DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P. O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION O

August 2, 1996

Resource Management Office
Management Analysis Branch

Mr. Wayne W. Weiser
CELMN-ED

Dear Mr. Weiser:

Your Suggestion Number CELN950092, Levels to PBM's Within the District, was evaluated by Headquarters, U.S. Army Corps of Engineers, Directorate of Civil Works, Engineering Division, and was determined to be already under consideration. A copy of that evaluation is attached for your information.

While it is unfortunate that this suggestion could not be considered for an award, your interest in identifying areas for potential improvement is appreciated. The success of the Army Ideas of Excellence Program depends on suggestions. Thank you for taking the time and making the effort to submit your idea.

Sincerely,

J. Holley Murphree

J. Holley Murphree
AIEP Manager

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as

SUGGESTION EVALUATION

For use of this form, see AR 5-17; the proponent agency is OCSA.

TO: *(Include ZIP Code)*
CELMV-PE

FROM: *(Include ZIP Code)*
CERM-M

1. SUGGESTION TITLE
LEVELS TO PBM'S WITHIN THE DISTRICT

2. SUGGESTION NUMBER
CELN950092

3. **ACTION TAKEN OR RECOMMENDED**

a. APPROVED FOR ADOPTION ☐ TOTALLY ☐ PARTIALLY OR WITH MODIFICATION *(Explain in Item 4.)*

DATE SUGGESTION WAS OR WILL BE PUT INTO EFFECT:

☐ ALSO RECOMMEND CONSIDERATION FOR WIDER APPLICATION AS INDICATED IN ITEM 4.

X b. ALREADY IN USE OR UNDER CONSIDERATION. *(Explain in Item 4, indicating whether this suggestion contributed to the action in any way.)*

c. NOT APPROVED FOR ADOPTION FOR REASONS SHOWN IN ITEM 4.

d. RECOMMEND ADOPTION, BUT APPROVAL NOT WITHIN JURISDICTION OF THIS OFFICE. *(Explain in Item 4.)*

e. OTHER *(Specify in Item 4.)*

4. REASONS FOR ACTION TAKEN OR RECOMMENDED. Include a statement as to how the suggestion was or will be implemented if it is adopted. *(If more space is needed, continue on reverse.)*

(SEE ATTACHMENT)

5. **BENEFITS** *(Complete for all suggestions adopted or recommended for adoption.)*

a. ☐ TANGIBLE *(Show actual or estimated dollar savings, including the cost of conversion and first year savings.)*

(1) FACTORS	LABOR			MATERIEL			TOTAL COST OF LABOR AND MATERIEL
	MANHOURS INVOLVED	COST PER MANHOUR	TOTAL COST	NUMBER OF UNITS	COST PER UNIT	TOTAL COST	
FORMER METHOD							
NEW METHOD							
						TOTAL DOLLAR BENEFITS	

(2) COST OF CONVERTING TO NEW METHOD:
LABOR $_____
MATERIEL $_____
TOTAL $_____ ☐ ACTUAL ☐ ESTIMATED

(3) TOTAL FIRST YEAR NET DOLLAR BENEFITS *(Labor and materiel savings less cost of conversion.)*
$ _____ - $ _____ = $ _____

b. ☐ INTANGIBLE *(Describe effect on operations, health, safety, welfare, or morale; and number of people and specific organizations affected. Based on criteria in paragraph 2-8, AR 672-20, indicate the value of the benefit and the extent of application.)*

(1) VALUE OF BENEFIT IS:
☐ MODERATE ☐ SUBSTANTIAL
☐ HIGH ☐ EXCEPTIONAL

(2) EXTENT OF APPLICATION:
☐ LIMITED ☐ EXTENDED
☐ BROAD ☐ GENERAL

(3) EXPLAIN THE FACTORS SELECTED IN (1) AND (2). INDICATE AMOUNT OF AWARD RECOMMENDED FOR INTANGIBLE BENEFITS.

6. DATE	7. NAME, TITLE & TELEPHONE EXTENSION OF EVALUATOR	8. SIGNATURE & TITLE OF RESPONSIBLE OFFICIAL
	WILLIAM A. BERGEN, P.E., PLS CIVIL ENGINEER 202-761-1553	STEVEN L. STOCKTON, P.E. 6/7/96 CHIEF, ENGINEERING DIVISION, D/CW

DA FORM OCT 83 2440 EDITION OF 1 JUN 72 WILL BE USED. USAPPC V1.10

AIEP SUGGESTION NUMBER CELN950092

ATTACHMENT TO DA FORM 2440 (Block 4)

The AIEP proposal is not recommended for adoption since it presents subsidence data and related impacts that have long been known and considered by various Federal, state, parish, and local agencies in the Lower Mississippi/New Orleans area. For years, the National Geodetic Survey, the State of Louisiana, and other public agencies have studied, assessed, measured, and published reports on the existence and impact of subsidence in the New Orleans area.

