



# WOOD RODGERS

## MEMORANDUM

TO: Glenn County Water Advisory Committee

FROM: Francis E. Borcalli, P.E.

DATE: November 13, 2003

SUBJECT: Preliminary Plan for Groundwater and Coordinated Water Management – Discussion Document

### INTRODUCTION

The Glenn County Water Advisory Committee (WAC) retained the services of Wood Rodgers, Inc. in February 2003, to assist in facilitating a planning process to document and preserve what has been accomplished and provide a direction for the future of the WAC.

In carrying out this assignment, Wood Rodgers interviewed representatives of water districts, agricultural support entities, and agriculturists; reviewed documents describing completed as well as relevant work in progress, city/county general plans, and county codes and ordinances. Additionally, Wood Rodgers attended meetings of the WAC and Technical Advisory Committee (TAC).

Based upon information assimilated, Wood Rodgers prepared this Memorandum to initiate discussion aimed at facilitating the management of water resources “available” to Glenn County. Use of the term “available” is purposeful in that Glenn County, not necessarily as a jurisdiction but as a community, has the innate responsibility of being stewards of those resources for the community of Glenn County as well as the region and State as a whole.

By virtue of the geographic and hydrologic setting of Glenn County and the foresight and actions of people in years past, Glenn County is in an enviable position in relation to many other areas of the State. More importantly, Glenn County has, in recent years, continued to demonstrate foresight by virtue of measures implemented to safeguard its groundwater resources. Measures that are being implemented in Glenn County are being used to set standards statewide by virtue of being incorporated into legislation of statewide significance.

The efforts of Glenn County relative to formulating and codifying measures to safeguard its groundwater resources and the progress made in implementing stipulated monitoring programs are commendable. This effort to chart the “next” step to facilitate improved management of the available water resources is commendable as well.

## **BACKGROUND**

Glenn County is clearly an agricultural community with nearly 30 percent of its 850,000 acres in agriculture and one percent devoted to urban uses (Table 1). Over the 10-year period from 1988 to 1998, land devoted to agricultural use decreased from 283,517 acres to 263,503 acres, or seven percent, while land devoted to urban use increased from 6,114 acres to 11,314 acres, or 85 percent. Virtually all land suitable for irrigated agriculture is developed, thus, increases in water use for agriculture would be attributed to changes in crop mix and/or intensity of farming or improved reliability in supply.

The land within the incorporated cities of Orland and Willows is approximately 3,400 acres although the land within the planning area or Sphere of Influence of the two cities is approximately 12,400 acres. The latter represents approximately 4.7 percent of the land in agriculture in 1998. The total county population in 2012 is projected at 47,000, which represents an increase of nearly 22,000 people above the 1993 population.

In establishing the WAC and TAC; adopting Ordinance No. 1115; developing and adopting initial Basin Management Objectives (BMOs); and implementing programs to monitor groundwater levels, water quality, and land subsidence monitoring programs represents very significant accomplishments that separates Glenn County from most other counties. Having “tested” the BMO process for addressing conflicts reinforces the utility of the process established for safeguarding groundwater resources.

## **GOALS FOR WATER MANAGEMENT**

To identify the goals for water management in Glenn County, certain documents were reviewed to determine the extent to which the community is unified in this regard. The respective documents and specified goals are presented below. Where deemed appropriate, some commentary or comments are provided that relate to the purpose of this assignment.

### **Basin Management Objective (BMO) for Groundwater Surface Elevations in Glenn County, California, August 21, 2001**

The vision set forth by the WAC in submitting the Basin Management Objectives to the Board of Supervisors for adoption, is *“that sufficient and affordable water of good quality be available on a sustainable basis to meet the needs of agricultural, industrial, recreational, environmental, residential, and municipal users within the County, both now and in the future.”*

The intent of the vision is well meaning; however, at this time the water needs and affordability of the respective users are not known. Absent some quantification of the needs and affordability, it is very difficult to formulate water resource projects and programs to fulfill the vision.

## **Policy Plan Glenn County General Plan Volume I, June 1993**

Goals and policies are set forth in the General Plan that relate to the subject of this Memorandum. A relevant goal and policies were selected from the document and are presented below.

