest earnings, grants, other miscellaneous income such as royalties, and by the use of bond proceeds.

The property tax funding source was limited and consequently relief was provided by the State, Congress and other local agencies. For example WRDA 1974 allowed the sponsors to defer their payments until 1977 and from 1977 to 1990 make installment payments including interest with a balloon payment due in 1991. Louisiana Statewide Flood Control Program (SFCP) grants were used by PLD and LBBLD which could fund up to 70% of the non-federal cost share. It was reported that the local LP&VHPP cost share obligation of LBBLD was forgiven in 1992.

**Documentation and Background:**

The EJLD may levy an annual tax not to exceed five mills. If they wish to raise additional funds in excess of the five mills it must be approved by electors. <sup>(87)</sup> They are currently levying about six mills. <sup>(71)</sup> The OLD has a mill levy and has used bonds to finance levee construction. <sup>(11)</sup> The mill levy for the calendar year 1993 was

12.01 mills. <sup>(88)</sup> The PLD has an annual budget of \$5 million which is derived from an ad valorem tax, interest, and royalties. <sup>(89)</sup> The LBBLD is funded by a mill levy as well. <sup>(17)</sup>

**Question C 4:** (IWR No. 9)

What role did right-of-way impacts play in the choice of flood walls, rather than levees, for the drainage canals? How did the Corps respond?

**Answer:**

The record suggests the choice of floodwalls, rather than heightened levees, may have been driven by three factors. These were the (1) physical and aesthetic impact caused by levee enlargement, (2) costs, and (3) concern that poor foundation soils would not support enlarged earthen levees.

**Documentation and Background:**

The concern that right-of-way issues (which can include aesthetics and costs) may have driven the choice of floodwalls rather than bigger earthen levees is seen in several places. The first is a letter from Councilman Pilney of Jefferson Parish to Congressman Boggs on April 17, 1968. <sup>(35)</sup> Concern was expressed over the expanded earthen levee being proposed and support was voiced for the preference of a floodwall. Also, see the Ponchartrain Shores Civic Association letter of April 18, 1968 <sup>(84)</sup> and an undated letter of Paul L. Willis <sup>(93)</sup> on the same subject. In responding to Congressman's Boggs' inquiry on the question, the Corps concluded to "cooperate in every way possible to expedite the execution of the work." <sup>(69)</sup>



The second document reflecting concern as to the physical/aesthetic impacts favoring floodwalls is the minute record of the Orleans Levee Board Engineering Committee meeting of July 31, 1990. <sup>(53)</sup> The question involved the Orleans Avenue canal in the area of the City Park. Some neighbors (west side) preferred floodwalls in order to preserve trees; others (east side) preferred the levees. Somewhat relatedly, the Executive Director of the Sewerage and Water Board, when writing in support of the Barrier Plan, said that surrounding the entire city with high levees “would be almost ludicrous.”<sup>(60)</sup> The OLD selected the earthen levees because construction would be completed sooner. <sup>(53)</sup>

Costs associated with major levee modifications were issues from the beginning of the project. A major reason for selection of the Barrier Plan was the cost issues associated with the High Level Plan stemming from poor foundation conditions.

The 1962 Interim Survey Report <sup>(7)</sup> and the 1965 LP&VHPP final report<sup>(26)</sup> authorized by Congress cited the high cost of the levee option in recommending the Barrier Plan. The record contains many continuing references by both federal and local interests (“least cost” and local revenue limitation). One prominent former Levee Board Commissioner said the choice of floodwalls was a cost issue.

Finally, safety of the finished project may have been a factor in some cases of floodwall selection. A 1981 study by Modjesky & Masters found that proposed higher levees along the 17<sup>th</sup> Street Canal likely would fail in high water because they were built on “very soft clays with minimal cohesion”. <sup>(31)</sup> This concern was also raised

when the Corps cited “foundation problems after project initiation” as reasons for project delays through 1976. (2)

**Question C. 5:** (IWR No. 4)

Did local sponsor cost sharing requirements play a significant role in LP&VHPP design and construction decisions?

**Answer:**

In general the answer is a qualified no. There is little evidence that local sponsor cost sharing requirements played a significant role in design and construction decisions. While funding issues play a role in many aspects of a project, the fact local sponsors were sometimes moving ahead of the Corps to accelerate project completion, subject to Corps review and approval, leads to the conclusion that funding was not an overwhelming issue. This is not to suggest that local sponsors were not stressed by the financial demands of the project which was felt by most if not all local sponsors.