CELMV 21 Sep 95 recommendation that the National Geodetic Survey, State of Louisiana, and FEMA be informed of possible lowering of benchmarks (PBMs) in New Orleans area is unnecessary--these public agencies are fully cognizant of the long-term crustal subsidence in southern Louisiana; and specifically in the New Orleans area. This land subsidence has been extensively studied and documented by the National Geodetic Survey. Periodic relevelling (as proposed in the AIEP) has been routinely performed over the last 40 years--most recently in 1991. Resultant benchmark elevations have been kinematically adjusted and modeled to solve for heights, velocities, and accelerations accounting for this known subsidence in and around New Orleans.

The latest published report documenting the subsidence of benchmarks in New Orleans was published in October 1995 by David B. Zilkowski of the National Geodetic Survey and Johan J. Kok of Delft University of Technology, and was presented at the Fifth International Symposium on Land Subsidence. This report, titled "Estimation of Subsidence in New Orleans and Vicinity as Indicated by Precise Relevellings" fully documents the long-term settlement magnitudes of benchmarks in the southern Louisiana area and notes application of such data to hydrologic engineering projects.

Other published reports providing evidence that the subject AIEP proposal has been under consideration by Federal and local agencies include:

1973: Holdahl, S.R., "Elevation Changes Along the Gulf Coast as Indicated by Precise Levelling and Mareograph Data," ACSM Fall 1993 Conference, Orlando, FL.

1984: Eustis Engineering Company, "Geotechnical Investigation--Soil Stratification and Foundation Conditions for Residential Development--New Orleans, LA," City of New Orleans & Sewerage and Water Board of New Orleans.

1986: Mitchell, G. & Zilkowski, D., "A Geocadastre for New Orleans and Southern Louisiana," Proceedings of the 1886 Spring ACSM/ASPRS Convention, Washington, DC.

1986: Zilkowski, D. & Reese, S., "Subsidence in the Vicinity of New Orleans as Indicated by Analysis of Geodetic Levelling Data," NOAA (NGS) Technical Report NOS 120 NGS 38, U.S Department of Commerce.

1990: Hart, D., Thompson, G., & Wilkenson, E., "Problems in Establishing and Coordinating a LIS Project in a Subsiding Region," GIS/LIS Proceedings.

1994: Hart, D. & Zilkowski, D., "Mapping a Moving Target: The Use of GIS to Support Development of a Subsidence Model in the New Orleans Region," Proceedings of the 1994 URISA Conference.

PLEASE REVIEW & EVALUATE BY: 22 Sep 95

SUGGESTION EVALUATION

For use of this form, see AR-5-17, the proponent agency is the Office, Chief Public Affairs. Rec'd 9/25/95

TO: (Include ZIP Code)	FROM: (Include ZIP Code)
CELMK-RM-M ATTN: Robin M. Holmes	CELMV-PE

1. SUGGESTION TITLE	2. SUGGESTION NUMBER
Levels to PBM's within the District	CELN950092

3. ACTION TAKEN OR RECOMMENDED

- a. APPROVED FOR ADOPTION ☐ TOTALLY ☐ PARTIALLY OR WITH MODIFICATION *(Explain in Item 4.)*
  - DATE SUGGESTION WAS OR WILL BE PUT INTO EFFECT: ☐ ALSO RECOMMEND CONSIDERATION FOR WIDER APPLICATION AS INDICATED IN ITEM 4.
- b. ALREADY IN USE OR UNDER CONSIDERATION *(Explain in Item 4, indicating whether this suggestion contributed to the action in any way.)*
- c. NOT APPROVED FOR ADOPTION FOR REASONS SHOWN IN ITEM 4.
- X d. RECOMMEND ADOPTION, BUT APPROVAL NOT WITHIN JURISDICTION OF THIS OFFICE. *(Explain in Item 4.)*
- e. OTHER *(Specify in Item 4.)*

