

OFFICE MEMO

TO: Steve Yaeger CALFED	DATE: June 5, 1995
FROM: Stein Buer Division of Planning <i>Smb</i>	SUBJECT: GIS Progress Report

Background

During formulation of the Work Plan for the Bay Delta Oversight Council I proposed that a Geographic Information System capability be developed to facilitate analyses of alternative environmental impacts in the latter phase of the program. This was incorporated into the Work Plan as tasks 61-65.

Given the uncertainty over the direction of the BDOC program at the time, the proposal was designed to minimize the initial investment in software and equipment, take advantage of existing data and Division of Planning GIS activities, to develop staff experience with use of this tool in environmental studies, and to develop a data base which would be useful for interim as well as long-term Delta planning programs.

On July 15, 1993 I recommended that we proceed with acquisition and development of a GIS capability, based upon GRASS, a public domain GIS software package developed by the U.S. Army Corps of Engineers. The main reasons for this recommendation were as follows:

GRASS was used for the U.C. Berkeley GIS data base developed for the Bay-Delta region under the San Francisco Estuary Program. An enormous amount of effort had already been expended on data acquisition, error checking, and digitizing. Thus we could take advantage of a ready-made GIS information base for the long-term Bay-Delta solution-finding process. In typical GIS use, gathering, correcting, storing, and updating information becomes the greatest system cost (about 75 percent).

The U.C. Berkeley system contained the following basic data layers:

- o Hydrography
- o Transportation systems, including roads and railroads
- o Delta statutory boundaries
- o Urban land use
- o General wetlands mapping
- o Project and nonproject levees
- o Some Delta Landsat images

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- o USGS Quad sheet boundaries
- o Delta lands below sea level and spot elevations, but not contour lines
- o Utility conveyance systems (power, gas, oil)

The selection of GRASS eliminated the uncertainty in system development. The UC Berkeley system was up and running, and the Department had free access to it via its remote workstations.

The Department's Division of Planning had extensive experience with GRASS, and had completed its Delta land use mapping using this software. The acquisition of an additional, compatible workstation would increase the staff and equipment redundancy and thus the reliability of the Department's capabilities. At that time, five Division of Planning staff had received GRASS training.

Careful consideration was given to the issue of data transfer between various GIS systems and the potential for migration to another GIS system such as Arc Info. U.C. Berkeley staff was running both GRASS and Arc Info, and had extensive experience with file conversions between them. This was convincing evidence that selecting GRASS would not preclude data sharing or migration to a more suitable system when appropriate.

In short, the selection of a GRASS based system offered a complete, on-line data base of the region BDOC is most interested in, would build on the Department's previous GIS investments, and minimize up front costs, without precluding future options.

Accomplishments

A DEC 3000 system was acquired in Fiscal Year 1994. Staff set up the system, loaded GRASS, and connected to the U.C. Berkeley GRASS data base.

A three-year, \$173,500 contract was initiated in June of 1994 to fund U.C. Berkeley assistance for the Department's GIS development, including training, technical guidance, and support in data capture. Several data layers needed for current Division of Planning studies (see Figure) have been or are in the process of being digitized. These include:

- Jurisdictional wetlands delineation (completed)
- Wildlife habitat and land use delineation for use in USFWS Habitat Evaluation Procedure (HEP) analyses (95% completed)

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Phase II archaeological and cultural resources inventory
(completed)

Sensitive species inventory (to be completed by 6/30/95)

100-year and 2-year flood plain delineation, for baseline and
project alternatives to be completed by 6/30/95.

It is estimated that about \$60,000 of contract funds will
have been expended as of June 30, 1995.

Efforts have been made to keep informed of and coordinate
with other GIS efforts within various state agencies, to minimize
duplication and to facilitate data sharing where feasible.

In addition Division of Planning staff has been coordinating
with the Environmental Digital Library project being developed by
U.C. Berkeley and the Resources Agency's California Environmental
Resources Evaluation System (CERES) program.

Proposed Future Activities

At this stage, data input activities are nearly completed for
the portion of the Delta shown on the attached figure, and the
next phase will involve trial alternative impact analyses, using
the GIS system where appropriate. As first step, the
jurisdictional wetlands delineation and sensitive species data
have been combined with one-foot contour maps of key channels in
the study area to facilitate conceptual design of riparian berms
and structural levee improvements.

The data and practical experience gained in the course of the
Division of Planning's current studies is expected to be useful in
the long-term Bay-Delta solution finding process.

With appropriate guidance from CALFED Bay-Delta staff
additional GIS data capture and analysis can be undertaken to
support the long-term Bay-Delta solution finding process.

cc: Karl Winkler
Jim Martin
Ray McDowell
Rick Soehren
Victor Pacheco
Rich Breuer
Tom Hawkins

NORTH DELTA PROGRAM STUDY AREA

Legend

— Boundary of Potential Change
In Flood Regime

