2ND "Mini-Report"

Mississippi River-Gulf Outlet
New Lock and Connecting Channels, Louisiana

Evaluation Study

PURPOSE

This report presents the information and rationale supporting selection of the North of Claiborne Avenue location for a replacement lock for the Inner Harbor Navigation Canal (IHNC) Lock in New Orleans, Louisiana.

SCOPE

The report presents the results of an analysis of alternative locations for replacement of the IHNC Lock near the site of the existing lock in New Orleans, Louisiana. Only alternative locations in the vicinity of the existing lock were considered in this analysis. The IHNC site was selected over an alternative site near Violet, Louisiana, for the replacement lock as the result of a previous analysis. In a CELMN-PD-FG report dated January 1991, the Commander, New Orleans District, recommended the IHNC site for the location of a replacement lock. Headquarters, U. S. Army Corps of Engineers, concurred in the recommendation by CECW-PC second endorsement dated 26 June 1991. Other alternative sites for the replacement of the IHNC lock are not being considered further.

Alternative plans for providing a replacement lock for shallow-draft traffic only and for shallow- and deep-draft traffic are being developed in the overall study. For the purposes of this report, all alternatives are evaluated based on a shallow-draft lock. Most of the cost of a replacement lock and the social impacts would accrue to the implementation of the shallow-draft increment of a deep-draft lock. Adding the deep-draft increment to any of the alternative plans would not affect its relative economic standing or its relative implementability as a result of associated social impacts.

PROJECT SETTING

The existing IHNC Lock is a connecting link in the Gulf Intracoastal Waterway (GIWW) system for shallow-draft traffic and serves as a connecting link for deep-draft traffic between the Mississippi River and the Mississippi River-Gulf Outlet (MR-GO). (See Figure 1 for photo of the existing lock setting.) The lock, which is 75 feet wide, 640 feet long and 31.5 feet deep, is dimensionally inadequate to handle existing traffic. Delays average between 10 and 15 hours during normal river and tide conditions and extend up to 36 hours during periods of large head differential.

The IHNC and the IHNC Lock are located in a densely developed area in the Ninth Ward of New Orleans. The area is shown on Figure 2. Transshipment facilities and a U. S. Coast Guard Station are located immediately adjacent to the IHNC on its west side. These facilities are flanked by commercial and residential development, including the Bywater neighborhood near the Mississippi River and the St. Claude neighborhood located generally between St. Claude and Florida Avenues. The area along the east side of the IHNC is primarily residential development, including the Holy Cross neighborhood near the river and the Lower Ninth Ward neighborhood located generally between St. Claude and Florida Avenues.

The GIWW/IHNC and GIWW/MR-GO restricts access from the Holy Cross and Lower Ninth Ward neighborhoods of New Orleans and all of St. Bernard Parish to the rest of the metropolitan area. All vehicular and pedestrian access from these areas is via four bridges; a four lane high-rise bridge (I-610) between Chalmette in St. Bernard Parish and Interstate 10 in eastern New Orleans, a low-level 4-lane bridge over the IHNC at St. Claude Avenue immediately adjacent to the IHNC lock, a four-lane mid-level bridge over the IHNC at Claiborne Avenue, and a 2-lane low-level bridge over the IHNC at Florida Avenue. The three bridges over the IHNC are the shortest route for the residents "below the lock" to reach the downtown New Orleans area. The three bridges average over 90,000 crossings daily. The low-level St. Claude Avenue bridge is also a major pedestrian route averaging approximately 750 crossings daily.

The Louisiana Department of Transportation and Development is developing plans for replacing the Florida Avenue bridge with a high-level bridge. The existing Florida Avenue bridge is a combination vehicular/railroad

bridge. The U. S. Coast Guard is processing an application for the replacement of the railroad bridge under the authority of the Truman-Hobbs Act (PL 77-647, as amended). The replacement of the Florida Avenue bridge is a most probable future (without project) feature. The Claiborne and St. Claude Avenue bridges would be impacted to various degrees by the alternatives for the replacement of the IHNC Lock.

Most of the benefits that would accrue from the replacement of the IHNC Lock result from a reduction in delays in the movement of inland navigation through the study area and ultimately result in reduced costs to end product users nationwide. Only three percent of the traffic moving through the IHNC lock has an origin or destination at the Port of New Orleans. See Table 1 for traffic summary.

Table 1

DISTRIBUTION OF 1989 IHNC LOCK TRAFFIC

	TOTAL IHNC TRAFFIC (TONS)	% OF TOTAL TRAFFIC	NORTH/EAST TRAFFIC (TONS)	% OF NE TRAFFIC	WEST/EAST TRAFFIC (TONS)	% OF WE TRAFFIC
Farm Products	498,998	2%	480,667	3%	18,331	0.22%
Metallic Ores & Products	1,383,955	5%	1,237,311	7%	146,644	2%
Coal	7,438,121	29%	7,438,121	43%	0	0%
Crude Petroleum	3,460,396	13%	976,610	6%	2,483,787	29%
Nonmetallic Minerals	1,443,020	6%	869,682	5%	573,338	7%
Forest Products & Pulp	160,901	1%	159,883	1%	1,018	0.01%
Industrial Chemicals	1,598,829	6%	1,040,767	6%	558,063	7%
Agricultural Chemicals	542,787	2%	501,034	3%	41,753	0.5%
Petroleum Products	7,500,241	29%	3,359,578	20%	4,140,663	49%
All Others	1,619,197	6%	1,134,456	7%	484,741	6%
TOTAL	25,646,445		17,198,108		8,448,337	

The neighborhoods that would be negatively impacted by the replacement lock and associated bridge replacements, receive virtually no project benefits. The lack of local beneficiaries has delayed -- and for long periods stopped altogether -- efforts at developing an implementable plan. The economic impact

of this continuing impasse -- measured in terms of future net benefits forgone -- has reached the point where additional delays in project implementation cause future losses of $45-50 million annually.

STUDY HISTORY

Since 1960, New Orleans District had studied numerous options for replacement of the IHNC Lock. However, until now, the district has been unable to identify a site with the potential to mitigate both environmental and social impacts enough to sustain local sponsor support.

The initial public meeting on the IHNC Lock replacement was held in February 1960. Sites in the vicinity of the existing IHNC Lock and in St. Bernard Parish downstream of the existing lock were developed. Efforts were focused on an IHNC replacement site. At the time, foundations conditions dictated that a lock could not be located closer than 750 feet from the existing IHNC Lock. This would have resulted in significant impacts to business, industries, and residents. Approximately 4,100 persons would have been relocated. As a result, the local sponsor withdrew support and requested consideration of a site in St. Bernard Parish.

Site selection studies in the late 1960's and early 1970's resulted in the development of a lock replacement plan for a site in the vicinity of Violet, Louisiana, in St. Bernard Parish. At public meetings in late 1972, St. Bernard Parish, Plaquemines Parish and environmental groups opposed the plan citing the lack of quantification of environmental damage, severing of lower St. Bernard and the "east bank" of Plaquemines Parish from the rest of the metropolitan area, fear of increased flooding, and fear of increased cost for hurricane protection. Despite these objections, after further studies, a plan for the construction of a ship lock in the vicinity of Violet was recommended in a March 1975 site selection report. The report was subsequently approved by the Chief of Engineers.

In April 1977, subsequent to the submission and approval of the site selection report, President Carter, citing environmental considerations, directed that the Violet site be eliminated and that the Corps undertake further studies of a replacement lock at the IHNC site with emphasis on actions to minimize the

displacement and disruption of residents. Subsequent efforts were focused on the development of an implementable plan at the IHNC site.

In 1982, after extensive comparative economic analyses, a preliminary draft report was prepared with a tentatively selected plan being a new lock adjacent to and east of the existing lock. The district identified this site as the NED plan on the basis of economic considerations. However, the district also recognized that this site had the most severe negative impacts on local neighborhoods. After review by LMVD and subsequent preparation of a revised draft report addressing division comments, the New Orleans District was instructed to stop working on the report until further notice as a result of pending litigation on another project.

The Water Resources Development Act of 1986 (PL 99-662) and a letter of support from the Governor of Louisiana provided the impetus for the district to review the previous studies. This effort began in FY 1987 and reaffirmed the previous tentatively selected plan. However, significant public debate arose surrounding disclosure of the tentatively selected plan, east of the existing lock. In 1990, faced with near-certain loss of local sponsor support, the New Orleans District decided to reexamine all potential plans at the IHNC site and engage in an open planning process with a goal of minimizing social and cultural impacts.

PUBLIC INVOLVEMENT

The Appropriations Committees of the U.S. House of Representatives and the U. S. Senate, in conjunction with the the FY 1991 Appropriations Act, directed that the Corps establish a broad-based community participation process to assist in the development of an alternative at the IHNC that would be acceptable to all the stakeholders. They further directed the Corps to give maximum consideration to alternatives which minimize residential and business disruption while meeting the goal of improving waterborne navigation and to develop a comprehensive plan to identify and mitigate to the maximum extent possible any social and cultural impacts. They also directed that the Corps designate an advisory group for the purposes of exchanging information and receiving opinions and advising the District Engineer.

In an initial response, the Corps established the Industrial Canal Lock Advisory Council. Membership of the Council included four community

representatives, three business representatives, four navigation industry representatives and four local elected officials. The Council held two contentious public meetings in February and June 1991 that underscored the extent of opposition in the neighborhoods to construction of the replacement lock and the depth of distrust that the neighborhoods had for other stakeholders in the process.

Lack of progress by the Council prompted the district to try a more direct approach in communicating with local interests. A Neighborhood Working Group (NWG) was established. The NWG consisted of representatives of the Holy Cross Neighborhood Association, the Lower Ninth Ward Neighborhood Council, the Bywater Neighborhood Association, the St. Claude Avenue Business Association, the Historic Districts Landmark Commission, the New Orleans City Planning Commission, the Port of New Orleans and the Corps.

At the first meeting of the NWG, held on August 28, 1991, the district representatives explained that the NWG was established to provide a more direct and effective means of communicating with the concerned community interests. Although local community representatives on the NWG repeated their determined opposition to building a replacement lock and bridges within their neighborhoods, they approved of the new, direct approach and indicated their willingness to listen and work with the Corps. Subsequent meetings were held every two weeks over a period of 4 months. A meaningful dialogue evolved after the first couple of meetings. Project issues and neighborhood concerns were openly discussed and local concerns have since been considered and addressed in our formulation of plans and mitigation features. We specifically discussed the North of Claiborne Avenue alternative, and NWG representatives unanimously concluded that such an alternative was the "least objectionable" plan because it would be much less disruptive to their neighborhoods than other IHNC plans.