There is a major exception involving the three drainage canals in Orleans Parish. Here local cost sharing requirements coupled with Corps policy played a significant role in design and construction decisions. A debate between OLD and NOD over how to address “flood protection” on the canals delayed the project for some six years, from about 1985 to 1991.

**Documentation and Background:**

There are examples of local sponsors both moving ahead of the Corps with projects and being pressed financially at other times. There is little evidence that this translated into a significant role in

design and construction decisions. An exception was a statement in the 1982 GAO report <sup>(3)</sup> that local sponsors were concerned with their ability to meet rising project costs which had escalated considerably. One sponsor believed that Corps standards may be too high to obtain affordable and speedy protection. This is the only reference found indicating that local costs were driving a request for a design change.

Examples of the PLD moving ahead on their own with construction of the Lakefront levee in Jefferson Parish were cited in the documentation to question number C. 1 (IWR # 3). The OLD passed a mill levy in 1983 to provide funding to construct LP&VHPP compatible units for the Corps/and or pay its construction contributions. <sup>(12) (13)</sup>

An example of a local sponsor being stressed financially was the LBBLD which did not have the money to purchase borrow pits required by the NOD for construction of levees in St. Bernard Parish in 1975. Correspondence from Col. Rush <sup>(86)</sup> indicated the NOD felt confident that suitable alternatives would be developed in the near future.

The High Level Plan proposed barriers across the three drainage canals in Orleans Parish to control hurricane impacts, but left 5,500 acres of the City to flood from other storm related sources. The remedy would require either relocated pumping plants, or modified levees/flood walls along the length of the canals all at 100% local cost. <sup>(43)</sup>

The Corps' position was that any project improvement south of the proposed barrier gates constituted internal drainage and a project

induced betterment not eligible for federal funding and thus an OLD responsibility.<sup>(43)</sup> This lack of cost sharing was an insurmountable issue and the issue was not resolved until the Conference Report (H. Rept. 101-966) for WRDA 1990 <sup>(105)</sup> required the Corps to incorporate parallel drainage canal levees as federal/local cost shared units, and the Energy and Water Development Appropriations Act of 1992 <sup>(105)</sup> required full (70%) federal cost sharing.

**Question C. 6:** (IWR No. 8)

Why did local sponsors obtain specific congressional authorization for the parallel protection plan for the outfall canals?

**Answer:**

The record suggests that the decision to seek congressional assistance with the canals was produced by two issues. The first was the perceived need to keep the drainage pumps on in major storms. The second issue was the huge cost impact on the local sponsor of assuming the modification of the canal/drainage system without federal assistance.

**Documentation and Background:**

The local sponsor most impacted by the canal issue was Orleans Levee District. The District took a lead role in securing federal participation in the three drainage canals <sup>(8)</sup> because of the joint impact of two factors. First, the Corps design forced the shut down of the Sewerage and Water Board pumps during hurricanes with significant lake storm surges. While the project would prevent storm surge flooding of up to 14,500 acres, up to 5,500 acres would remain flooded from other storm sources and the pumps would be off. <sup>(43)</sup> The District concluded that the public would not understand, nor accept such a result after spending over \$300,000,000 in local dollars for the project. <sup>(43)</sup>

The second issue was cost. To build a system which kept the pumps on required the OLD to pay 100% of the canal/pump modifications south of the barrier gates planned by the Corps. <sup>(61)</sup> (While the Sewerage and Water Board owned the drainage system, it was not a local sponsor and, therefore, it was the Levee District which was obligated to pay the cost of any drainage system modification.)

The Corps had determined the canals and pumps to be outside federal funding authority because of its policies concerning local/urban drainage and betterments. Therefore, the OLD had to either force the turn off of the pumps in major hurricanes, or seek federal help to keep them on. <sup>(43)</sup> <sup>(64)</sup> Given the significance of the issue to the people, the cost, and the financial stretch caused by the rest of the project, the choice seems a simple one. It is of interest to note that application of Corps policy of allowing 50%-50% cost sharing on the modification of major outfalls, may have avoided the 10 year long debate, related project delays, and turmoil caused by this issue. <sup>(64)</sup> This could have come from formally recognizing the canals as an integral component of the hurricane protection system.

