

Background Paper 81-7

REVIEW OF THE MARLETTE LAKE WATER
SYSTEM AND PROPOSALS FOR SALE OF
THE SYSTEM OR WATER FROM
THE SYSTEM TO
CARSON CITY

Review of the Marlette Lake Water System
and Proposals for Sale of the System or
Water from the System
to Carson City

Table of Contents

	<u>Page</u>
I. Introduction.....	1
II. History of the Marlette Lake Water System...	1
III. Current Status of the Marlette Lake Water System.....	4
IV. Summary of Most Significant Legislation.....	5
V. Activities Related to Possible Sale of the Marlette Lake Water System or Water From the System to Carson City.....	8
VI. Options for Future Legislative Action.....	11
VII. Suggested Reading.....	13

REVIEW OF THE MARLETTE LAKE WATER SYSTEM
AND PROPOSALS FOR SALE OF THE SYSTEM OR
WATER FROM THE SYSTEM TO
CARSON CITY

I

INTRODUCTION

The Marlette Lake water system has been of significance to northern Nevada since its construction in the 1870's. The recent period from 1960-1980 has brought intensified legislative interest. The purpose of this background paper is:

1. To outline the history and current status of the system;
2. To summarize pertinent legislative actions between 1960 and 1980; and
3. To provide an understanding of activities and issues related to possible sale of the system or water from the system to Carson City.

II

HISTORY OF THE MARLETTE LAKE WATER SYSTEM

In the 1860's, the Comstock mining area and Virginia City were bustling. As the communities of Virginia City and Gold Hill grew in population, their needs for water expanded dramatically. The locally available supplies were insufficient.

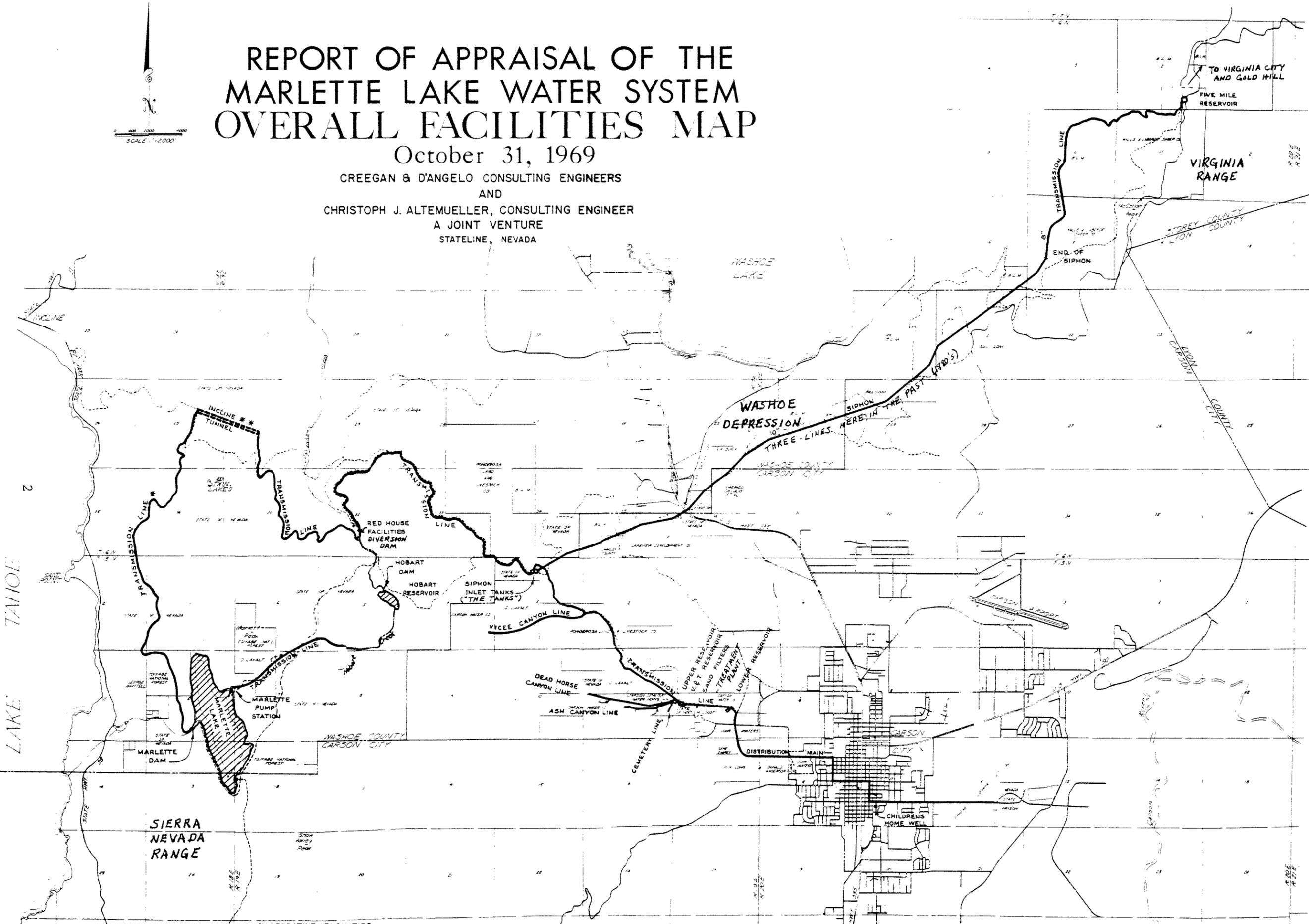
A plan was conceived to bring water from the Sierra Nevada range across the lower Lakeview saddle (Washoe depression) and up to Virginia City in the Virginia range. (See map.) Herman Schussler designed the system which was considered to