On December 12, 1991, the Corps attended a meeting with the Port of New Orleans (the local project sponsor) and local elected officials . The elected officials expressed their desire to be more involved in the project. At the request of the Port, we have delayed any further meetings with neighborhood groups until the Port and elected officials have an opportunity to become more fully involved in the planning process. A follow-up meeting was held with the Port and elected officials on March 20, 1992. The Port and local elected officials agreed that only the North of Claiborne Avenue alternative is implementable and refused to

support the 200-Foot East Plan because of intolerable and unmitigable neighborhood impacts.

The district also established a Navigation Working Group to discuss lock replacement issues related to their interests. Members of that group include representatives of the American Waterway Operators, the Gulf Intracoastal Canal Association, the Louisiana Association of Waterways and Shipyards, the Louisiana Intracoastal Seaway Association, the Inland Waterway Users Board, the New Orleans Steamship Association, the Port of New Orleans, the U.S. Coast Guard, the Greater New Orleans Barge Fleeting Association, the Corps and other maritime users of the IHNC. The Navigation Working Group has met five times (December 1991, February, March, June and July 1992) to date for productive discussions on a variety of topics including the North of Claiborne Avenue alternative. The Working Group's position to date is that even if the North of Claiborne Avenue alternative causes some inconveniences to the navigation users during construction, it is the only alternative that has a possibility of being constructed.

The open planning process, which includes working with various stakeholders, has resulted in significant strides in addressing issues and concerns. It has enabled us to identify pertinent issues, find acceptable solutions and reach consensus on many issues, most importantly, that the North of Claiborne Avenue site is the only practicable site where a new lock can be built.

SCREENING OF PRELIMINARY IHNC PLANS

Eight preliminary alternative plans have been developed for a replacement lock in the vicinity of the existing IHNC Lock. These plans are comprised of various combinations of sites, construction techniques, and bridge replacement scenarios. The evaluation and comparison of the plans is limited to trade-offs between NED effects and social impacts. The impacts of any of the alternative plans on the natural environment are similar and insignificant. The preliminary plans are described below with the locations shown on Figures 3 through 6.

Plan 1 - 200-Foot East of Existing Lock-Conventional Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues.

Plan 2 - 200-Foot East of Existing Lock-Steel Float-In Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues.

Plan 3 - 200-Foot West of Existing Lock-Conventional Construction, with mid-level replacement bridges at St. Claude and Claiborne Avenues.

Plan 4 - In situ Replacement-Relieved Deck Construction, with mid-level replacement bridge at St. Claude and the existing Claiborne Avenue bridge.

Plan 5 - North of Claiborne Avenue Location-Steel Float-In Construction, with mid-level replacement bridge at St. Claude and the existing Claiborne Avenue bridge.

Plan 6 - North of Claiborne Avenue Location-Steel Float-In Construction, with low-level replacement bridge at St. Claude and the existing Claiborne Avenue bridge.

Plan 7 - North of Claiborne Avenue Location-Steel Float-In Construction, with low-level replacement bridge at St. Claude and a mid-level replacement bridge at Claiborne Avenue .

Plan 8 - North of Claiborne Avenue Location-Conventional Construction, with low level replacement bridge at St. Claude and existing Claiborne Avenue bridge.

The four sites represent the full range of technically feasible locations. The 200-Foot East plans generate the highest benefits but also generate the most severe social impacts.. The 200-Foot West plan, the In Situ plan, and the North of Claiborne Avenue plans were developed in response to the concerns of local residents and elected officials over the extensive social impacts to the neighborhoods in the vicinity of the IHNC Lock.

A significant amount of the social impacts (e.g., relocations, bisection of neighborhoods with bridge approach ramps, construction disruptions) are caused by the construction of the bridge replacements required for some of the lock plans. One of the significant advantages of the In Situ plan and the North of Claiborne Avenue plans is that they can be aligned to preclude the replacement of the Claiborne Avenue Bridge. With those plans, the St. Claude Avenue Bridge would also be replaced in-situ and not relocated to the east or west as with the 200-Foot East and 200-Foot West plans.

The construction technique used for the construction of the lock also has a significant effect on the cost and social impacts of some of the alternative plans. The district identified a float-in method of construction as the least cost construction option at the North of Claiborne Avenue site and the only construction method capable of taking full advantage of the mitigation potential of the North of Claiborne Avenue site. The float-in method of construction

involves a prefabricated, steel shell lock constructed off-site, floated in in two pieces 730 feet long and 180 feet wide, mated, and sunk into place by ballasting with concrete. The lock would be sunk onto a pile foundation driven below the waterline using pile followers. The construction excavation would be dredged to the required elevation and therefore no dewatering would be required.

Other variations of these seven plans were considered and dismissed. During the site evaluation process, the planning team considered the possibility of a hybrid plan which matches a 200-Foot East alignment with the community-preferred low-rise replacement bridge at St. Claude Avenue. The team quickly discovered that the reduction of social impacts attributable to a low-rise replacement bridge is not the same for the 200-Foot East alignment as it is for the North of Claiborne Avenue alignment. The shift of the new bridge opening centerline 200 feet east of the existing centerline would alone require real estate acquisitions and shift the noise contours further into the residential areas, effects not encountered with a replacement bridge consistent with the existing centerline. Furthermore, the necessity to replace the Claiborne Avenue bridge would remain. The team also recognized that a 200-Foot East plan featuring a low-rise replacement bridge at St. Claude Avenue would require that the bridge deck be located adjacent to the new lock chamber. In this case, the new bridge would simply replicate current levels of bridge interference to navigation and reduce project benefits in this category. In contrast, a low-rise replacement bridge associated with a North of Claiborne Avenue alignment would not cause this type of interference since the approach point for waiting tows would be located at a point between the low-level bridge and the lock chamber.

A summary of the economic analysis of the plans is presented in Table 2. The benefit estimates displayed in Table 2 represent a partial updating of a feasibility scope economic analysis that was completed immediately prior to the initiation of the open planning process. Elements of the analysis that were updated included the traffic base, (from 1985-1989), transportation rates, price level, discount rate, and project base year. Mitigation costs used in the initial screening are based on initial estimates developed by a contractor, subsequently refined by the Corps.

A single chamber size, 900 feet long by 110 feet wide by 22 feet deep, was selected as the basis for site screening in order to limit the scope of the screening process. This size was selected because it was determined to be the NED optimized chamber size in the earlier feasibility analysis. It is not expected that

Table 2
IHNC Lock Replacement Study
Site Optimization
900' x 110' x 22' Replacement Locks
1991 Price Levels, 8.5 Percent
($1,000)

Item	1 200 Ft East Conv Const Mid St Claude Mid Claiborne	2 200 Ft East Steel Float-In Mid St Claude Mid Claiborne	3 200 Ft West Conv Const Mid St Claude Mid Claiborne	4 In-Situ Relieved Deck Mid St Claude Existing Claib.	5 N. of Claiborne Steel Float-In Mid St Claude Existing Claib.	6 N. of Claiborne Steel Float-In Low St Claude Existing Claib.	7 N. of Claiborne Steel Float-In Low St Claude Mid Claiborne	8 N. of Claiborne Conv Constr Low St Claude Existing Claib.
Benefits (capitalized annual values)								
Shallow Draft	1,419,104	1,419,104	1,419,104	1,401,756	1,419,104	1,419,104	1,419,104	1,434,761
Vehicular	44,643	44,643	44,643	44,296	37,704	(26,601)	(19,661)	(26,863)
Total Benefits	1,463,747	1,463,747	1,463,747	1,446,052	1,456,808	1,392,503	1,399,443	1,407,898
Costs								
Lock Construction	$227,457	$237,873	$223,993	$162,628	$293,499	$293,499	$293,499	329,678
Right-of-Way	15,447	13,425	88,607	72,335	74,568	72,372	74,442	77,060
Bridges	124,677	124,677	130,603	47,580	49,411	10,915	57,375	10,915
Relocations	20,660	20,661	31,190	31,320	21,060	21,059	21,060	27,059
Mitigation								
Socio-Economic	46,057	46,057	46,531	38,489	34,823	7,022	31,464	7,022
Subtotal - Const	$434,298	$442,693	$520,924	$352,352	$473,361	$404,867	$477,840	451,734
Industry Losses - Closure	5,500	5,500	5,500	148,500	33,000	33,000	33,000	33,000
Total Cost	$439,798	$448,193	$526,424	$500,852	$506,361	$437,867	$510,840	$484,734
Interest During Construction	169,876	175,704	231,155	139,218	187,870	182,261	183,569	241,345
Interest Costs on Closure	2,122	2,122	975	41,598	3,807	5,212	5,212	6,187
Interest Cost on Mitigation	44,119	44,106	42,913	37,625	32,385	5,273	30,412	6,318
Total Present Value Costs	$655,915	$670,125	$801,467	$719,293	$730,423	$630,613	$730,033	$738,584
(Base Year)	2007	2007	2007	2006	2007	2007	2007	2008
Net Benefits								
Present Value Net Benefits	807,832	793,622	662,280	726,759	726,385	761,890	669,410	669,314
Present Value Net Benefits To Common Base Year (2007)	$807,832	$793,622	$662,280	$788,534	$726,385	$761,890	$669,410	$616,880

the ranking of sites on the basis of net benefits would be affected by the chamber size selected for the comparison.

The conventional, cast-in-place construction method design was based on engineering judgement and experience from similar projects. The float-in design was prepared in substantial part by EBASCO Services Incorporated. EBASCO designed the Sidney A. Murray Hydroelectric Power Station which was floated in and installed at the Old River complex in Louisiana.

In the screening of the IHNC plans, we eliminated the Plan 3, the 200-Foot West plan, and Plan 4, the In Situ plan, by comparing them to the 200-Foot East plans. Plan 3 (the 200-Foot West plan) was eliminated because, when compared to the 200-Foot East plans, it had lower net economic benefits and more severe social impacts. Plan 4 (the In Situ plan) also had lower net economic benefits than the 200-Foot East plans and was unacceptable to navigation interests. The In Situ plan would result in a shut-down of this reach of the IHNC/GIWW for approximately 2.5 years. Such a shut-down would severely disrupt shallow-draft navigation as well as impact deep-draft navigation that might normally use the lock.

