



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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Mr. Gib Owen
Environmental Planning and Compliance Branch
Planning, Programs, and Project Management Division
U.S. Army Corps of Engineers
Post Office Box 60267
New Orleans, Louisiana 70160-0267

Dear Mr. Owen:

The Environmental Protection Agency (EPA) has reviewed the Individual Environmental Report (IER) #11 – Tier 1 regarding improved hurricane protection on the Inner Harbor Navigation Canal, Orleans and St. Bernard Parishes, Louisiana (January 2008). This IER serves as a programmatic-level review of hurricane protection options in the given study area. It is our understanding that more detail and analysis will be provided in IER #11 – Tier 2, which will be issued after award of the design/build contract for this project. We also understand that the two-tiered process will provide an opportunity for EPA and other stakeholders to have input on specific levee and structure alternatives within the general location range identified in the Tier 1 analysis.

EPA fully recognizes the need to expedite the rebuilding and improvement of the New Orleans metropolitan area hurricane protection system. We remain committed to working with the Corps of Engineers (Corps), our State and other Federal partners, and other stakeholders to help expedite the environmental review of this effort. We are also committed to ensuring that such hurricane protection projects are consistent with ongoing efforts to protect and restore coastal wetlands in Louisiana.

The portion of the hurricane protection system addressed by IER #11 is one of the most critical links for New Orleans. We support the Corps' efforts to use innovative approaches to provide enhanced protection for this area as soon as possible. We do not object to the programmatic alternatives proposed in this IER, specifically Borgne 1 and Pontchartrain 2. We have the following questions and comments pertaining to these alternatives, and in some cases, to the broader effort to improve hurricane protection in the New Orleans metropolitan area and beyond.

Borgne 1

For the Borgne 1 alternative, we recommend selecting an alignment that encloses as little wetland as practicable, while in no way compromising hurricane protection or unreasonably increasing project costs. This will reduce direct wetland impacts, while

also minimizing potential indirect impacts to enclosed wetlands. If moving the levee alignment eastward provides clear advantages in terms of cost, timeliness, and/or hurricane protection, then such considerations should be fully explained in IER #11 – Tier 2.

With respect to indirect impacts to enclosed wetlands, the subject IER discusses potential *adverse* effects due to changes in water circulation and sediment processes (presumably including the potential reduction of re-suspended sediment input). At the same time, however, the IER indicates that there may be a somewhat countervailing beneficial effect due to “protection” of the enclosed wetlands from storm surges. While it may seem intuitive that a levee could protect enclosed wetlands from hurricanes, we are not aware of information to support such a claim in this case.

The U.S. Geological Survey’s (USGS) analysis of land changes in southeastern Louisiana due to hurricanes Katrina and Rita shows what appears to be greater wetland loss in the area enclosed by the MRGO levee (i.e., the “central wetlands”) than in the so-called golden triangle, which is not enclosed within a levee. Enclosed wetlands in the Bayou Sauvage National Wildlife Refuge also suffered greater losses than un-enclosed wetlands in the golden triangle. (See www.nwrc.usgs.gov/hurricane/hurricane_land_change.htm)

The wetland losses in areas enclosed by levees may be attributable to levee failures, increased salinities, the wetland types affected (e.g., USGS notes that brackish and saline marsh appeared to fare better than fresh and intermediate), and/or other factors (e.g., enclosure within the levees may have made the wetlands more susceptible to hurricane damage). Nevertheless, the effects of hurricane Katrina in the IER 11 study area do not appear to support the claim that levees can protect wetlands from hurricanes. (Indeed, it appears that enclosed wetlands fared worse.) In the absence of some other source of information, it would be speculative and possibly erroneous to assert that the proposed project could protect wetlands from hurricane storm surges -- particularly if the design of the Borgne I structure would allow for overtopping during a hurricane.

We recognize that enclosure of wetlands may be necessary in this case. We are, however, concerned that the concept that wetlands could be protected to some extent by levees could be misapplied to other levee projects. We would recommend that the Corps either provide scientific documentation to support the idea that enclosed wetlands could be protected from hurricanes, or revise the indirect effects discussion to eliminate reference to such conceptual effects.

Non-Structural Approaches

We do not object to the Corps’ finding that a non-structural approach (e.g., elevating buildings and infrastructure) is not a viable *alternative* in this situation. In the case of the New Orleans metropolitan area, non-structural measures should be viewed as a key *complementary* strategy, which in combination with levees and coastal restoration would further reduce flood risks.