REPORT OF APPRAISAL OF THE MARLETTE LAKE WATER SYSTEM OVERALL FACILITIES MAP

October 31, 1969

CREEGAN & D'ANGELO CONSULTING ENGINEERS
AND
CHRISTOPH J. ALTEMUELLER, CONSULTING ENGINEER
A JOINT VENTURE
STATELINE, NEVADA

SCALE 1"=2000'



INOPERATIVE FACILITIES:
 * LINE PARTIALLY REMOVED, REMAINING PORTIONS SEVERELY DAMAGED
 ** SUBSTANTIAL PORTIONS OF TUNNEL CAVED IN.

be a major engineering feat in its day. Two problems were involved. First, a diversion dam had to be constructed on Hobart Creek in the Sierra Nevada. Long lines of box flumes were also to be built along this eastern slope of the Sierras. From the end of the flumes, the water was to enter a pipeline. As the water dropped into the Lakeview saddle, the pressure in the pipeline would be increased. A pressure pipeline across the depression was an unprecedented undertaking because the static head (difference in elevation) was much greater than had ever been used in a pipeline. This problem was solved through the use of iron plates bent into a cylindrical shape and riveted to form a pipe with walls of varying thickness which could withstand the pressure. This initial system was completed in 1873. It was over 21 miles in length and was capable of delivering 2,200,000 gallons of water in a 24-hour period.

The demand for more water on the Comstock continued to increase. In 1875, a second pipe and flume system was built in close proximity to the original. It doubled the capacity for carrying water.

It became evident that Hobart Creek could not provide enough water to supply the expanding needs of the Comstock. A small dam had been built on Marlette Creek in the Sierras as part of a lumbering enterprise. In 1876, the Virginia and Gold Hill Water Company, which owned the Hobart system, received consent to draw water from Marlette Lake. The dam was raised and Marlette Lake grew to be approximately 1 3/4 miles long by 3/4 mile wide.

A tunnel was driven through the granite ridge which separates the Marlette and Hobart drainages. Water was transported through flumes from Marlette Lake to the tunnel. The water went through the tunnel, and as it left the eastern end of the tunnel, it was moved by flume to Hobart Creek. A storage reservoir, designated as Hobart Reservoir, was built a short distance above the original diversion dam.

In 1887, a third pressure pipeline was installed in substantially the same location as the other two lines. When completed, the water system included the following components:

1. Three reservoirs - Marlette Lake
 - Hobart Reservoir
 - Five-Mile Reservoir at the Virginia City end of the system
2. Twenty-one miles of pressure pipelines across the Lakeview saddle (Washoe depression).
3. Approximately 46 miles of covered box flumes.
4. A 3,994 foot tunnel.

With the decline of the Comstock mining area, the fortunes of the water system suffered. In 1941, the Virginia City Water Company (originally the Virginia and Gold Hill Water Company) started to remove the first and third pipelines. Failures in the remaining pipeline became severe during 1956-1957.

In 1957, the Curtiss-Wright Corporation purchased the water system including the water rights, lands, storage facilities at Marlette Lake, Hobart Reservoir, and all flumes and pipelines. The Curtiss-Wright Corporation made several improvements to the system and ultimately sold it to the Marlette Lake Company.

In 1963, the State of Nevada purchased the water system, water rights and approximately 5,378 acres of land from the Marlette Lake Company. Much of the water which had originally served the Comstock was to be diverted to Carson City to serve the state government complex and other users.