Plan 2 (the 200-Foot East - Float-In Construction plan) was eliminated because net benefits were less than than Plan 1 (the 200-Foot East-Conventional Construction plan).

Of the North of Claiborne Avenue plans (Plans 5, 6, 7 and 8), Plan 6 was determined to be the environmentally preferable plan and also yielded the most net benefits.

PLANS CONSIDERED IN DETAIL

Two of the preliminary plans for the replacement of the IHNC Lock were selected for further analysis. The navigation features of these plans are described below. The costs of the plans, the magnitude of social impacts, and the mitigation costs of the plans are determined by site of the lock, the bridge relocations required to accommodate the lock site, and the construction techniques utilized. An economic comparison of the plans, the social impacts of the plans, and the mitigation measures developed for the plans are described in subsequent sections of this report.

• 200-Foot East: conventional construction, pile foundation; lock centerline is 200 feet east of existing lock centerline; mid-level, vertical lift replacement bridges at Claiborne Avenue and at St. Claude Avenue which includes two access loops on the west side; all pile driving requires a hydraulic hammer.

• North of Claiborne Avenue: float-in construction within the existing canal, pile foundation; lock centerline is directly aligned with existing lock centerline; raised lift-span towers for the existing Claiborne Avenue bridge, low-level replacement bridge at St. Claude Avenue which does not include any access loops; all pile driving requires a hydraulic hammer; double by-pass channel around the construction site on the east side of the canal to provide navigation usage during construction.

Float-in construction is the more cost effective method for the North of Claiborne site. This method of construction avoids costs associated with a massive sheet pile cofferdam, additional levees and floodwalls, additional rights-of-way and residential relocations, additional social mitigation, and additional costs to accommodate navigation during the longer construction period, that would be required for conventional construction methods. Additionally, the conventional construction would incur higher interest costs during construction due to the longer period of construction.

In addition to being the least cost construction technique at the North of Claiborne site, the float-in method of construction has significant mitigation-related advantages over the conventional cast-in-place construction for the IHNC sites. The major structural features would be constructed at off-site fabrication facilities (e.g., shipyards) resulting in less on-site construction activities and less noise in the local neighborhoods. The remaining on-site construction would be performed from floating plant, reducing construction traffic through the neighborhoods. Additionally, the need for cellular cofferdams would be eliminated resulting in significantly reduced pile driving requirements.

Finally, regardless of construction option, a navigation bypass channel in conjunction with the North of Claiborne site is necessary to avoid shutting down a vital link in the GIWW for 5-6 years of construction. Float-in construction affords ample room in the vicinity of the IHNC to construct a navigation bypass

channel without necessitating additional relocations. On the other hand, construction of a bypass channel around the cofferdam associated with conventional construction would necessitate relocation of the IHNC levees and floodwalls and consequent additional relocations.

ECONOMIC COMPARISON OF DETAILED PLANS

A summary of benefit and cost data for the plans considered in detail is presented in Table 3. Selection of the 200-Foot East alternative for the final array was based on conventional NED criteria, recognizing that of the eight plans, it produced the highest apparent net benefits. The North of Claiborne alternative was selected because the significant reduction in community impacts realized with the North of Claiborne site qualifies it as the environmentally preferable plan. Furthermore, it is the only plan which enjoys any support from the neighborhoods, local elected officials, or the local sponsor.

The support of virtually all stakeholders -- to include navigation interests -- for the North of Claiborne plan is worth examining. Their support stems from a conclusion that the net benefits of the 200-Foot East plan are not as shown in Table 3, but are in fact zero, i.e., local opposition is so adamant that the 200-Foot East plan will not be built. Therefore, none of the benefits would accrue. Of the $46 million apparent difference in net benefits, $31 million are attributed to costs sustained by navigation interests from the difference in IHNC closure durations of the two plans. The maritime industry's acceptance of this difference in closure costs stems from their view that no plan as destructive of politically powerful non-beneficiaries as is the 200-Foot East plan will ever be built. Thirty years of the project's history tend to support this view.

An additional $71 million of the difference between the two plans results from vehicular benefits forgone in the North of Claiborne Avenue plan. The vehicular benefits attributed to the 200-Foot East plan derive from the extensive bridge replacements that are elements of that plan. These benefits accrue largely to beneficiaries in the local metropolitan area. Support of local stakeholders for the North of Claiborne Avenue site -- despite its lesser vehicular benefits -- demonstrates the willingness of locals to forego local economic benefits to avoid negative social impacts.

Table 3
IHNC Lock Replacement Study
Site Optimization
900' x 110' x 22' Replacement Locks
1991 Price Levels, 8.5 Percent
($1,000)

Item	200-Ft. East Conv. Const. Mid-St Claude Mid-Claiborne	N. of Claiborne Steel Float-In Low-St. Claude Existing Claib.
Benefits (capitalized annual values)		
Shallow Draft	$1,419,104	$1,419,104
Vehicular	44,643	(26,601)
Total Benefits	$1,463,747	$1,392,503
Costs		
Lock Construction	$227,457	$293,499
Right-of-Way	15,447	72,372
Bridges	124,677	10,915
Relocations	20,660	21,059
Mitigation		
Socio-Economic	46,057	7,022
Subtotal - Construction	$434,298	$404,867
Industry Losses - Closure	5,500	33,000
Total Cost	$439,798	$437,867
Interest Costs During Construction	169,876	182,261
Interest Costs on Closure	2,122	5,212
Interest Costs on Mitigation	44,119	5,273
Total Present Value Costs	$655,915	$630,613
Net Benefits		
Present Value Net Benefits (Rounded) (Base Year: 2007)	$807,800	$761,900

In summary, given lower construction costs, all net benefits foregone by the North of Claiborne Avenue site are borne by stakeholders in the maritime industry or local metropolitan area. Representatives of each group prefer the North of Claiborne Avenue site: maritime interests because they believe the 200-Foot East plan is not implementable; local metropolitan interests because they perceive the negative social impacts of the 200-Foot East plan to outweigh the incremental vehicular benefits.

SOCIO-ECONOMIC IMPACTS OF DETAILED PLANS

Careful and comprehensive measurement of social and economic impacts is rarely more important to the plan formulation process than in the case of the IHNC lock replacement study. Public Law 91-190, the National Environmental Policy Act of 1969 (NEPA), requires that all impacts to the human environment be presented in the environmental impact statement (EIS). Usually, all significant impacts are confined to natural environmental components. The IHNC Lock is an exception. Most of the alternatives proposed at the existing location are massively disruptive of a crowded urban district which includes no project beneficiaries. As described in the previous sections, a number of attempts have been made over the life of this study to engage the local residents in a process whereby impacts to the neighborhood could be mitigated or otherwise reduced to an acceptable level. As part of this effort, the New Orleans District (NOD) separately contracted with a local planning firm (Gregory C. Rigamer and Associates) with experience in analyzing project impacts of similar scale. This firm assessed the full range of socio-economic impacts and proposed mitigation measures which could form the basis for negotiation. The contractor concluded that project impacts are sufficiently diverse and severe that full mitigation is not possible. The NOD has used the intermediate product of this process, i.e., the September 1991 Socio-Economic Impact Analysis and Mitigation Plan (SIA), to develop independently a preliminary set of mitigation measures which are linked to construction impacts and which would most likely have been included in a broader, negotiated mitigation plan.

In the course of the Rigamer study, the contractor concluded that the four neighborhoods comprising the IHNC site were already highly stressed from a combination of factors. This is manifested in declining population and property

values, a depressed housing market, crime, high vacancy rates, and high unemployment. He further concluded that the lengthy construction period, and the nature and severity of the impacts would so exacerbate the area's decline as to undermine the viability of the neighborhoods. The initial objective of the Rigamer proposal was therefore aimed at stabilizing the neighborhoods with an extensive program of pre-construction measures which, taken together with lesser direct mitigation measures taken during construction, would enable the community to withstand project impacts. Recognizing that neither this plan, nor any other plan, can fully compensate the community, the contractor also recommended that we revisit the feasibility of a previously investigated site in the IHNC north of the Claiborne Avenue bridge. This location eliminates all residential relocations, most of the noise impacts and is compatible with minimal bridge modifications. These represent the most severe of the project impacts. Subsequent analysis confirmed the technical implementability of the North of Claiborne plan.

The following sections will compare the most basic and harmful of major impacts associated with the two sites and is not intended to either review the broader range of impacts, as the 1991 SIA did, or to substitute for a detailed environmental impact analysis which will appear in the feasibility report/environmental impact statement.

Table 4 compares the impacts of each alternative in terms of a few critical variables. These variables are classified into three major impact categories where the most onerous of project impacts can be readily summarized: displacement, noise, and transportation effects.

This table should be viewed with the following in mind:

1) The source of the data for the 200-Foot East alternative was the aforementioned SIA. Comparable estimates for the North of Claiborne Avenue alternative were subsequently compiled in-house.

2) Some pile driving for lock and bridges under the 200-Foot East plan occurs simultaneously and has been accounted for.