The cost estimates for non-structural measures presented in IER #11 could lead to the conclusion that such complementary efforts are unreasonably expensive. Yet some New Orleans homeowners have elevated their homes since hurricane Katrina. As noted above, such actions provide much-needed redundancy in the hurricane protection system. To ensure that the information presented in this IER does not inadvertently discourage further individual and/or programmatic efforts to elevate homes and other structures, we would request that the Corps review its assumptions regarding the cost of non-structural measures.

One fundamental assumption driving the estimated cost of the non-structural approach is that the 127,000 homes damaged by flooding in Orleans and St. Bernard Parishes would all need to be elevated. Why would the Corps assume that a 100-year storm would flood as many properties as did Katrina (which, according to the Corps, was approximately a 400-year storm)? Doesn't such an assumption mean that the Corps is comparing 100-year structural alternatives with a 400-year non-structural option? In addition, shouldn't the Corps' assumption take into consideration the post-Katrina repairs and improvements to the levee system (such as the temporary gates on the outfall canals), as well as the number of homes that have been elevated since Katrina? (IER #11 does acknowledge that this fundamental assumption could lead to a substantial overestimation of non-structural costs, but there is no effort to produce a more realistic assumption.) Finally, has the estimated cost of \$152,000 for elevating the average residence (\$95 per square foot) been reviewed by entities with experience in elevating structures (including the Federal Emergency Management Agency and private contractors involved in elevating residences)?

Again, the goal of these questions is not to suggest that a non-structural approach is a suitable alternative in this case. Rather, it is to ensure that the Corps is not disseminating information that might discourage an important complementary strategy for reducing hurricane risks in the study area. Additionally, we would be concerned if what could be oversimplified assumptions were applied in the analysis of hurricane protection alternatives for less densely populated areas along the coast, where a non-structural approach may indeed be the most effective primary strategy for reducing the risk of hurricane flooding.

Relative Sea Level Rise

To ensure that the New Orleans levee system provides 100-year protection over the entire project life, it is critical to adequately account for relative sea level rise (RSLR) – the combined effect of eustatic sea level rise and subsidence. The extent to which eustatic sea level rise may accelerate in the future is uncertain. The rate of subsidence may also be somewhat uncertain. Given this uncertainty, it would seem safest to use conservative estimates for future subsidence and eustatic sea level rise rates (conservative in the sense that such estimates err on the side of overestimating the amount of RSLR).

The eustatic sea level rise estimate in IER #11 (1.3 feet over the next century) is approximately the mid-value of the range presented in the 2007 Fourth Assessment

Report of the Intergovernmental Panel on Climate Change (IPCC). Has the Corps considered what would happen if the future rate of eustatic sea level rise is at the higher end of the IPCC's range of projections? For example, the IPCC's 2007 report indicates that eustatic sea level rise could be close to two feet, with the possibility of an additional 0.3 to 0.7 feet, assuming certain flow rates from Greenland and Antarctica. Similarly, has the Corps considered what would happen if future subsidence in the study area exceeded the 0.5 foot per century estimate provided in IER #11? For example, Coast 2050 (1998) references an estimate of 1.1 to 2 feet of subsidence per century for the Borgne 1 area. A NASA and Louisiana State University study released in January 2008 suggests the subsidence rate for New Orleans is likely greater than 17 inches per century. (<http://geology.com/nasa/louisiana-coastal-subsidence.shtml>) Has the potential for such higher rates of eustatic sea level rise and/or subsidence been considered in the design of this and other components of the New Orleans levee system? If not, to what extent would flood risk increase if RSLR were to exceed the estimate used in IER #11?

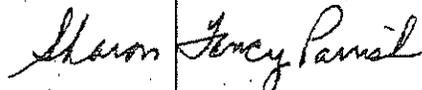
Miscellaneous

We recommend that the discussion of MRGO de-authorization on page 12 include a figure showing Bayou La Loutre and the location of the proposed plug.

The discussion of existing wetland conditions on page 49 states that biotic and abiotic forces (particularly deltaic processes) are "consistent across Louisiana's coastal marshes." This would not be an accurate characterization of a deltaic environment which was formed, and continues to be affected by dynamic and variable forces, nor does it acknowledge the different environmental conditions in the Chenier Plain of coastal Louisiana.

Thank you in advance for your consideration of these comments. We look forward to continuing to coordinate and collaborate with the Corps on this important matter. If you have any questions or wish to discuss this matter further, please contact John Ettinger at (504) 862-1119.

Sincerely yours,



Sharon Fancy Parrish
Chief
Marine and Wetlands Section

cc: USFWS, Lafayette, LA
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