**Question C. 7:** (IWR No.'s 13 and 14)

Were local sponsors concerned about residual risk of a greater than design event; or by delayed construction of the authorized project? Was the risk of either overtopping or structural failure given weight in local sponsor decision making?

**Answer:**

There was no indication or evidence that residual risk of a greater than design event or the risk of either overtopping or structural failure was given weight in local sponsor decision making. Delayed construction of the authorized project was the evident reoccurring concern of local sponsors.

**Documentation and Background:**

There was no documentary evidence that local sponsors or the Corps were concerned about or gave weight to residual risk, or the risk of either overtopping or structural failure. There is no record of a discussion or dialog of this nature by the Corps, State or local interests. This question was asked in the interviews with local sponsors and they all indicated it was not discussed. (16) (17) (54) (71) (90)

An example of a logical and likely opportunity for a discussion of this nature would have been at a special meeting of the OLD Engineering Committee, Sewerage and Water Board and Corps of Engineers in November 1990 where there was a thorough



presentation by the NOD and discussion of the parallel versus frontal protection issue. <sup>(43)</sup> Design frequencies were an integral part of the discussions but no mention was made of the consequences of overtopping or structural failure. In fourteen pages of presentation, questions, answers and discussion no one thought to address what now seems a logical issue.

It is important to note that the Corps was aware of and had calculated the potential of overtopping and subsequent flooding, discussing in detail in the Chalmette GDM (Hydrology and Hydraulics) the levee overtopping experience to be expected in the design storm event. <sup>(95)</sup>

There is considerable documentation, however, with regard to local sponsors acting to speed up construction. Getting as much protection as quickly as possible was a consistent thread beginning with project authorization in 1965. Some examples are advance interim levee construction by OLD in 1964 <sup>(57)</sup>, advance levee construction by PLD in 1967 <sup>(49)</sup>, special thirty year project funding election and \$50 million bond issue for 1984 Interim Hurricane Protection Plan by OLD <sup>(11)(12)(13)</sup>, and advance escrow of local cost share funds to accelerate Corps project work in the PLD <sup>(54)</sup>.

### **QUESTION C. 8:**

How did local navigation, commerce, environmental opposition influence the project decision process and the change to the High Level Plan?

#### **Answer:**

The record suggests navigation, commerce and environmental concerns arose on a somewhat limited basis as early as 1965 for the barrier complexes, and 1967 relative to the Seabrook lock and the unprotected commerce along the IHNC. By 1971, the raft of environmental and North Shore issues, centered on the “bottling up of the lake”, had coalesced into a formidable presence.

As the volume of the debate grew, political personalities joined in, or slipped out, leaving the Barrier Plan in a weakened public position. The advent of NEPA (1969) and the Clean Water Act (1972) created a new procedural horizon for the project at a critical period and provided opponents the tools to block it.

The record suggests to these authors that the project’s inability to assuage the project opposition to the Barrier Plan in the 1960’s and 1970’s, and the decision to abandon that plan in favor of the High Level Plan, was a significant precursor to the Katrina experience among the many in the decision chronology.

The Corps made notable efforts early on to remedy design impacts raised as concerns. However, there appeared to be no cohesive project management team and connected support base to represent the project before the community.

Opposition movements not adequately addressed take on independent life and can refocus debate from the project's positives (saving lives) to avoiding negatives. Though not overt, it appears likely the project design focus changed by 1978 from maximizing protection to minimizing mitigation costs.

### **Documentation and Background:**

Project concerns related to the barrier complexes appeared as early as 1965 <sup>(76)</sup>. The 1976 Comptroller General Report suggests localized opposition to the barrier complexes blocked project right-of-way acquisition. <sup>(2)</sup> In 1967, Capt. Neville Levy wrote of concern as to the Seabrook Lock and levee structure <sup>(40)</sup>. The Corps addressed both as early as 1967 <sup>(37)</sup>. In addition, concerns as to the size of the barriers and Seabrook lock were addressed by the Corps by 1971<sup>(47)</sup> <sup>(52)</sup>.