3) Pile driving noise is measured using the Day-Night Sound Level (Ldn) model which averages noise levels detectable at a specific distance

Table 4

Inner-Harbor Navigation Canal Lock Replacement
Social Impact Analysis
Comparative Impact of Construction Alternatives

	200-Foot East: Conventional Construction				North of Claiborne Avenue: Float-In			
	Lock	Mid-Level St. Claude Bridge	Mid-Level Claiborne Bridge	Total	Lock	Low-Level St. Claude Bridge	Existing Claiborne Bridge	Total
Displacement Effects:								
Population	231	24	57	312	0	0	0	0
Housing Units	102	18	25	145	0	0	0	0
Public Facilities	2	3	0	5	1	0	0	1
Businesses and Industries	6	4	3	13	6	0	0	6
Employees	85	29	21	135	85	0	0	85
City Sales Taxes ($000) / Yr.	$250	$78	$58	$386	$250	$0	$0	$250
Traffic Disruption:								
Months of Closure	1	54	7	-	6	35	0	-
Noise Effects:								
Months of Pile Driving	52	18	15	85	24	9	0	33
Noise-Affected Population:								
Within 75 Ldn of Construction "Unacceptable" Levels	0	850	521	1371	0	27	0	27
Between 65 Ldn and 75 Ldn of Construction "Normally Unacceptable" Levels	1380	2560 *	2392 *	6332	689	759	0	1448
Total Population	1380	3410	2913	7703	689	786	0	1475
(Person-Months)	(71,760)	(61,380)	(43,695)	(176,835)	(16,536)	(7,074)	0	(23,610)
Noise-Affected Housing Units:								
Within 75 Ldn of Construction "Unacceptable" Levels	0	410	220	630	0	11	0	11
Between 65 Ldn and 75 Ldn of Construction "Normally Unacceptable" Levels	595	1572 *	1126 *	3293	286	315	0	601
Total Housing Units	595	1982	1346	3923	286	326	0	612

* Some residents and housing units, already exposed to noise from lock construction, are counted again for their exposure to noise generated by bridge construction.

from the noise source within a standard interval of time. "75 Ldn" refers to a region which falls within 350 feet of the noise source for lock construction and within 240 feet of noise source for bridge construction. "65 Ldn" refers to a region which falls between 350 and 1280 feet of the noise source for lock construction and between 240 and 845 feet of the noise source for bridge construction. The terms "unacceptable" and "normally unacceptable," associated respectively with each noise region, refer to the level of severity of noise and were intended by the Department of Housing and Urban Development (HUD) to serve as criteria for deciding whether an area was sufficiently distant from particularly noisy facilities, such as airports, highways and railroad yards, to qualify for federal urban development assistance.

4) In order to focus on impacts to the local community, the various effects of either alternative on the U.S. Coast Guard Station have been omitted.

The displacement, noise, and transportation effects of the detailed plans are discussed in the following paragraphs.

DISPLACEMENT EFFECTS. Displacement effects refer to the consequences which follow from the acquisition of real property required for project construction. The rights-of-way requirements under the 200-Foot East plan result in the acquisition of 145 residential properties and the displacement of 312 people. Although owners would be compensated for the fair market value of their property to the fullest extent permissible under the terms of Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, as amended, not all residents who desire to relocate within the immediate neighborhood will be able to find suitable housing. Furthermore, the two neighborhoods most adversely affected under the 200-Foot East plan are also the most settled, a quality which is consistent with their historical character and not replaceable in-kind. In contrast, the rights-of-way associated with the North of Claiborne Avenue alternative completely avoids the requirement for the acquisition of residential property.

NOISE EFFECTS. Of all major impacts, pile driving and associated construction noise are the most intrusive. For this reason, noise effects were quantified in terms of the number of months a resident is exposed to noise created by pile driving activities. Under the 200-Foot East plan, pile driving

associated with bridge piers and approach ramps occur at the same time as pile driving for the lock foundation and so a number of residents will be doubly affected. Therefore, noise effects were measured in terms of the number of "person-months" of pile driving. By this measure, the lock and bridge configuration representing the North of Claiborne Avenue alternative reduces the community's exposure to noise by 86 percent, from 177,000 person-months to 24,000 person-months. This reduction is attributable to five construction features:

1) the lock construction site is farther removed from residential areas,
2) the duration of pile driving for lock construction is reduced,
3) the low-rise replacement bridge at St. Claude Avenue requires less construction time than a mid-rise bridge,
4) the replacement bridge at St. Claude Avenue does not include replacement bridge ramps or the addition of bridge loops, and
5) the Claiborne Avenue bridge is not replaced.

Furthermore, since those individuals who reside within 75 Ldn of construction are exposed to more intense noise than those who reside between 65 and 75 Ldn of construction, the noise reduction benefits associated with the North of Claiborne Avenue plan is correspondingly understated.

TRANSPORTATION EFFECTS. The effects associated with bridge closures are the most pervasive and most difficult to quantify. Under the 200-Foot East plan, the St. Claude Avenue bridge would be closed for 4.5 years and the Claiborne Avenue bridge would be closed for 7 months. Closure of the St. Claude Avenue bridge would deny direct pedestrian access to either side of the Industrial Canal and a mid-rise replacement bridge would not restore to the 750 daily pedestrians their current level of access. Under the North of Claiborne Avenue plan, the St. Claude Avenue bridge would be closed nearly 3 years.

The prospect of an extended closure of the St. Claude Avenue bridge could be very damaging to those business located on St. Claude Avenue in the vicinity of the Industrial Canal -- businesses which depend upon trans-canal traffic. Although the severity of impacts will vary from business to business, overall, one can expect that the commercial value and economic viability of these businesses will be diminished. Closure of the St. Claude Avenue bridge would also require that bridge traffic detour through connecting neighborhood streets to Claiborne and Florida Avenues. Detouring traffic would introduce substantial vehicular noise and congestion into residential areas currently separated from

main thoroughfares. Similar kinds of impacts will occur upon closure of the Claiborne Avenue bridge under the 200-Foot East plan, although they will be of shorter duration.

The general impacts described correspond to a reconnaissance-scope detour plan which was developed as input for the 1991 SIA. In this plan, certain neighborhood streets were simply identified as likely detour routes and, as such, constitutes a worst-case scenario. On a fundamental level, the plan included no accommodations for re-routing public transit and access requirements of emergency vehicles. The current detour plan also lacks the detail necessary to determine the volumes and pattern in which local and commuter traffic will redistribute once a larger Florida Avenue bridge is constructed (by the State of Louisiana separate from this project) and the St. Claude Avenue bridge is closed. The nature of this redistribution is a function of the set of traffic control features adopted in the final plan. Prior to project construction, a feasibility-scope traffic engineering study will be required to analyze current and future traffic volumes and types, to determine future vehicular requirements, to balance safety and efficiency objectives and, finally, to plan the redistribution of traffic during construction. The transportation network emanating from this study, and thus the severity of associated impacts to the neighborhoods, will be largely determined by the presence of one or more newly constructed access roads linking Florida Avenue to main arteries beyond the affected neighborhoods. It is possible that construction of access roads as permanent components of the transportation network may permanently change traffic patterns in such a way that adverse impacts to the community are considerably reduced. Thus, the degree to which traffic-related impacts are overstated will depend upon the results of the forthcoming traffic engineering study.

Without the benefit of detailed studies, however, it is clear that the North of Claiborne Avenue plan is significantly less disruptive of circulation patterns in that only one crossing, St. Claude Avenue, is involved and closure time is reduced by over one and a half years, or 35 percent.

MITIGATION FEATURES OF PLANS CONSIDERED IN DETAIL

Since full mitigation for most of the impacts is not possible, the question of proper incremental analysis arises. The objective of marginal analysis in

mitigation planning is normally to determine the level of mitigation at which the benefit of the last proposed increment just equals its marginal cost. In practice, mitigation planning within the Corps of Engineers is almost exclusively confined to the natural resource arena. In the case of social mitigation, however, analysis and mitigation of impacts over the entire range of community resources covered in Section 122 of the River and Harbor Act of 1970 (Public Law 91-611) does not enjoy the benefit of a common measure such as the Habitat Unit used to scale fish and wildlife mitigation features. Nor is the cumulative and interactive nature of multiple impacts well addressed by judgmental scaling, one resource at a time. Once all measures for "in-kind" mitigation are exhausted, residual impacts can only be offset by "out-of-kind" mitigation. The plan objective becomes identification of a set of actions which replace one array of community resources with another array sufficient to restore to the community an equal level of satisfaction. Support for this approach was contained in instructions in the FY-91 Appropriations Act and in prior guidance.

The scope of appropriate mitigation activities suggested in Section 122 and the extent of measures considered to date by the district are extremely broad. It has been proposed that the plan be separated into "normal" and "extraordinary" features, at least for purposes of cost allocation. As discussed above, however, we believe that a mutually agreeable mitigation plan is likely to result from a negotiation process in which "out-of-kind" mitigation and over-mitigation in certain areas are required. Therefore the distinction between "normal" and "extraordinary" mitigation is blurred, if relevant at all.

The social mitigation actions which follow do not constitute either a specific proposal or a commitment by the Corps of Engineers to implement any of them, in whole or in part. A final mitigation package will only result from future active involvement with affected parties. The role of the mitigation plans developed for this report is to establish an array of actions which together constitute a minimum level of mitigation for the scale of corresponding impacts and to estimate their cost.

The cost to implement the mitigation actions described below is detailed in Table 5 for the 200-Foot East alternative and in Table 6 for the North of Claiborne Avenue alternative. The elements of the mitigation plan and their cost is a composite of various recommendations contained in the SIA and others which were developed within the district.

Table 5
Inner-Harbor Navigation Canal Lock Replacement
Social Mitigation Costs
200-Foot East: Conventional Construction

		Total Outlays	Interest During Construction	Compounded To Base Year
I. PRECONSTRUCTION MITIGATION				
Community Coordination:		$1,332,000	$1,443,696	$2,775,696
Housing Rehabilitation:		$1,815,000	$1,967,198	$3,782,198
Police Substation:		$2,960,000	$3,208,213	$6,168,213
Street Lighting:		$2,108,000	$2,284,768	$4,392,768
Playgrounds:		$889,000	$963,548	$1,852,548
Street and Drainage Improvements:		$10,800,000	$11,705,642	$22,505,642
Community College:		$1,850,000	$2,005,133	$3,855,133
Total Pre-Construction Mitigation Costs:		$21,754,000	$23,578,197	$45,332,197
II. DIRECT MITIGATION COSTS FOR CONSTRUCTION-RELATED IMPACTS				
DISPLACEMENT EFFECTS				
Job Training				
Number of Displaced Employees:	135			
Percent in Need of Training:	30%			
Number in Need of Training:	41			
Training Cost Per Employee:	$2,000			
Total Training Cost:	$81,000	$81,000	$87,792	$168,792
Historic Relocations				
Number of Units Relocated:	7			
Cost Per Relocation:	$40,000			
Total Historic Relocations Cost:	$280,000	$280,000	$303,480	$583,480
Historic Preservation				
Documentation of Existing IHNC Lock, St. Claude Ave. Bridge and Neighborhood Architecture:	$1,400,000	$1,400,000	$1,381,496	$2,781,496
Compensation of Lost Sales Tax Revenue				
Annual Sales Tax Revenue Lost to Orleans Parish:	$386,500			
Lump-Sum Payment to Orleans Parish:	$4,547,059	$4,547,059	$4,928,356	$9,475,414