Soon after the state purchased the system, an attempt was made to force water through the old tunnel which had collapsed in 1957. This attempt was unsuccessful. An attempt was then made to open the tunnel by excavation, but this action was also abandoned as being unsuccessful. However, since some water springs naturally from the eastern end of the tunnel, the wooden flume from this eastern portal to the diversion dam on Hobart Creek was replaced by a pipeline in 1968.

In 1966, a diesel pump and pipeline were installed to pump water from Marlette Lake to Hobart Reservoir. This pumping system is only used when the requirements for water from Hobart Reservoir exceed its natural capacity.

III

CURRENT STATUS OF THE MARLETTE LAKE WATER SYSTEM

The State of Nevada currently supplies water from the Marlette Lake water system to the following entities:

1. Virginia City and Gold Hill;
2. Lakeview Estates;
3. The state government complex in Carson City; and
4. Carson City.

The storage facility at Marlette Lake has a capacity of 3,405,000,000 gallons or 10,500 acre feet. The dam was reconstructed with new outlet pipes in 1959. No increase in capacity is needed, and the facility is currently in good repair.

Hobart Reservoir has a capacity of 35,000,000 gallons. This reservoir stores a very small percentage of the spring runoff from the drainage basin. Engineering studies indicate that if the full potential of the Hobart watershed is to be realized, Hobart dam must be raised or another reservoir must be constructed. However, the existing structure is sound and is adequate to serve the needs of the state government complex for the foreseeable future.

The diversion dam at Red House (below Hobart Reservoir) diverts the water from all sources of the Marlette Lake system into a pipeline for transportation to "the tanks," from which point the water is transported to its place of use. This diversion dam is constructed to form a stilling basin to reduce the load of silt in the water, and the small basin can be flushed at necessary intervals.

"The tanks" are two wooden tanks of about 9,000 gallons capacity each. They are located at the end of a pipeline which originates at the diversion dam. Through the years, these tanks were entrance tanks for the pipelines going to Virginia City and Gold Hill. Presently one tank serves as an entrance for the single line to Virginia City. The other tank functions as an entrance for water going into the pipeline which leads to the state facilities in Carson City. The tanks, while not new, are in reasonably good condition.

The pipelines in the system above "the tanks" are in good repair. The distribution system from "the tanks" to Virginia City was sold to Storey County in 1974. Although the pressure pipeline is old, it appears to be in good condition.

The state also owns several facilities in the rural portion of Carson City below "the tanks." These include pipelines in Ash and Vicee Canyons, a concrete-lined storage reservoir, a water treatment facility, a 3 million gallon metal storage tank, and pipelines running to the state government complex. All of these facilities are in good working condition. Water from these state-owned facilities is also sold and diverted into the Carson City distribution system.

IV

SUMMARY OF MOST SIGNIFICANT LEGISLATION

The Marlette Lake water system (NRS 331.160-331.180) has been the subject of a great deal of legislation in the 1960-1980 decades. A summary of the most significant legislative actions is as follows:

1963

Senate bill 284 (chapter 462, 1963 Statutes of Nevada) - authorized the issuance of \$1,650,000 in general obligation bonds for the purchase of the Marlette Lake water system.

Senate bill 296 (chapter 463, 1963 Statutes of Nevada) - created the state-owned Marlette Lake water system and provided for its administration by the state department of administration.

Senate bill 302 (chapter 465, 1963 Statutes of Nevada) - appropriated \$20,000 for an engineering study of the water system.

1967

Senate concurrent resolution 21 (file number 105, 1967 Statutes of Nevada) - directed the legislative commission to study the feasibility and desirability of retaining the Marlette Lake water system.

Senate bill 524 (chapter 521, 1967 Statutes of Nevada) - appropriated \$35,000 to clean Hobart Reservoir.

1969

Assembly bill 568 (chapter 496, 1969 Statutes of Nevada) - authorized sale or lease of the Marlette Lake water system for a price not less than its appraised value, and provided additional specifics relative to the sale or lease, rate setting for sale of water, and administration of the system.

Assembly concurrent resolution 28 (file number 112, 1969 Statutes of Nevada) - directed the legislative commission to continue its study of the Marlette Lake water system.

1971

Assembly bill 804 (chapter 410, 1971 Statutes of Nevada) - authorized sale or lease of the Marlette Lake water system at a negotiated price which would be less than the appraised value, if the purchaser or lessee and the price were approved by the interim finance committee; also established the Marlette Lake water system advisory committee.