### Goal:

NRG-2 Protection and management of local water resources.

Policies: It shall be the policy of Glenn County to:

NRP-22 Oppose the exportation of groundwater resources outside the county.

NRP-23 Support legislation which will provide for a locally controlled Glenn County groundwater management district.

NRP-24 Recognize the following local priorities when dealing with questions of ground and surface water use:

- Highest*
- (1) Household/Domestic
  - (2) Agriculture
  - (3) Industrial/Commercial
  - (4) Wildlife/Conservation

- Lowest*
- (5) Exportation

NRP-25 Protect groundwater recharge areas in the county from overcovering and contamination by carefully regulating the type of development that occurs within these areas.

Other policies and implementation strategies are presented in the General Plan, however, are not presented here.

It is recognized these policies were developed in 1993, and that a great deal of work and effort were expended since then to better understand and manage water resources available to the Glenn County. Nevertheless, these policies are not necessarily consistent with current management strategies.

**Feasibility Report, OUWUA AND TCCA Regional Water Use Efficiency Project, January 2003**

The long-term management goals for the OUWUA and TCCA as stated in the feasibility report include the following:

- Insure a long-term reliable water supply to the OUWUA, and improve conveyance system and on-farm water use efficiency by modernizing the existing open channel distribution system
- Support the long-term Stony Creek environmental restoration and fishery resource management objectives of the various state and federal resource agencies
- Provide supplemental water supply to the TCCA service area
- Provide supplemental water supply and operating flexibility to support other beneficial water uses within the Sacramento Valley

**Glenn-Colusa Irrigation District Water Transfer Policy, February 16, 1995**

The Glenn-Colusa Irrigation District (GCID) adopted its water transfer policy in February 1995. The policy articulates a priority to allocate its water supplies. Summarized below is GCID's policy to allocate water supplies available after meeting the needs within the District. Water available in excess of the District's needs would be marketed as follows:

1. A portion of the available water to other agricultural areas within the Sacramento River watershed with consideration given to the buyers "ability to pay,"
2. To environmental purposes.
3. To urban water agencies north of the Delta.
4. To agricultural or urban water users south of the Delta.
5. To the USBR/DWR on a case-by-case basis with the same priority as south of the Delta water users.

It is not essential that goals and policies of entities involved with water management be the same, however, it is important from the standpoint of the message delivered to people within and outside the county, that:

- The goals and policies from a countywide perspective be consistent.
- The goals and policies at the countywide level facilitate sound water management by local entities.

## **ORGANIZATION FOR WATER MANAGEMENT**

Existing organization for addressing water-related issues in Glenn County includes the WAC and TAC, the membership of which are both appointed by the Board of Supervisors. The WAC and TAC have been instrumental in implementing groundwater monitoring programs to address groundwater levels, water quality, and land subsidence and in assessing compliance with the BMOs. Additionally, meetings of the respective committees have provided a forum for discussing a variety of water-related matters. More important, or at least equally important, to the work accomplished, is the strength of the organization, which comes from successfully dealing with contentious and controversial issues. The WAC is comprised of 22 members, 17 of which represent specific geographic subareas, four individually representing the cities of Orland and Willows, the Resource Conservation District, the Glenn County Farm Bureau, and one ex-officio member from the Board of Supervisors. The subareas and geographic locations are identified on Map 1. The area of each subarea is presented on Table 2. A further definition of each subarea in terms of land use for years 1993 and 1998 is presented on Table 3. The TAC is a nine-person committee nominated by the WAC and appointed by the Board.

Work of the WAC/TAC is at a threshold in that a milestone has been reached in terms of the initial focus of groundwater management being achieved. This is not to say that the work is completed but rather, the program for groundwater monitoring, an important element of the BMOs, is being implemented. This will be an ongoing effort in terms of the monitoring network and the data compiled.

The question being addressed at this time is, "What is the next step toward advancing the management of water resources available to Glenn County?" In other words, what is the role of the WAC/TAC and what activities should be implemented to build on the good works completed to date. Improved water management is accomplished one step at a time. Each step should build on work completed from the previous step. Clearly, each step will be followed by another, as the task of water management is never completed. Instead, it becomes more refined with well-directed effort over time. An essential element of ongoing success is the unconditional cooperation and partnerships formed to implement well-conceived programs and projects. Accordingly, the roles and responsibilities of the involved parties need to be clearly defined.