Table 5
(Continued)

		Total Outlays	Interest During Construction	Compounded To Base Year
NOISE EFFECTS				
Sound-Protecting Occupied Residential Structures				
Total Residential Units Within 65 Ldn of Construction:	2,029			
Total Residential Units W/in 65 Ldn of Lock Construction:	486			
Total Residential Units W/in 65 Ldn of St. Cl. Br. Only:	900			
Total Residential Units W/in 65 Ldn of Claib. Br. Only:	643			
Insulation Cost Per Unit:	$2,020			
Air-Conditioning Appliance Cost Per Residence:	$1,675			
Total Installation Cost:	$7,495,718			
Utility Cost Allowance ($ 52/Mo. for 9 Months):	$468			
Annual Utitlity Allowance (Lock-Related Noise):	$985,083			
Annual Utility Allowance (St. Cl. Br.-Related Noise):	$631,461			
Annual Utility Allowance (Claib. Br.-Related Noise):	$376,143			
Total Sound-Protecting Cost:	$9,488,404	$9,488,404	$6,738,890	$16,227,294
Compensation for Lower Rental Income				
Number of Rental Units Vacated:	71			
Annual Reduction in Net Rental Income Per Unit:	3,132			
Annual Net Rental Income Lost:	222,372	$1,000,674	$671,297	$1,671,971
Compensation for Lost Property Value Upon Sale				
Independent Real Estate Market Analysis:	$150,000			
No. of Owner-Occupied Housing Units Between 65 & 75 Ldn:	710			
Percent of Inventory Sold Annually (Turnover Rate):	0.70%			
Number of Annual Sales:	5			
Average Sales Price:	$39,651			
Average Loss Upon Sale:	$8,327			
Accumulated Lost Proceeds Per Year:	$41,385			
Total Cost:	$336,233	$336,233	$313,961	$650,195
Construction of Recreational Facilities				
Number of Recreational Facilities:	4			
Cost Per Facility (Structure and Land):	$1,168,350			
Monthly Utility Cost Facility:	$1,500			
Total Cost of Facilities:	$4,943,400	$4,943,400	$5,238,725	$10,182,125
Administrative Costs Per Year:	$83,600	$376,200	$252,372	$628,572
TRANSPORTATION EFFECTS				
St. Claude Avenue Pedestrian Access				
Shuttle Acquisition Cost:	$48,000			
Number of Months St. Claude Avenue Bridge is Closed:	54			
Monthly Cost of Shuttle:	$6,570			
Total Cost for Pedestrian Access:	$402,780	$402,780	$133,490	$536,270
Public Transit: Radio-Activated Signals:				
Number of Busses to Equip:	36			
Cost Per Transmitter:	$1,000			
Total Transmitter Cost:	$36,000	$36,000	$18,132	$54,132
Number of Congested Intersections:	4			
Cost Per Signal:	$10,000			
Total Signal Cost:	$40,000	$40,000	$20,146	$60,146

Table 6
Inner-Harbor Navigation Canal Lock Replacement
Social Mitigation Costs
North of Claiborne Avenue: Float-In
Low St. Claude -- Existing Claiborne

		Total Outlays	Interest During Construction	Compounded To Base Year
I. PRE-CONSTRUCTION MITIGATION				
Community Coordination:		$0	$0	$0
Housing Rehabilitation:		$0	$0	$0
Police Substation:		$0	$0	$0
Street Lighting:		$0	$0	$0
Playgrounds:		$0	$0	$0
Street and Drainage Improvements:		$0	$0	$0
Community College:		$0	$0	$0
Total Pre-Construction Mitigation Costs:		$0	$0	$0
II. DIRECT MITIGATION COSTS FOR CONSTRUCTION-RELATED IMPACTS				
DISPLACEMENT EFFECTS				
Job Training				
Number of Displaced Employees:	85			
Percent in Need of Training:	30%			
Number in Need of Training:	26			
Training Cost Per Employee:	$2,000			
Total Training Cost:	$51,000	$51,000	$55,277	$106,277
Historic Relocations				
Number of Units Relocated:	0			
Cost Per Relocation:	$40,000			
Total Historic Relocations Cost:	$0	$0	$0	$0
Historic Preservation				
Documentation of Existing IHNC Lock and St. Claude Avenue Bridge:	$600,000	$600,000	$489,851	$1,089,851
Compensation of Lost Sales Tax Revenue				
Annual Sales Tax Revenue Lost to Orleans Parish:	$250,000			
Lump-Sum Payment to Orleans Parish:	$2,941,176	$2,941,176	$3,187,811	$6,128,987

Table 6
(Continued)

		Total Outlays	Interest During Construction	Compounded To Base Year
NOISE EFFECTS				
Sound-Protecting Occupied Residential Structures				
Total Residential Units Within 65 Ldn of Construction:	500			
Total Residential Units W/in 65 Ldn of Lock:	234			
Total Residential Units W/in 65 Ldn of St. Cl. Br.:	266			
Insulation Cost Per Unit:	$2,020			
Air-Conditioning Appliance Cost Per Residence:	$1,675			
Total Installation Cost:	$1,847,515			
Utility Cost Allowance ($52/Mo. for 9 Months):	$468			
Annual Utitlity Allowance:	$312,194			
Total Sound-Protection Cost:	$2,159,708	$2,159,708	$1,194,716	$3,354,424
Compensation for Lower Rental Income				
Number of Rental Units Vacated:	6			
Annual Reduction in Net Rental Income Per Unit (@ 35.5%):	3,132			
Annual Net Rental Income Lost:	18,792	$37,837	$21,401	$59,239
Compensation for Lost Property Value Upon Sale				
Independent Real Estate Market Analysis:	$0			
No. Owner-Occupied Housing Units Between 65 and 75 Ldn:	230			
Percent of Inventory Sold Annually (Turnover Rate):	0.70%			
Number of Annual Sales:	2			
Average Sales Price:	$39,651			
Average Loss Upon Sale:	$8,327			
Accumulated Lost Proceeds Per Year:	$16,654			
Total Cost:	$33,533	$33,533	$23,429	$56,962
Construction of Recreational Facilities				
Number of Recreational Facilities	0			
Cost Per Facility (Structure and Land):	$1,168,350			
Monthly Utility Cost/Facility:	$1,500			
Total Cost of Facilities:	$0	$0	$0	$0
Administrative Costs Per Year:	$83,600	$229,900	$112,282	$342,182
TRANSPORTATION EFFECTS				
St. Claude Avenue Pedestrian Access				
Shuttle Acquisition Cost:	$48,000			
Number of Months St. Claude Avenue Bridge is Closed:	35			
Monthly Cost of Shuttle:	$6,570			
Total Cost for Pedestrian Access:	$277,950	$277,950	$55,287	$333,237
Public Transit: Radio-Activated Signals:				
Number of Busses to Equip:	36			
Cost Per Transmitter:	$1,000			
Total Transmitter Cost:	$36,000	$36,000	$9,982	$45,982
Number of Congested Intersections:	4			
Cost Per Signal:	$10,000			
Total Signal Cost:	$40,000	$40,000	$11,092	$51,092

Table 5
(Continued)

		Total Outlays	Interest During Construction	Compounded To Base Year
Compensation for Additional Public Transit Operating Costs				
Total Daily Rerouted Miles (.6 Miles One Way):	231			
RTA Cost Per Mile:	$2.50			
Annual Increase in RTA Operating Cost:	$210,788			
Number of Months Bridges are Closed:	61			
Total Rerouting Cost:	$1,071,503	$1,071,503	$301,222	$1,372,725
Landscaping				
Number of Bridges Requiring Loops:	1			
Number of Bridges Requiring Approach Ramps:	2			
Cost Per Approach or Loop:	$100,000			
Total Landscaping Cost:	$300,000	$300,000	$151,097	$451,097
Total Direct Mitigation Costs:		$24,303,253	$20,540,454	$44,843,708
Total Mitigation Costs (Pre-Construction and Direct):		$46,057,000	$44,119,000	$90,176,000

(Rounded)

Notes: 1. 1991 Price Levels
2. 8.5% Interest Rate

Table 6
(Continued)

		Total Outlays	Interest During Construction	Compounded To Base Year
Compensation for Additional Public Transit Operating Costs				
Total Daily Rerouted Miles (.6 Miles One Way):	231			
RTA Cost Per Mile:	$2.50			
Annual Increase in RTA Operating Cost:	$210,788			
Number of Months Bridges are Closed:	35			
Total Rerouting Cost:	$614,797	$614,797	$112,230	$727,027
Landscaping				
Number of Bridges Requiring Loops:	0			
Number of Bridges Requiring Approach Ramps:	0			
Cost Per Approach or Loop:	$100,000			
Total Landscaping Cost:	$0	$0	$0	$0
Total Direct Mitigation Costs:		$7,021,902	$5,273,357	$12,295,259
Total Mitigation Costs (Pre-Construction and Direct):		$7,022,000	$5,273,000	$12,295,000

(Rounded)

Notes: 1. 1991 Price Levels
2. 8.5% Interest Rate

PRE-CONSTRUCTION MITIGATION. As stated earlier, the Rigamer study concluded that the neighborhoods in the vicinity of the IHNC are already highly stressed and would require an extensive program of pre-construction measures as well as direct mitigation measures during construction to offset the impacts of the 200-Foot East plan. Without such actions, sustainability of the neighborhoods would be jeopardized. The pre-construction mitigation package includes upgrading the community's infrastructure (streets, street lighting, and drainage), the addition of public facilities (police substation, community college, and playgrounds) and a program of long-term housing rehabilitation. Pre-construction mitigation plan costs are summarized in Tables 5 and 6. Since the North of Claiborne Avenue alternative eliminates all residential relocations, most noise impacts, and is compatible with minimal bridge modification, it is the judgement of the district that the package of pre-construction mitigation measures would not be required.

DIRECT MITIGATION COSTS FOR CONSTRUCTION-RELATED IMPACTS. Costs for mitigating construction-related impacts associated with displacement effects, noise effects, and transportation effects were developed for the plans considered in detail.

1. Displacement Effects. Mitigation in this area is focused on the displacement of commercial enterprises and historic structures.