The record suggests, however, that the opposition issues were growing faster than they could be countered, as evidenced in the 1971 Levy letter <sup>(41)</sup> and the 1973 Scogin letter <sup>(9)</sup>. Opposition energy can be sustained by personal as opposed to altruistic goals. This appears to be somewhat the case in 1967-1971. <sup>(41)</sup>

The Corps efforts to address the environmental question was presented in the August, 1974, Environmental Impact Statement, and considered in the February 22, 1975, public hearing. <sup>(18)</sup>

The 1975 EIS hearing record summary indicates the opposition was primarily focused on environmental issues (31 comments) followed by concerns about project size and operation (16 comments,

though 4 thought the project to be undersized) and lastly navigation/commerce issues (7 comments). <sup>(18)</sup>

By 1977, project opponents had secured a federal court injunction based on an inadequate EIS <sup>(4)</sup>, and by 1981, the Corps had surrendered the Barrier Plan and conducted its first public meeting on the High Level Plan. <sup>(10)</sup>

**D. What Corps related factors (policy, project management, funding, scheduling) most significantly influenced the project decision process?**

**Question D. 1:**

To what extent did the estimated cost of individual project features influence project design /construction decisions?

**Answer:**

While the NOD and local sponsors (as a general matter of managing costs) had an interest in the most efficient approach for each project feature, there was little evidence that the estimated cost of individual project features greatly influenced project design/construction decisions. However, cost control may have been a by-product of local sponsors seeking to influence design/construction decisions. For example, when local sponsors moved ahead with advanced design and construction of project features it was primarily motivated by wanting to speed up the project, but some control over design/construction decisions would have resulted as well. The LBBLD on one occasion influenced design/construction considerations on a project because they did not have money to provide the land needed for a borrow area. <sup>(86)</sup>

The most contentious design/construction issue was the frontage versus parallel approaches for the drainage canals in Orleans Parish. Cost and who paid it, was the driving issue in this debate between local sponsors and NOD.

## **Documentation and Background:**

Local sponsors would on occasion design and construct, subject to NOD approval, project features in advance of NOD being prepared to move forward receiving LCA cost share credit for their work. Some examples were cited in the Documentation and Background provided for Question C. 7.

While the main motivation for local sponsors was to speed project construction, their control of design and construction gave them greater control of costs than if NOD alone controlled the design/construct process. However, there is no evidence that local sponsors advanced their project design and construction activities solely to reduce costs.

In one documented incident the LBBLD was unable to purchase land needed for a borrow area because of lack of funds. <sup>(25) (80) (86)</sup> In this case NOD indicated they would conduct a study to determine feasible alternatives.

The OLD was actively involved in design/construction decisions. They hired Design Engineering, Inc., DEI, in 1984 to provide all necessary coordination of the hurricane protection projects. <sup>(91)</sup> The OLD also engaged DEI for engineering services on several non-federal projects. DEI's overall coordination role provided opportunities for OLD to consider cost as a part of design/construction decisions. Also, DEI was preparing designs for project features, subject to NOD review and approval that allowed opportunities to consider cost in the design/construction decision process. <sup>(45)</sup>

Cost was an issue in the disagreement between OLD and NOD on how to deal with the drainage canals. The NOD argued that gates near the lake would take care of hurricane protection and was the least cost project. OLD argued that while true, just installing gates would make it difficult to drain the city of water resulting from hurricane related rainfall without great expense. <sup>(43)</sup> NOD saw their responsibility as hurricane storm surge protection only while OLD saw their responsibility as protection from both hurricane surge and rainfall. <sup>(43)</sup>

## **Question D. 2:**

To what extent did Corps policy, practices, or regulations define or limit the scope of project decisions?

### **Answer:**

The Corps decision process related to federal local flood protection projects functions within an institutional framework of law, regulation and policy that exerts significant influence on the scope of project decision making. From the perspective of the local sponsors, their ability to influence project formulation, design, and construction was limited by a number of Corps policies, practices and regulations including: benefit/cost ratios, the requirement to evaluate the LP&VHPP as a series of separable economic units, local funding of betterments, prohibition of federal funding of interior/local drainage, prohibition against construction loans from local sponsors to the Corps, backside levee protection, transfer of operation and maintenance to local sponsor upon completion of construction, and project management.