1973

Assembly bill 242 (chapter 727, 1973 Statutes of Nevada) - designated the state department of general services as the administrative agency for the Marlette Lake water system.

Senate bill 389 (chapter 713, 1973 Statutes of Nevada) - removed the authority to sell or lease the Marlette Lake water system, with the exception of a portion of the distribution facilities which could be sold to Virginia City; directed the director of the department of administration to develop a plan to improve the system; and appropriated \$183,720 for an engineering study.

1975

Assembly bill 637 (chapter 681, 1975 Statutes of Nevada) - declared that the state selected the "Hobart Alternative" for future improvements to the Marlette Lake water system; authorized a contract to be executed between the State of Nevada and Carson City relative to construction of the "Hobart Alternative" and administration of the water system; authorized issuance of \$5,000,000 in state securities to finance the construction, with the consideration that Carson City would reimburse the state; and appropriated \$25,000 to the state department of conservation and natural resources for preparation of a watershed management plan for the area.

Assembly bill 753 (chapter 762, 1975 Statutes of Nevada) - added a member to the Marlette Lake water system advisory committee and broadened its authority.

1977

Assembly bill 732 (chapter 532, 1977 Statutes of Nevada) - required the director of the department of conservation and natural resources to develop and carry out a single management plan for the Marlette-Hobart watersheds.

1979

Senate bill 16 (chapter 9, 1979 Statutes of Nevada) - transferred the responsibility for determining water rates from the department of administration to the department of general

services; and redesignated the Marlette Lake water system fund.

Senate bill 357 (chapter 578, 1979 Statutes of Nevada) - reserved the water rights in the Marlette, Hobart and Franktown Creek watersheds for the State of Nevada for its own present and future use; and appropriated \$100,460 to the state division of forestry for providing aid in the management of the Marlette-Hobart watersheds.

Senate bill 408 (chapter 604, 1979 Statutes of Nevada) - amended assembly bill 637 from the 1975 session (chapter 681, 1975 Statutes of Nevada) by increasing the financial amounts involved; and provided a procedure whereby Carson City may renew its contract with the state, if the contract is, in fact, ever executed.

V

ACTIVITIES RELATED TO POSSIBLE SALE OF THE
MARLETTE LAKE WATER SYSTEM OR WATER
FROM THE SYSTEM TO CARSON CITY

A constant issue over the past several years has been the possible sale of the Marlette Lake water system or water from the system to Carson City. The legislature's decisions concerning actions in the future may be assisted through an understanding of what has occurred up to 1981.

In 1963, the State of Nevada purchased the Marlette Lake water system, including the reservoirs, water transportation facilities, water rights and approximately 5,378 acres of land. The state provided for administration of the system and appropriated finances for an engineering study to be undertaken.

In 1967, the legislature directed the legislative commission to study the feasibility and desirability of retaining the water system. The study recommended that the system (except the land) be sold or leased to Carson City at a price not less than its appraised value. The 1969 legislature accepted the commission's recommendation and enacted assembly bill 568 (chapter 496, 1969 Statutes of Nevada) which authorized the sale.

Between 1969 and 1971, Carson City purchased the privately-owned Carson Water Company which had been supplying water to the city. Carson City expressed interest in buying the Marlette Lake water system, but contended that the law authorizing its sale did not allow the flexibility of negotiating for a price. (The law required that the system be sold at a price not less than its appraised value.) Carson City contended that the appraised value was too high for a selling price because the cost of future improvements and maintenance to the water system were not considered.

The legislature in 1971 agreed to authorize sale of the system at a negotiated price, which would be less than the appraised value. It was also stipulated that the interim finance committee would have to approve the price before the sale was completed. Negotiations were initiated, and Carson City brought a proposal before the interim finance committee. This committee would not approve the sale unless several specific changes were made in the proposal. Carson City returned to a later meeting of the interim finance committee with a redrafted sales contract, but the new proposal did not contain the elements which the committee had sought. The proposal was rejected, and Carson City did not offer another proposal during that time period.

In 1973, the legislature removed from the statutes the authority to sell or lease the Marlette Lake water system to Carson City. Finances were provided for the purpose of undertaking an engineering study for the development of the system. This study was prepared by Waterresources Consulting Engineers and Montgomery Engineers of Nevada.