- Job training is intended to allow a number of workers who may lose employment because of displacement to become employed again as part of the lock/bridge construction crew, presumably at a higher level of skill.

- The City of New Orleans is expected to lose revenue should displaced businesses either liquidate or move to a nearby parish. Mitigation consists of estimating the loss to the city, which the SIA has done, and to compensate the municipal government in a lump-sum payment.

- Historic values are preserved by relocating residential structures which have historical significance and by documenting community historical landmarks prior to their demolition, i.e., the St. Claude Avenue bridge and the IHNC lock.

2. Noise Effects. Partial mitigation for the effects of noise is accomplished in two ways: 1) modifying the intensity of noise at the source and receptor level, and 2) direct financial compensation for lost real estate values during construction.

- An important method of reducing construction noise consists of restricting vehicular traffic to and from the lock/bridge sites along well-defined and isolated roadways. The details of this feature will emerge through the aforementioned traffic engineering study and are not included in this plan.

- Residents can be protected from noise to a certain degree by installing specialized insulation into their homes. Because many residences in the affected area are either not air-conditioned or are only fitted with substandard or depreciated air-conditioning units, the installation of new cooling equipment is essential. Furthermore, residents would be reimbursed directly for their added electrical utility cost for operating these units, but only to the extent that utilities are consumed during periods of pile driving.

- Interference with and decline of outdoor recreation due to construction-related noise is addressed by substituting indoor for outdoor recreation. Indoor recreation is provided by constructing and operating (for the term of pile driving activity) as many as four, fully staffed, sound-protected community recreational facilities in those areas which lie within the 65 Ldn noise contours.

- The SIA concluded that, because of construction noise, the number of vacant rental units would increase and that the value of residences marketed for sale would decrease. Because these effects occur only during construction, their magnitude is limited and identifiable. The government, by means of a professionally-staffed administrative unit, can compensate owners on a case-by-case basis as future claims are systematically processed and verified.

3. Transportation Effects. Mitigation for the effects of bridge closure are confined to the accommodation of pedestrian traffic and public transit.

- Closure of the St. Claude Avenue bridge would leave the nearly 750 pedestrians who cross the bridge daily with no alternative access to the Industrial Canal unless specific facilities are provided. Construction of a pedestrian bridge which does not interfere with navigation traffic represents the most direct approach to mitigation but is also impossible to cost without a detailed design. Instead, the cost to restore pedestrian access was estimated on the basis of providing shuttle bus service which would route through the Claiborne Avenue bridge. "Mini-Bus" service would be at no charge to pedestrians and the termini of this service route would be strictly limited to St. Claude Avenue on either side of the Industrial Canal.

- Coordination with the Regional Transit Authority (RTA) and the City of New Orleans would be required in the development of a traffic detour plan. Furthermore, RTA would be reimbursed for the additional operating cost associated with re-routed public transit.

- The construction of approach ramps and loops for a mid-rise St. Claude Avenue bridge would damage the current aesthetic quality of the immediate neighborhoods. To buffer the visual impact of these bridge features, construction would include an appropriate degree of landscaping.

CONCLUSIONS

The New Orleans District feels strongly that the 200-Foot East plan is unacceptable under NEPA from a socio-environmental standpoint, even though a lock is engineeringly and economically feasible. NEPA declared that it is Federal policy to "create and maintain conditions . . . and fulfill the social, economic and other requirements of present and future generations of Americans."

The substantially more intrusive nature of the 200-Foot East plan, particularly regarding noise, bridge replacements, and residential/commercial displacements, is the heart of the problem. These impacts are further compounded by the near-decade length of the construction period. The alignment is so inherently objectionable that

no adequate compensation can be developed, particularly as long as a significantly less disruptive lock plan is known to exist. As stated in the previous section describing the mitigation plans, the measures presented in Tables 5 and 6 do not represent our specific plan; they reflect our appreciation of reasonable starting points for discussions with the affected neighborhoods. Although the magnitude of the difference in the cost of the two plans is instructive, what is not clearly reflected in the tables is the difference in the probability of successfully negotiating a mitigation plan at all.

At the gross investment level, the measures suggested for the 200-Foot East plan total $90 million; at North of Claiborne the cost is about $12 million. Recognizing that neither set of mitigation measures represents full compensation, our experience in discussions to this point indicates that, in the view of the elected officials and the neighborhood residents, the nature and magnitude of uncompensated and intangible impacts at the 200-Foot East site are such that a plan several times more costly would still be rejected. In contrast, the North of Claiborne site entails few uncompensated and intangible impacts because of its less intrusive alignment and significantly lower noise levels. In short, the estimated mitigation costs for the North of Claiborne site shown in Table 6 probably bear a close resemblance to the actual cost of a viable plan.

As an example, consider the profound noise impacts experienced during construction. Although noise effects are primarily construction-related and thus temporary, the extensive duration of pile driving alone can be understood to deny residents the full use and enjoyment of their property, even after mitigation. Even if the Corps can negotiate a mitigation plan for the 200-Foot East plan with community leaders, this would not preclude the likelihood that any number of affected parties, acting individually or collectively, will pursue lawsuits against the Corps contending that they and the neighborhoods were not fully compensated. Several community leaders have already indicated that they intend to block lock construction through legal action. With past experience as a guide, the only certainty associated with resolving the current impasse through the judicial system is that it will take years and be very expensive. While this can be said of both plans, to the extent that the North of Claiborne Avenue plan is much less intrusive on all counts and particularly with respect to noise, the likelihood of litigation is certainly less, and amicable resolution is a much higher probability. Discussions with local interests to this point clearly demonstrate that no acceptable mitigation plan could ever be developed for the 200-Foot East chamber location. As shown in correspondence attached to this report, this view is also strongly held by the local sponsor and local elected officials.

Continued pursuit of the 200-Foot East Plan comes at a cost of $20 million a year in navigation delay costs, in addition to the substantial navigation delay costs associated with past recommendations of similar plans which were strongly opposed locally. If only a third of the implementation delay experienced since 1960 can be attributed to this impasse, the present value of the cost is over $300 million, more than six times the apparent net benefit advantage of the 200-Foot East plan, even if substantial added mitigation costs needed to gain acceptance of 200-Foot East are ignored.

The economic data in Table 3 show that the North of Claiborne Avenue plan enjoys a B-C ratio greater than 2:1, and net benefits of about $760 million. More importantly, it is a viable plan which can bring a solution to the delay problems at IHNC. This the 200-Foot East plan cannot do. The Port of New Orleans gains little immediate benefit from the solution to this national problem, and the neighborhoods gain nothing. No incentive exists for these entities to bear the burdens represented by the 200-Foot East plan. Local interests have successfully resisted such plans over the long, costly history of this study and will continue to do so.

In summary, our analyses and experience to date eliminate the 200' East site as a candidate NED plan based on non-implementability as well as the acceptability criteria contained in ER 1105-2-100. Further, in view of the magnitude of uncompensated and intangible impacts associated with the 200-Foot East plan, we do not believe that it is an environmentally sustainable plan within the broad NEPA context.

RECOMMENDATIONS

In reviewing the long history of the lock replacement efforts, our experience with the open planning process, and conclusions stated above, we recommend that the 200-Foot East plan be eliminated from further consideration and that all efforts to replace the lock focus on the North of Claiborne Avenue location. In our judgment, the North of Claiborne Avenue location is the only location at the Industrial Canal that can reasonably be expected to ever be constructed.

The Port of New Orleans

J. Ron Brinson
President and
Chief Executive Officer

SENT BY FAX

April 13, 1992

Colonel Michael Diffley
District Engineer
Department of the Army
New Orleans District
Corps of Engineers
P. O. Box 60267
New Orleans, Louisiana 70167-0267

Dear Colonel Diffley:

The purpose of this letter is to confirm this Board's position regarding options for the Inner Harbor Navigation Canal Replacement project, as discussed in our meetings on March 19 and 20.

The 37-year history of this project has confirmed one certain reality: the acceptance of the community which must endure the physical impacts of construction activities and the presence of permanent facilities, is an essential planning element coequal to any engineering or economic consideration. We have now reached a point in recent initiatives where it is possible to clarify this project in terms of impacts and benefits to the community, and to stimulate its construction.

As local sponsor, this Board congratulates the Corps on its special efforts to expand the scope of engineering options and to identify project concepts which could minimize physical impacts on the involved community. In fact, Colonel Diffley, my colleagues and I consider the Corps' special initiative to essentially "reengineer" this project to be extremely impressive and responsive to long-standing concerns of the public and the local assurer. We are mindful that this "reengineering" effort occurs as a result of Congress' directive to subject this project to a community-oriented planning discipline. Accordingly, we are also very grateful to our State's congressional delegation.

The specific point of this letter is to declare the view of this Board that the option, set forth as number one on your matrix

and described as "200-feet east of Claiborne-conventional construction", is simply unacceptable to this Board as local assurer. While it may be "lowest-cost" it is definitely high impact.

Surely, you understand that this option has been, continues to be, and will almost surely continue to be unacceptable to the impacted community. This "lowest-cost-high impact" option is basically the same approach proposed through the years. It would involve significant displacements of residential units in a general community setting that includes two historic districts. Furthermore, this option would require modification of the alignments and "footprints" of the St. Claude and Claiborne Avenue bridges causing additional negative community impacts.

We ask you to consider two points. One is that in carrying out the Congressional directive, new engineering options have been identified that would greatly minimize, perhaps even eliminate, direct physical impacts on the involved residential communities. The second is that acceptance by the neighborhoods as defined by the views of appropriate officials is an absolute factor in determining the feasibility of this project. Based on the discussions we have had in recent years, we would readily argue that there is no basis to project such acceptance for your lowest cost/high impact option; thus it is simply not a viable, feasible project.

Your good work has defined several "low" or "no" impact alternatives in terms of residential displacements. We find option number six on your matrix to offer the best prospects for acceptance. This option is described as "north of Claiborne, steel float in..." Clearly this option would involve a minimal impact on the residential community. Even the process of construction would be confined to the waterway, minimizing construction activity impacts in the residential communities. The St. Claude bridge could be rebuilt essentially in its present alignment and footprint, and the existing Claiborne Street bridge could be left in place. With proper presentation to the involved communities and with thoughtful and comprehensive mitigation programs, we believe this option or one similar to it could evolve in terms of its acceptability.