### **Documentation and Background:**

The policy that required the LP&VHPP to be evaluated as a series of economic units rather than a system <sup>(52)</sup> resulted in not being able to consider project features which may be integral to the flood protection goal but which are not strong on the B/C scale. This made it difficult to evaluate the LP&VHPP as a system. <sup>(51)</sup>



In terms of betterments, Corps policy prohibits federal funding of any non-project feature that improves the condition or function of the feature from its pre-project condition. This policy along with that prohibiting federal participation in interior/local drainage contributed to the stalemate on the drainage canal design. (43), (53), (64)

The prohibition against construction loans from local sponsors to the Corps to accelerate construction is considered unauthorized debt. Federal law does, however, allow local design and construction of project features for credit against the local cost share. But a sponsor with cash but without major design and construction capability loses the opportunity to accelerate construction. (54)

The Corps states it can not fund backside levee protection because the expenditure would provide for an event greater than the design event and is therefore beyond the project's congressional authorization for spending. (55) This may have contributed to some of the Katrina driven system failures which resulted from overtopping.

The long period of construction of the LP&VHPP, about forty years since construction started, and the nature of the project has not allowed the NOD to transfer operation and maintenance responsibility to the local sponsors according to Corps policy (64) except for the Bayou Dupree Control Structure which has been turned over to LBBLD. (17) As the Corps is not structured to administer long term interim operations, gaps in maintenance of partially completed structures can arise, along with tension between the Corps and local sponsors. Local sponsors indicated they were responsible for weed

and grass control on partially completed structures, but they have rejected full operational acceptance until completion. (16) (17) (54) (71)

The project management approach for Corps projects was for the Corps to determine project scope, function and formulation and then design and construct the project. The local sponsors were to provide right-of-way, money, political support, and operation and maintenance of the completed project. The Corps consulted with local sponsors, and then made decisions based on its own criteria. (2), (43) This process tended to isolate local sponsors from the significant project decision making. On such a large multi-feature project as the LP&VHPP, it also tended to isolate features and sponsors from each other.

### **Question D. 3:**

Was the LP&VHPP managed as a system?

#### **Answer:**

There are two aspects to this question. The Corps focus was storm surge protection. Its multi-featured project designed to keep the surge out of the lake and out of Jefferson, Orleans, St. Charles, and St. Bernard parishes was, in the Corps' view, the system.

The system consisted basically of levees and floodwalls encompassing six distinct areas: Chalmette, Citrus-New Orleans East, New Orleans, Jefferson Parish, St. Charles Parish, and Mandeville Seawall. The Corps has been locked in on this "system" since project authorization in 1965 and as modified in 1984. Looking at it from outside the perspective of the Corps, however, the LP&VHPP looks like a series of individual features.

The Corps vision of the system, however, did not include its project's relationship to, or impact on, the City of New Orleans's major drainage systems. Ultimately, these were excluded by the Corps from the "system" view until OLD secured congressional approval of the parallel levee option. In essence the Corps was selling the project as a hurricane protection system, but was planning to build a storm surge protection system. <sup>(19)</sup>

As discussed in question D. 2, Corps policy did not allow them to consider essential items as a part of the LP&VHPP, most notably local drainage, betterments, and what to do if the levees and floodwalls failed or were overtopped during events in excess of the

design hurricane. In the case of the drainage canals there were two flooding issues: one from hurricane surges and the other from interior flooding due to hurricane rainfall. Citizens expected the system to protect them against both threats, but the Corps' betterment policy and local drainage policy prevented them from doing so. Levee overtopping should be a design consideration, but policy apparently prevents the Corps from considering anything over the authorized event level.

### **Documentation and Background:**

The 1964 Chief's report <sup>(80)</sup> and the 1984 Reevaluation Study <sup>(38)</sup> provide the basis for the system of features for the LP&VHPP.

The policies that restricted the Corps are provided in the Background and Documentation section of question D. 2.

The 1976 Comptroller General's Report indicates Corps awareness of the integral character of the drainage canals and discusses design options being considered. <sup>(2)</sup> In the 1982 GAO report, Corps officials said, "...this feature (canals remedy) is essential if the project is to be completely effective." <sup>(3)</sup> By the 1984 Reevaluation Study, Corps policy concerns were beginning to influence the "system's" design.<sup>(38)</sup> The IPET concluded that the project was a "system in name only". <sup>(51)</sup>

#### **Question D. 4:**

What impact did the federal budget/appropriation experience have on the project relationships?