4. REASONS FOR ACTION TAKEN OR RECOMMENDED. Include a statement as to how the suggestion was or will be implemented if it is adopted. *(If more space is needed, continue on reverse.)*

As stated by Mr. Halphen in the District evaluation and subsequent telephone conversation, the Corps does not have the authority to establish a new epoch for the PBM's in NOD. In addition, it is not clear how the Corps or its customers will receive any benefits from the new leveling. One scenario is that the new leveling will show that due to settlement structures have lowered making them susceptible to flooding where they were not using the present leveling and that those structures already susceptible to flooding will now have even more damage. Losses would relate to flood insurance premiums that are to low or no coverage under the existing leveling; however, this is a matter for FEMA to handle. A second scenario is that Corps flood protection works built using the existing leveling will result in deficient levee and flood wall grades; however, considering the magnitude of the lowering the effect, if any, on levee protection should not be significant. We recommend that NGS, FEMA and the state of Louisiana be informed of the possible lowering of PBM's in the New Orleans area so they can take appropriate action.

5. BENEFITS *(Complete for all suggestions adopted or recommended for adoption.)*

a. ☐ TANGIBLE *(Show actual or estimated dollar savings, including the cost of conversion and first year savings.)*

(1) FACTORS	LABOR			MATERIEL			TOTAL COST OF LABOR AND MATERIEL
	MANHOURS INVOLVED	COST PER MANHOUR	TOTAL COST	NUMBER OF UNITS	COST PER UNIT	TOTAL COST	
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6. DATE	7. NAME, TITLE & TELEPHONE EXTENSION OF EVALUATOR	8. SIGNATURE & TITLE OF RESPONSIBLE OFFICIAL
21 Sep 95	STEPHEN W. ELLIS, P.E. Civil Engineer 601-634-5910	JAMES R. HANCHEY, Director of Engineering and Technical Services

DA FORM OCT 83 2440 EDITION OF 1 JUN 72 WILL BE USED. *U.S. Government Printing Office: 1991 — 281-485/40341

Encl 2

-W
my copy

CELMN-ED-LH

Suggestor/ /XXXX
27 Sep 1995

MEMORANDUM FOR: AEPI Manager

SUBJECT: Suggestion concerning the Updating of elevations to NGS permanent benchmarks (PBM's) for the NOD, additional information as requested.

1. The NGS PBM's are the source of the nations vetical control system. This system is used to determine levels above and below zero datum NGVD, which is the replacement for the old MSL datum.

2. Periodically NGS re-surveys their control datum to update and verify their precission. In areas of known subsidance this re-survey is done at more frequent intervals than other areas not subject to subsidance.

3. The Corps of Engineers of which NOD is a part, uses NGS PBM's to control all of its projects. However, because of its vastness projects are controlled by PBM's that have not been re-surveyed in some instances for 30, 20, or a minimum of 10 years.

4. In 1985, the Chief of Engineering Division wrote a memo to Division Headquarters concerning NGS Benchmarks, see enclosure 1.

5. Division's response to that memo is also furnished as enclosure 2. You will note that they voiced some concerns on the integrity of flood control works, flowlines and levee grades and the possibility that reanalysis of hurricane protection works in high density urban areas where datum changes will drastically reduce the level of protection.

6. You will further note that all of NOD's gages were re-leveled to the then current (latest) published NGS data.

7. The conflicts of using the latest published data for gages and on new projects, but not on existing projects or dredging appear to increase the problem further.

8. NOD participates in the preparation of FEMA maps for localities and determination of flood zones for insurance and setting insurance rates. Again these maps are made using the latest published NGS data. Local governments, contractors and individuals also use the latest published data.

9. Why then was this office only interested in adjusting gages at all locations, see enclosure 3, but not the project heights or flowlines. While it is true that the ground above and to the side of a channel settles at about the same rate as that under the channel, Sea Level does not. In fact NOAA is aware of a very slight increase in sea level.

CELMN-ED-LH

Suggestor/ /XXXX
27 Sep 1995

SUBJECT: Suggestion concerning the Updating of elevations to NGS permanent benchmarks (PBM's) for the NOD, additional information as requested.

10. With the knowledge that there is settlement of the channel bottom as well as the exposed ground and sea level is increasing at a very slow rate, dredging requirements should reduce if sedimentation were eliminated or not considered.

11. Project protection is being reduced due to settlement and use of start date datum data.

12. Variences in settlement could greatly affect the protection afforded the general public and cause major damage, costly repairs and most of all a false security.

3 Encls

Suggestor