In summary, we are hopeful the Corps will give thoughtful

consideration to the issue of community acceptance, for without satisfaction of this important factor in the project equation, there is not likely to be a project.

Sincerely,

J. Ron Brinson

JRB:klh

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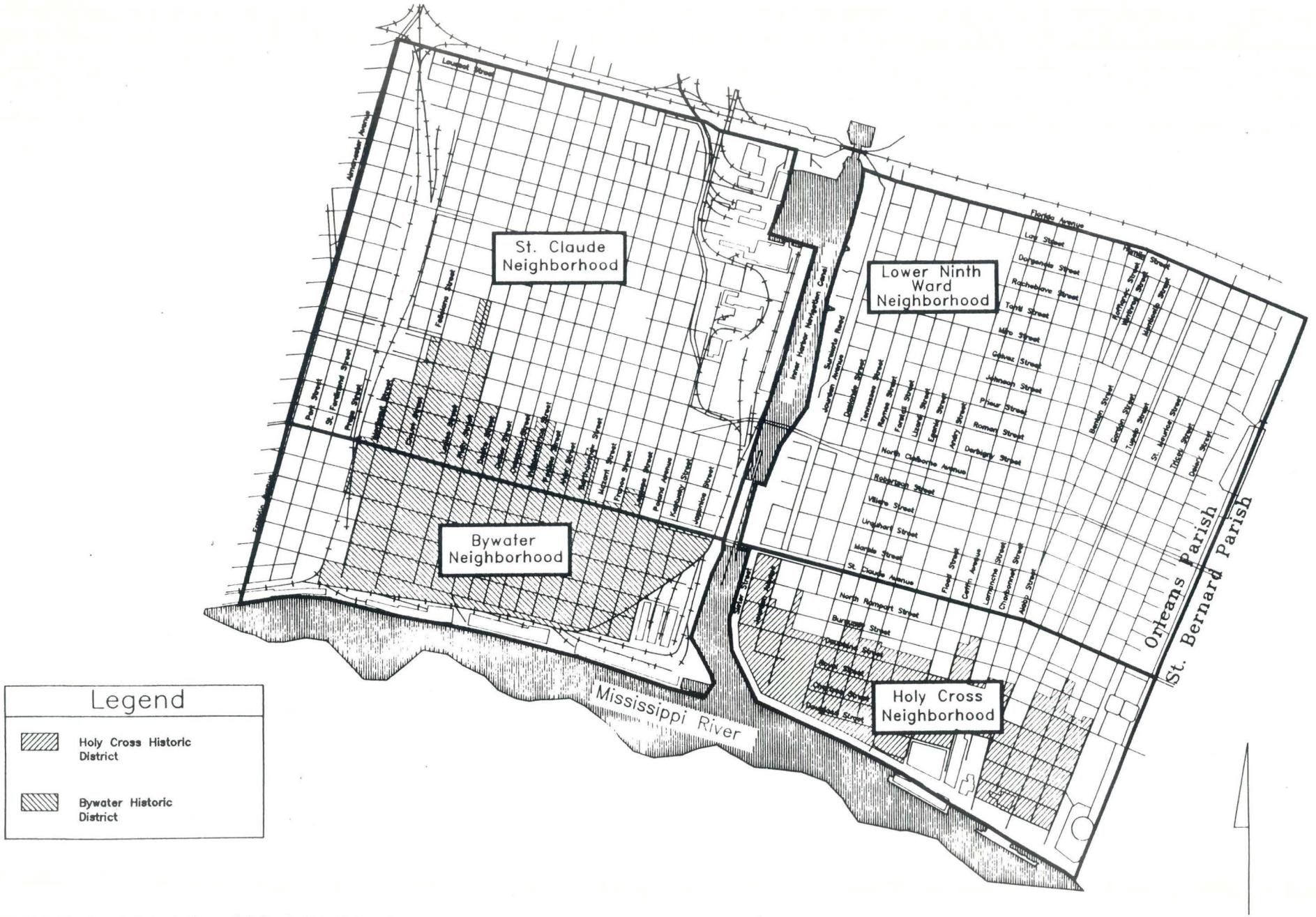
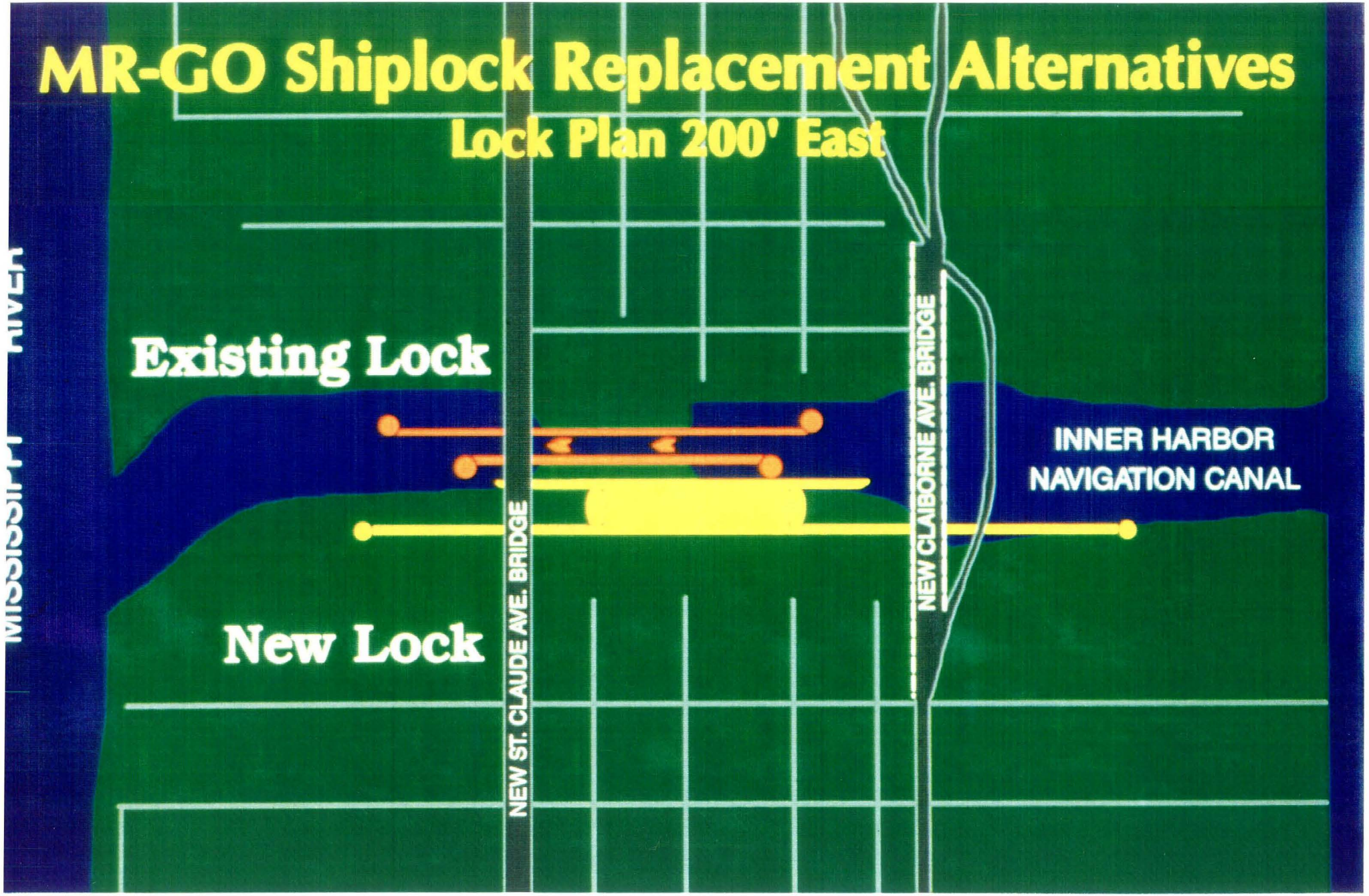
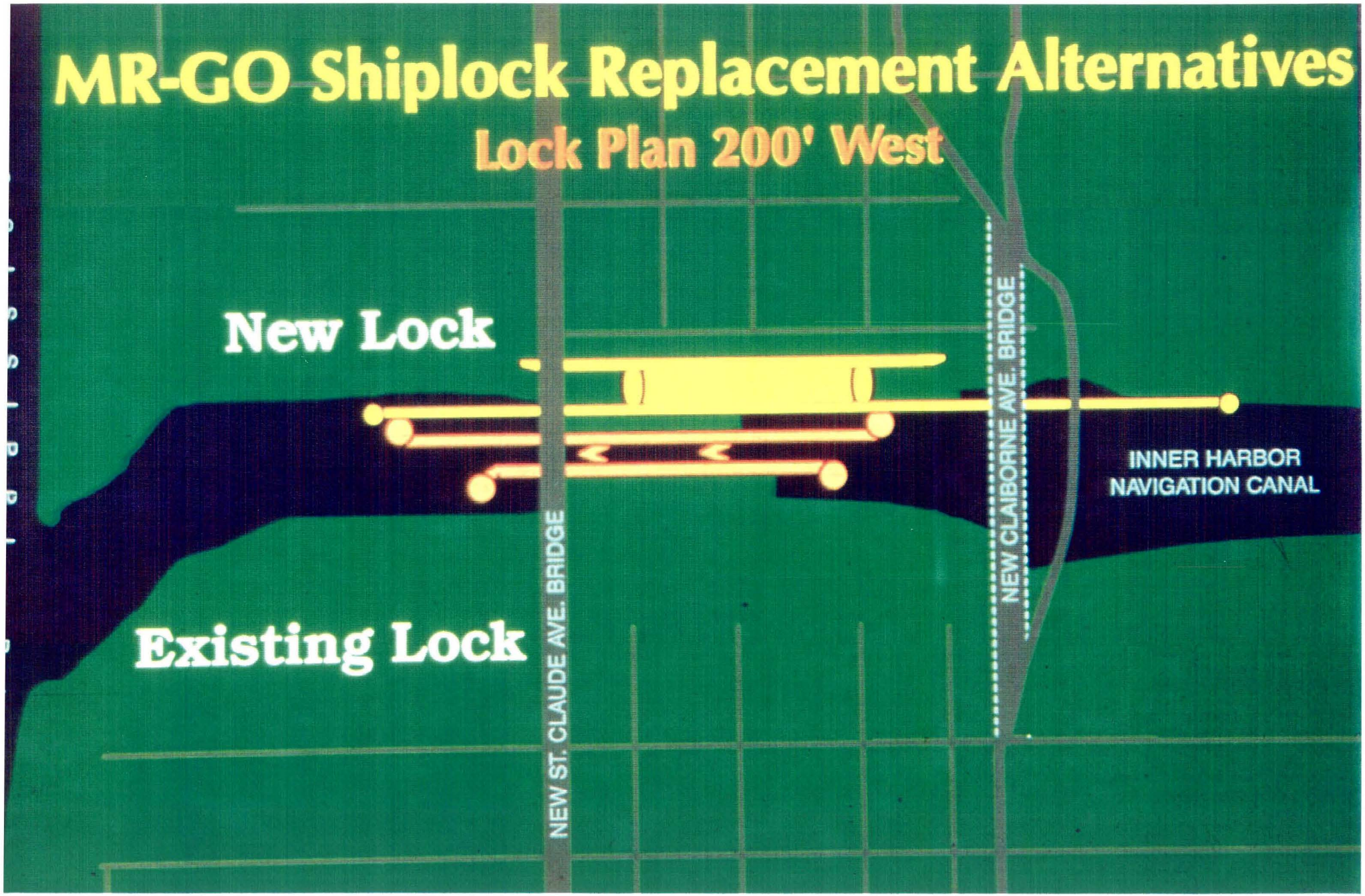