#### **Answer:**

The federal budget/appropriation experience did not seem to be an issue that adversely affected project relationships, perhaps with the exception of the disconnect in the federal budget process, wherein annual appropriations are not linked to the project's completion schedule. Such budgeting focuses on getting some money each year, but not necessarily the amount needed to hit the completion target. This creates project management tensions among both the federal and non-federal entities. There was frustration on the part of local sponsors with project delays which in some cases could have been related to the appropriation process.

#### **Documentation and Background:**

A key role for the local sponsors was to develop political support for the annual federal appropriations. Local sponsors were depending on the Corps to build the LP&VHPP and it took a flow of federal dollars to fund project planning, design and construction. Local sponsors took on this responsibility of developing political support throughout the life of the project.

The NOD indicated that when a plan and cost estimates were developed they would meet with local sponsors to get their concurrences on their respective cost shares. <sup>(3)</sup> The local sponsors

would then work with their congressional delegations to gain political support for authorizations and appropriations. This was a symbiotic relationship in that the local sponsors depended on the Corps to do projects and the Corps depended on local sponsors to lobby for the funding to keep the work flowing. <sup>(16)</sup> <sup>(90)</sup>

Certainly the escalation of costs was a strain on project relationships. Local sponsors indicated in the 1982 GAO report that they were concerned with their ability to meet their share of project costs. <sup>(3)</sup> The 1964 Chief's report estimated the cost of the LP&VHPP to be \$79,800,000. <sup>(80)</sup> By 1985 and the adoption of the High Level Plan, project costs had escalated to \$865,000,000 comprised of \$181,000,000 in costs expended to date and \$684,000,000 in remaining costs. <sup>(10)</sup>

The Corps has to compete for a share of the total federal budget and the funding they get is that which can be won politically, not necessarily what is needed to maintain the projects' planned completion schedule. <sup>(19)</sup> The more that is needed the harder is the political challenge and the greater the need for harmony in the Corps/local sponsor relationship.

## **IV. DISCUSSION:**

### **A. Objectives and Actions of Local Sponsors**

The local sponsors of federal local flood protection projects, including the LP&VHPP sponsors, are driven by a clear and eminent set of objectives. First, the lives and property of the citizens must be protected. Second, the protection must be provided as quickly as possible. Third, the cost of the protection must fit within the local revenue capabilities. And in the context of LP&VHPP, a fourth factor for OLD involved their concern that hurricane protection features had to be consistent with the interior drainage pumping capacity at the drainage canals.

Once the determination of life and property protection need is affirmed (a protective project of some type is needed), the balance of the project focus is bound up in the negotiation of the question “how much can we get for what we can afford or are willing to pay?”; and, in the effort to secure timely completion of construction. In the case of the LP&VHPP, the issues of timely completion, and how much project could be afforded became entangled in the accumulation of construction delays and significant cost increases.

Because of the size, complexity, and cost of regional local flood protection projects in general, most local sponsors are dependent on the federal entity to one degree or another for funding, engineering, construction and overall project management. That was certainly true in the LP&VHPP instance wherein there was substantial variability in on-the-ground project defining circumstances and in the technical and

financial capabilities of the individual local sponsor entities. The Corps' own engineering forensics study conducted following Hurricane Katrina (IPET, 2006) observed that some of the problems seen in the inter-connection of project structures evolved from these differences among the local levee entities. <sup>(51)</sup>

Throughout the course of most any federal/local flood protection project, there is an on-going negotiation in which the local interests are trying to secure their objectives within the policy framework of the federal entity. Those negotiations can and do address the design storm protection level, type and location of the structures, factors that impact cost share (e.g., eligibility for federal cost share – local drainage, betterments, construction credit), LERRD's versus cash payment, construction schedules, and more.

It has been suggested that evidence of such negotiations in the LP&VHPP case was a sign of local dysfunction in project management. To the contrary, such on-going negotiations in the project management process are common and inherently necessary function resulting from the tensioned institutionalized differences between the Corps and its local project partners. Further, the record shows consistent, continuing efforts on the part of the LP&VHPP local sponsors to expedite project construction.