A specified purpose of the County in adopting the BMOs is to work cooperatively with interested local agencies to further develop and implement joint groundwater management practices. To this end, to the extent efforts are directed to facilitate improved management of available water resources by local agencies or entities, the people of Glenn County will be well served.

Management of available water resources by local agencies or entities can be improved with information that is more global in scope or countywide, readily accessible, and provides the foundation for monitoring conditions and identifying opportunities for improved water management and partnerships for implementing particular programs and projects.

For purposes of advancing the management of water resources available within Glenn County, it is suggested that the role of the WAC be expanded to include the coordination of other water resources activities that are countywide. Thus far the effort of the WAC has been directed

primarily at administering the BMOs. The composition of the existing committees, although considered by some as not well balanced, does provide a good cross section of the water community of Glenn County. Furthermore, the ability to work together to deal with contentious issues has been demonstrated.

The water resource activities or tasks should be aimed at formulating a Glenn County Groundwater and Water Coordination Plan. The activities undertaken that are of a countywide nature should in no way interfere with the day-to-day operations of local entities, long term planning, or management of resources. On the other hand, the effective implementation of such activities should facilitate more effective planning, implementation, and management of local entities individually and/or jointly.

To reflect a broader role, the WAC could be referred to as the Water Advisory and Coordination Committee or other name as may be deemed appropriate. The duties related to the BMOs would not change.

## **PROGRAM TO FACILITATE GROUNDWATER AND COORDINATED WATER MANAGEMENT**

Tasks have been identified as components of a program to facilitate the management of water resources by local entities within Glenn County. The product from the respective tasks would provide information that can be used to facilitate improved water management and benefit Glenn County. It is suggested implementing the tasks with oversight of the WAC in its expanded role as discussed above. The respective tasks, together with a brief description, are presented below.

### **A. Formulate Countywide Water Management Goals**

As noted previously, goals for water management at the county level are not consistent and in some sense contradict the goals and policies of local entities. For the benefit of the community at large and entities responsible for water management, it would be beneficial to revisit this matter to develop water management goals that would serve to unify the governing and regulatory bodies and those responsible for water management.

### **B. Perform Water Needs Analysis**

Having the water needs of Glenn County as a priority for water management is certainly endorsed by all parties. A difficulty is that the water needs for Glenn County are not identified. Addressing this priority in a responsible manner could be done if the water needs for the various water uses were quantified in terms of amount, location, timing, and quality. Addressing the water needs, or better stated, unmet water needs, dictates that water supplies also be quantified.

### **C. Prepare Water Delivery and Distribution Infrastructure Map**

Having a map that displays all existing infrastructure for the delivery and distribution of irrigation water would be beneficial for identifying opportunities to interconnect or extend

facilities to exchange or transfer water within the county. This information would be helpful to identify opportunities meeting water needs in particular areas, and/or providing service in the event of an emergency situation.

#### **D. Determine Groundwater Utilization Opportunities and Constraints**

BMOs have been set for various sub-areas in the county. To a large extent the BMOs were established using historic groundwater level data. The BMOs and the applied methodology provides safeguards for protecting the groundwater basin, however, it may also be limiting the opportunity for managing the available water resources. A better understanding of the extent to which the groundwater basin can be utilized without causing adverse impacts could aid substantially in meeting the water needs of the county under normal or emergency conditions.

Glenn County is fortunate to have a groundwater model that was prepared for the Orland-Artois Water District, the Orland Unit Water Users' Association, and Glenn-Colusa Irrigation District. Water Resources & Information Management Engineering, Inc. (WRIME) developed the Stony Creek Fan Integrated Groundwater and Surface Water Model (SCFIGSM) in coordination with the California Department of Water Resources. By virtue of having the model, Glenn County, again, sets itself apart from most other counties. Although the model was developed for the Stony Creek Fan Conjunctive Water Management Program, the model is a "public domain" model and it is understood that the model is available for use by other entities in Glenn County.