Through assembly bill 637 (chapter 681, 1975 Statutes of Nevada), the legislature selected the "Hobart Alternative" as outlined in the engineering study for future development of the water system. They also authorized issuance of \$5,000,000 in state securities to finance the improvements. The director of the department of general services was authorized to execute a contract between the State of Nevada and Carson City for sale of water to the city. This contract was to include provisions whereby Carson City would pay for

a specified amount of water each year, whether or not that amount of water was actually used. The contract was also to consider several other matters. The following four elements were of special significance:

1. Description of the improvements constituting the "Hobart Alternative."
2. Reimbursement by Carson City to the state for the improvements to the system.
3. Criteria for operation and maintenance of the system after the improvements were made, the respective responsibilities of the parties, and allocation and payment of the attendant costs.
4. Sale or transfer to Carson City of the facilities at the lower end of the system in Ash Canyon and the urban portion of Carson City.

Primarily because of federal requirements, a water treatment plant was constructed on the Marlette water system in 1979. Carson City officials recommended to the interim finance committee that the city finance construction of excess capacity in the treatment plant above that capacity needed to treat water for the state government complex. Again, final execution of a mutually acceptable agreement was not reached. The interim finance committee decided to authorize construction of the excess capacity at state expense.

While a considerable amount of negotiation has taken place, the general contract between the state and Carson City, as authorized in the 1975 law, has never been executed. A major point of contention has been the raising of the dam at Hobart Reservoir or construction of a new dam on Hobart Creek, as outlined in the "Hobart Alternative." Such a project would be very expensive. Carson City has contended that the dam should not be constructed because it is not the least expensive manner of developing the water resources in the basins. The state has pointed out that the engineering study shows the dam to be needed under the "Hobart Alternative." The state representatives also emphasize that the law specifically selects the "Hobart Alternative" for future improvements.

As of the first day of the 1981 legislative session, no contract has been executed. However, representatives of the state department of general services and Carson City have reached an agreement on the contents of an "interim contract." Under this "interim contract," water would continue to be sold to Carson City and all of the management/financial specifics for the future system would be spelled out, except:

1. A detailed engineering plan for improvements to the system, and
2. A detailed financial arrangement under which Carson City would reimburse the state for construction of the improvements.

When Carson City designs an adequate engineering plan and financial arrangement, a "final contract" consisting of the "interim contract" and the two new elements could be executed.

The "interim contract" will be reviewed by the Marlette Lake water system advisory committee. There is some question about whether it will then have to be reviewed by the interim finance committee prior to execution. When the actual language of the "interim contract" is available, it will be necessary to consult the legislative counsel about the appropriate sequence of events. The director of the division of general services has suggested that both the "interim" and the "final" contracts be reviewed by appropriate legislative entities, whether or not this action is required by law.

VI

OPTIONS FOR FUTURE LEGISLATIVE ACTION

If a contract is not executed between Carson City and the State of Nevada, the legislature has several alternative courses of action from which to choose. The range of alternatives may be outlined as follows:

1. Leave the law as it is, and thus leave the authority to negotiate a contract based upon existing criteria.
2. Remove the requirement that the "Hobart Alternative" be constructed, and authorize the director of the department of general services to negotiate a contract with Carson City which does not include construction of a dam.
3. Authorize state financing for construction of the "Hobart Alternative" without reimbursement from Carson City, and sell water to Carson City and other users. Projections from the department of general services indicate that construction of the dam proposed in the "Hobart Alternative" will not be necessary in the foreseeable future in order to meet only the needs of the state government complex.

Of course, several variations on these alternatives are possible. The three alternatives which are listed here are intended to highlight the range of options.

VII

SUGGESTED READING

(Available in the legislative counsel bureau research library)

Creegan and D'Angelo Consulting Engineers and Christoph J. Altemueller, Consulting Engineer, "Report of Appraisal of the Marlette Lake Water System," October, 1969.

Galloway, J. D., Civil Engineer, "The Water Supply of the Comstock," undated.

Legislative Commission (Nevada), Bulletin No. 79, "The Marlette Lake Water System - A Report of the Feasibility and Desirability of Its Retention," February, 1969.

Legislative Commission (Nevada), Bulletin No. 98, "Report on the Continuation Study of the Marlette Lake Water System," March, 1971.

Montgomery Engineers of Nevada and Waterresources Consulting Engineers, "Project Engineering Report for the Marlette Lake Water System," November, 1974.

Montgomery Engineers of Nevada and Waterresources Consulting Engineers, "Preliminary Design Report for Hobart Creek Reservoir," February, 1975.

Nevada Division of Forestry, Department of Conservation and Natural Resources, "Marlette-Hobart Watershed Study," December, 1976.

Nevada Division of Forestry, Department of Conservation and Natural Resources, "Marlette-Hobart Management Plan," June, 1978.

Reid, Walter G., Civil Engineer, "Marlette Water System Engineering Investigation, Analysis and Report," November, 1964.