Some examples are listed below:

- advance interim levee construction by Orleans Levee District, 1964 <sup>(57)</sup>
- advance interim levee construction by Ponchartrain Levee District in 1967 <sup>(49)</sup>



- special project funding election and related \$200,000,000 capital construction program, Orleans Levee District, 1974 <sup>(11)</sup> <sup>(46)</sup>
- State funding assurances for local project cost share, Pontchartrain Levee District, 1976 <sup>(28)</sup>
- special 30 year project funding election, and \$50,000,000 bond issue for 1984 Interim Hurricane Protection Plan, Orleans Levee District, 1984 <sup>(11)</sup> <sup>(12)</sup> <sup>(13)</sup>
- design negotiations and construction on drainage canal construction, Orleans Levee District, 1990 <sup>(8)</sup> <sup>(53)</sup>
- special legislation securing federal funding of the drainage canal levees, Orleans Levee Board, 1990 <sup>(8)</sup> <sup>(105)</sup>
- local project cost share funding commitment, St. Charles Parish <sup>(20)</sup>
- advance escrow of local cost share funds to accelerate Corps project work, Pontchartrain Levee District <sup>(54)</sup>
- special levee frontal protection project, East Jefferson Levee District <sup>(71)</sup>

Recognizing their greatest risk to be that arising from an incomplete project, the locals negotiated actively and acted strongly to secure a functional project. This does not suggest that every strategy decision or tactic was optimal, but they appeared focused on minimizing the pre-eminent risk of an incomplete project.

## **B. Objectives of the Corps of Engineers**

The United States Army Corps of Engineers, while linked to local sponsors by a common project, is driven by a completely different set of objectives. First, it must exercise and protect the federal interest, defined as the participation in local projects which meet the test of a positive benefit-to-cost ratio in cases where lives and property are at risk. <sup>(64)</sup> Second, the Corps must insure that the project development is administered consistent with federal law, rules and policy. Third, the Corps must secure a continuing flow of funding to continue the advance of the project.

The only institutional linkage between the Corps' objectives and the previously cited objectives of the local sponsors is the negotiating table. At that negotiating table the Corps positions and strategies are based on its objectives, just as those for the local sponsors are shaped by theirs.

## **C. What Was Different About the LP&VHPP Experience**

The question arises; was there a difference in the LP&VHPP federal/local relationship from that "typical" relationship defined above? In many ways the answer is no. The progression of the project from its inception until Hurricane Katrina saw both parties, the Corps and the local entities, negotiating, advocating and deciding based on their pre-eminent objectives. In many ways, because of the 1958 cost sharing requirements, that preceded by decades the 1986 cost sharing reforms, the LP&VHPP reflects the contemporary water development planning process in terms of project financing.

The Corps was following their policies which focused on the least cost option (best seen in the 1984 Reevaluation Study <sup>(38)</sup> and decision, and the Orleans Levee Board meeting with the Corps in 1990 <sup>(43)</sup>). Concurrently, the local sponsors were pressing for the timely completion of a project producing significant local protection benefits, including protection for its major drainage system's functions. <sup>(8)(11)(43)(50)(53)</sup> (see questions C-1 and C-7)

This said, the LP&VHPP project environment also differed in many significant ways from "typical" local protection projects.

- At a time the project should have been in its most active design and construction phase, major changes in controlling national policy were implemented by the Congress, such as the need to comply with the National Environmental Policy Act of 1969 and the Clean Water Act of 1972. Such legislation and related regulations empowered opponents of the barrier plan.
- The complexity of the project's risk based need factors, and the complexity of the necessary protective system, added a tremendous dynamic to the federal/local project relationship. That complexity was found in the relationship between the geographic and hydrologic features of the project area. The system needed to control the risks, and needed to interface with a uniquely related urban drainage system as an integral component of the flood prevention system.

- The complicated, variable and risk prone geology induced continuing pressures on project management from at least 1962 until 1984, and beyond. Known and unknown foundation problems were cited as the cause of project design decisions and delays throughout that period. <sup>(2) (7)</sup> Over time the costs to address that reality grew.
- The extended construction schedule was produced by some uncontrollable factors, such as settlement time required between levee lifts; and some controllable issues like disputes over plans and design, budget appropriations, design work schedules and right-of-way delivery. Unfortunately, the forty year (and growing) construction process for the LP&VHPP saw site conditions change (from erosion, subsidence, and other factors) as the project was being built.
- There were significant local priority conflicts between navigation, environmental and flood protection interests that, in some cases, may not have been resolved on August 29, 2005.
- There was a tremendous amount of levee and flood protection work that pre-existed project authorization and needed to be incorporated into the planned HPS.
- There were a significant number of variably capable local entities who had to assume significant project responsibilities which may have exceeded both technical and financial capabilities. Relatedly, the project

authorization arrived so quickly after Hurricane Betsy in October 1965 that it was ten years before the project was fully covered by LCA's. (63) (65) (74)