The SCFIGSM is a "tool" that can be used to simulate groundwater flow, streamflow, reservoir operations, rainfall runoff processes, land use processes, unsaturated zone flow, and land subsidence. The utility of the SCFIGSM, as stated in WRIME's report, is that it can be used to:

1. Re-examine the assumptions made during the development of the BMOs.
2. Enhance the information background of an existing decision or a revised decision related to the Groundwater Management Ordinance or the BMOs.
3. Identify sensitive areas where additional monitoring may be required to check compliance with the BMOs.
4. Develop general response characteristics and/or sensitivity ranges among different physical and operational elements.
5. Enhance the understanding of the groundwater system behaviors, characteristics, and constraints.

The SCFIGSM can perform "what if" scenarios that can greatly improve the overall understanding of the groundwater basin and general response to hypothetical changes in land use and water management.

## **E. Complete Comprehensive Groundwater Monitoring Program**

Through the efforts of the WAC and TAC, Glenn County has initiated a sound groundwater monitoring program consistent with the BMOs that includes groundwater levels, groundwater quality, and land subsidence. The program is not complete and will be improved and refined with time as additional information is obtained and the needs and understanding of the basin are better known. This program should be completed to the extent existing data and information permits to expand and refine the program and network over time as funding permits. The groundwater model discussed above could be useful in refining the program.

## **F. Formulate Potential Projects**

It would be useful to conduct “brainstorming” sessions to identify, at a conceptual level, potential projects and programs that could help to improve water reliability, quality, or mitigate the impact of extended droughts. Attention should be given to seeking multiple benefits such as reducing impacts from flooding/storm drainage, environmental enhancements, etc.

The benefit of such an exercise would be twofold. First, it would establish a potential list of projects that could be considered for advanced study when funding opportunities are available. Second, it would provide a broader understanding of the potential projects in which participants might consider being a partner in at a future time.

## **G. Evaluate Water Transfer Guidelines**

Glenn County, by virtue on its physical and hydrologic setting and foresight of its residents in the past, enjoys an enviable water supply situation in relation to many counties in California. The fact that water transfers within and/or outside the county can be considered is a fortunate circumstance.

As stewards of the water resources available to Glenn County the resource should be managed to meet the needs of Glenn County, the Sacramento Valley, and California, to the extent practicable. Water law and guidelines or parameters for water use exist. It would be helpful to the community to have guidelines documented that represent established water law and water use parameters that represent the basis for particular types of water transfers. Types of water transfers that should be considered include:

- Surface water with groundwater substitution.
- Surface water with fallowing.
- Groundwater.

To the extent water transfers are configured consistent with adopted guidelines, there should be no need for discussion of a mitigation fund or third party impacts. Having water transfer guidelines in place can facilitate the management of water resources within the county.

## **H. Formulate Drought Preparedness Plan**

The results of tree-ring studies performed on behalf of DWR indicate the occurrence of dry periods of greater duration and severity than the recorded history much of the water planning is based upon. It is not practical to develop or have water supplies available to cover severe events. Nevertheless, such events should be anticipated and measures identified in advance to prepare a community for managing the resources for the well being of the community.

The groundwater model provides an excellent tool by which “what if “ scenarios can be examined to identify the most sensitive areas from the standpoint of potential adverse impacts to the groundwater basin. Measures and protocol for response in such events can be used to refine the BMOs.

## **I. Formulate Public Information and Education Program**

The WAC, with an expanded role, could be very effective in disseminating water resource information on a regular basis and facilitating public involvement for projects in which local agencies are involved. Utilizing the excellent relationship with the U.C. Extension Service and DWR could be very effective as a cooperative effort.

## **J. Prepare Groundwater and Coordinated Water Management Plan**

Implementing the tasks described above could help to facilitate the management of water resources available to Glenn County.

These activities lend themselves to being addressed at a countywide level and will support the work of local entities and facilitate management of supplies for which each is responsible. Opportunities for partnerships locally and regionally to improve water management could emerge from the work as well.

## **SUMMARY**

The information presented above is intended to provide a basis for discussion of items Wood Rodgers views as important to strengthen and build on the product of very significant efforts expended by numerous individuals in the county to date. From Wood Rodgers’ standpoint, the work product from the program can facilitate improved management of water resources for the overall benefit of the county.