Figure 2

Source: Neighborhood Boundaries– G.C.R. & Associates, Inc.
Historic Districts– U.S. Dept. of Interior, National Park Service


MR-GO Shiplock Replacement Alternatives
Lock Plan 200' East
Existing Lock
New Lock
NEW ST. CLAUDE AVE. BRIDGE
NEW CLAIBORNE AVE. BRIDGE
INNER HARBOR
NAVIGATION CANAL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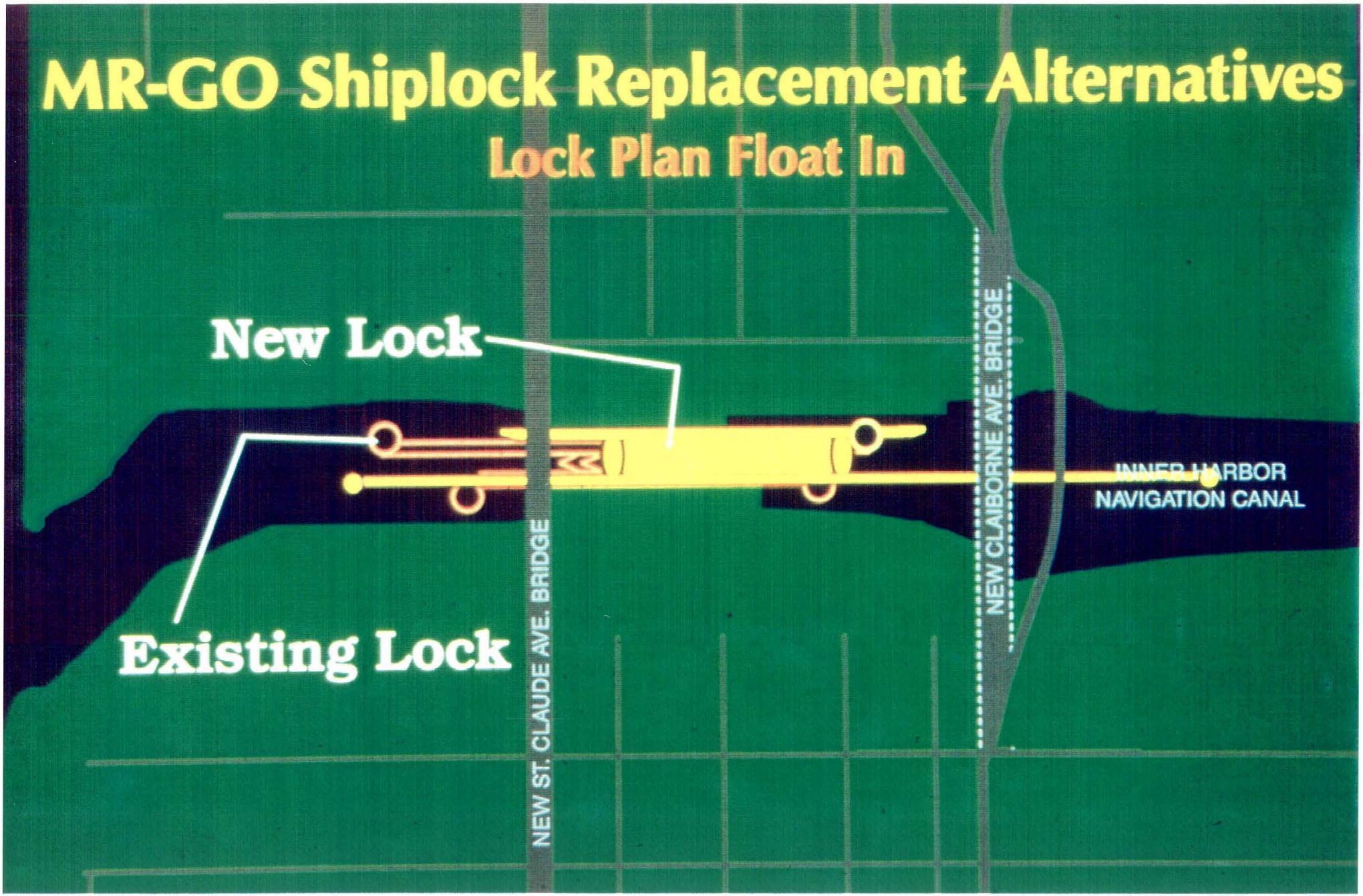
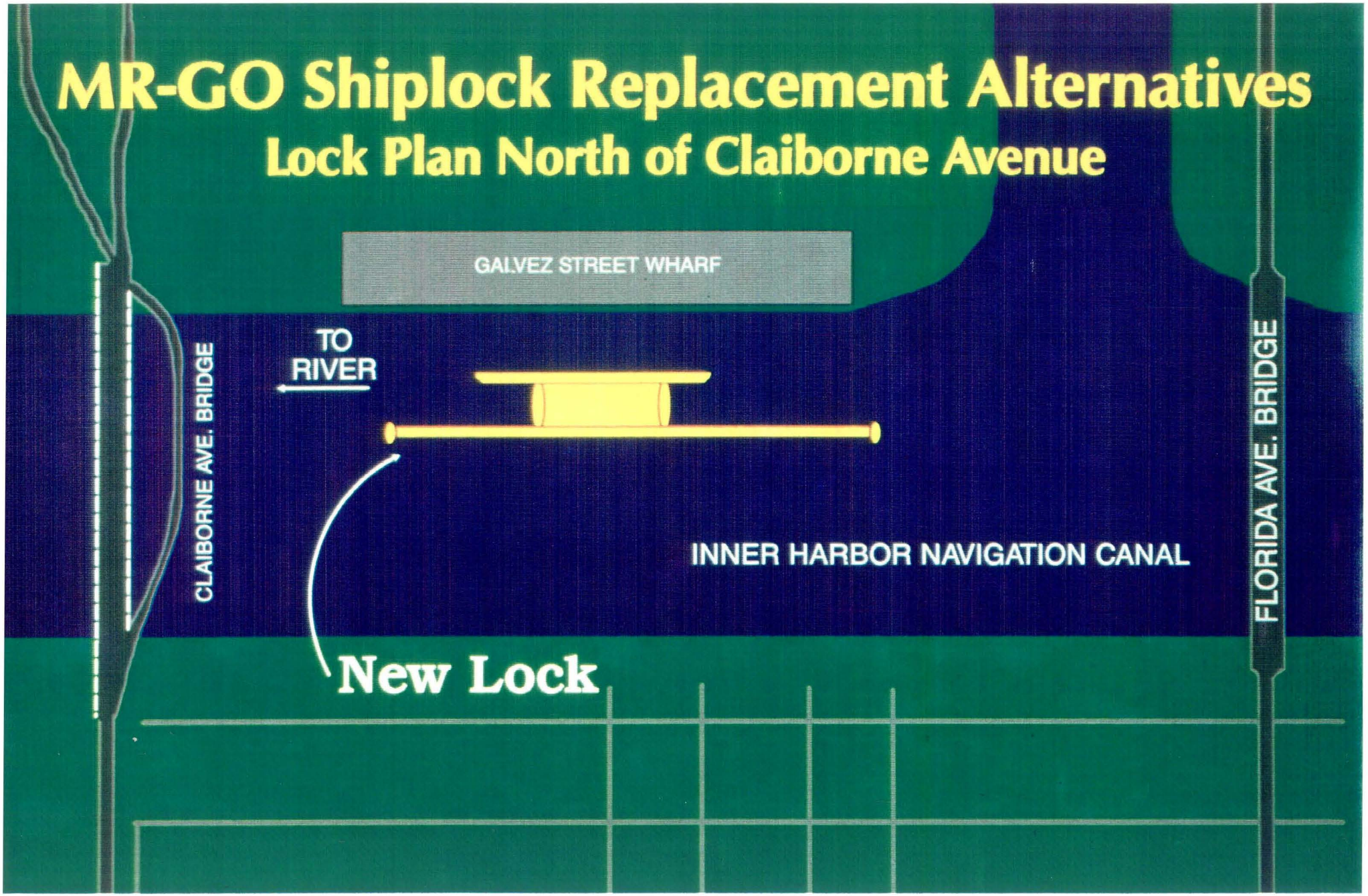

MR-GO Shiplock Replacement Alternatives
Lock Plan Float In
New Lock
Existing Lock
NEW ST. CLAUDE AVE. BRIDGE
NEW CLAIBORNE AVE. BRIDGE
INNER HARBOR
NAVIGATION CANAL


MR-GO Shiplock Replacement Alternatives
Lock Plan North of Claiborne Avenue
GALVEZ STREET WHARF
TO RIVER
CLAIBORNE AVE. BRIDGE
FLORIDA AVE. BRIDGE
INNER HARBOR NAVIGATION CANAL
New Lock