- The project was beset from the beginning with tremendous increases in project costs, from \$85,000,000 in 1965 to over \$1,100,000,000 in 1984 (inclusive of the drainage canals). (3) (10)

## APPENDIX A

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## APPENDIX B

### LIST OF ABBREVIATIONS

Corps: United States Army Corps of Engineers  
CPI: Central Pressure Index  
CRS: Congressional Research Service  
CWA: Clean Water Act  
EIS: Environmental Impact Statement  
EJLD: East Jefferson Levee District  
GAO: General Accounting Office  
GDM: General Design Memorandum  
HPDCT: Hurricane Protection Decision Chronology Team  
HPDC: Hurricane Protection Decision Chronology  
HPS: Hurricane Protection System  
IHNC: Inter Harbor Navigation Channel  
IPET: Interdisciplinary Performance Evaluation (Team)  
LaDOTD: Louisiana Department of Transportation and Development  
LaDPW: Louisiana Department of Public Works  
LBBLD: Lake Borgne Basin Levee District  
LCA: Local Cooperation Agreement  
LERRD: Lands, Easements, Rights-of-way, Relocations, and  
Disposal  
LMNED: Lower Mississippi New Orleans, Engineering Division (?)  
LMVD: Lower Mississippi Valley Division  
LP&VHPP: Lake Pontchartrain and Vicinity Hurricane Protection  
Project  
NEPA: National Environmental Policy Act  
NOD: New Orleans District (Corps)  
OLD: Orleans Levee District  
OMRR&R: Operation, Maintenance, Repair, Replacement, and  
Rehabilitation  
PCA: Project Cooperation Agreement  
PLD: Pontchartrain Levee District  
PMH: Probable Maximum Hurricane  
SFCP: Statewide Flood Control Program  
SPH: Standard Project Hurricane  
USACE: United States Army Corps of Engineers

## APPENDIX C

### LIST OF INTERVIEWEES

1. Walter Baudier, President  
Design Engineering, Inc.  
[LP&VHPP coordinator and consulting design engineer;  
Orleans Levee District, 1982-1993]
2. Dan Caluda, (Retired) (\*)  
Lake Borgne Basin Levee District  
[Executive Director, 1985-2001;  
Board President, 1978-1985;  
Commissioner, 1960-1972]
3. Fran Campbell, Executive Director  
East Jefferson Levee District  
[2003 to Present]
4. Harold Gorman, (Retired) (\*)  
Sewerage and Water Board of New Orleans  
[Executive Director, 1986 -2003]
5. James P. Huey  
Orleans Levee District  
[Board President, 1996-2005;  
Commissioner, 1992-1995]
6. Vic Landry  
Orleans Levee District  
[Commissioner, 1996-2003]  
  
East Jefferson Levee District  
[Commissioner, 1994-1995]  
  
U.S. Army Corps of Engineers (Retired) [1956-1993]
7. Shelby P. LaSalle, Jr., Chairman/CEO

Krebs, LaSalle, Lemieux Consultants, Inc.

8. Mona Nosari, Director, Real Estate, **gcr**  
Representing:  
Pontchartrain Levee District,  
East Jefferson Levee District  
[Consultant, 1991 to Present]
  
9. Edmond J. Preau, Jr., P.E. (\*)  
Assistant Secretary for Public Works,  
Hurricane Flood Protection and Intermodal Transportation,  
Department of Transportation and Development,  
State of Louisiana
  
10. Stevan G. Spencer, Director  
Hurricane & Flood Protection  
Orleans Levee District  
[1993 to Present]
  
11. Robert A. Turner, Jr., P.E., Executive Director,  
Lake Borgne Basin Levee District  
[2001 to Present]
  
12. Randall D. Withers, E.I., (\*)  
Project Development Engineer,  
Department of Transportation and Development  
State of Louisiana

(\*) Interviewed by telephone



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