

A HISTORY  
OF THE  
FLORIDA KEYS AQUEDUCT AUTHORITY  
(Formerly COMMISSION)

Chapter 18530, Laws of Florida, Acts of 1937, as approved by the Governor on June 11, 1937, created the Florida Keys Aqueduct Commission (FKAC), whose purpose was to obtain and supply an adequate and sanitary water supply for the Florida Keys area.

By 1940, some progress had been made toward obtaining financing of a pipeline from an "area in the vicinity of the town of Homestead, Florida", through the Keys to Key West.

Additionally, beginning in mid-1939, the U. S. Naval Station was re-activated and a military build-up started. The air field at Boca Chica was building and a requirement for additional water to supply these activities existed.

This resulted in an agreement, executed March 18, 1941, between the United States Government and the Florida Keys Aqueduct Commission, wherein the Government, represented by the Department of the Navy, would build and operate an 18-inch pipeline. This pipeline would be capable of providing up to 3 million gallons per day (mgd) of water from which the Government would use two-thirds and the Florida Keys Aqueduct Commission one-third. The financing of this effort, and subsequent cost of operation and maintenance, was set at 2/3 Government, 1/3 Florida Keys Aqueduct Commission.

The Florida Keys Aqueduct Commission borrowed, through bond issues subscribed to by the Reconstruction Finance Corporation, \$1,750,000.00 of which approximately \$1,125,000.00 was the pipeline and well-field share, the remainder being for distribution system costs. Also, an agreement was made between the City of Key West and the FKAC, wherein the City leased its water (salt) distribution system to the FKAC for a preferential water rate.

The Navy obtained about 360 acres of farm land near Florida City, drilled wells and constructed a filtration plant. Concurrently, construction of the line was commenced. (This acreage remains today with the number of wells now seven and plant capacity now at 7 mgd).

On December 8, 1942, the first customer was accepted by the Florida Keys Aqueduct Commission.

Financial difficulties befell the Florida Keys Aqueduct Commission in the late 1940's and an arrangement was worked out with the Government, through legislative action, wherein the Government would buy out the FKAC's share of the pipeline and then sell water "surplus to the need" of the Navy to the Florida Keys Aqueduct Commission. Contracts were entered into dated December 31, 1951, accomplishing this fact. These contracts are still valid today.

As growth occurred, the need for more water, for both military and civilian usage, became apparent and the Government added a pumping station in Marathon. Eventually they added another pumping station in Tavernier. The presumption is that at some point in time the Government decided it was not up to them to keep adding pumping stations because, quite frankly, the Government could get all the water they needed without that configuration.

Continued growth in civilian population made it apparent that additional water must be moved into and through the Florida Keys to take care of civilian requirements and, through negotiations, the basic contract for the sale of water to the Florida Keys Aqueduct Commission by the Government was amended in the form of Supplemental Agreement Number 1, to that document. That Supplemental Agreement, in effect, provided that the Florida Keys Aqueduct Commission shall construct, on its own property, no later than December 31, 1967, and according to the following time schedule for the various stages of construction, a water supply system, including adequate storage facilities, which water supply system will extend from Florida City to Key West:

#### STAGE I

Three Booster Pumping Stations, One Each at Cross Key, Long Key and Ramrod Key, and certain distribution and storage facilities, on or before eight months after date of delivery to the Commission of a duly authenticated copy of that Supplemental Agreement Number 1.

STAGE II

Nineteen miles of Aqueduct on or before December 31, 1961.

STAGE III

Twenty-seven miles of Aqueduct plus additions to the treatment plant storage and distribution facilities on or before December 31, 1963.

STAGE IV

Eighty-four miles of Aqueduct, further additions to treatment, storage and distribution on or before December 31, 1967.

This agreement also required that the Florida Keys Aqueduct Commission should construct and design this water supply system so that upon completion, it will operate completely independent of the Government supply system.

The accelerating demand for water in the early 1960's was outstripping the planning for, and financing of, further pipeline construction and, about that point in time, having added more filtration and additional treatment because of the demand on the pipe, the most expedient means of increasing the water supply appeared to have been the construction of the Desalting Plant. Because water was badly needed by the civilian community and because funds would have to be expended for this Desalting Plant, to get the water more quickly than by trying to build the whole pipeline, the Government entered into Supplemental Agreement Number 2 of the contract.

Supplemental Agreement Number 2, approved on October 15, 1965, basically provided that the Florida Keys Aqueduct Commission should construct, on its own property, no later than December 31, 1967, a salt-water desalination plant, having a capacity of two and one half million gallons per day. It was stipulated that all water produced by such salt-water desalination plant shall be transmitted into the distribution system of the Florida Keys Aqueduct Commission and at no time would the water produced by the desalination plant be co-mingled in the Government's Aqueduct. The Government went on to agree to extend the completion dates for Stages II, III and IV, described in Supplemental Agreement Number 1, to December 31, 1971, December 31, 1973, and December 31, 1977, respectively provided however, that if the Commission, on or before December 31, 1969, shall have submitted to the Government a feasible plan for an alternative source, or sources, of potable water, then the provision of the new and separate pipeline would be subject to re-negotiations.

Such a desalting plant was designed and constructed, completed in the summer of 1967 and went on the line in the fall of 1967. The plant was designed and built by Westinghouse Corporation, met specifications and produced two and six-tenths million gallons a day for a 30-day period. It has been operating and making water as needed since that time.

To determine a feasible plan for an alternative source of water, the Florida Keys Aqueduct Commission instructed its consulting engineers, Bailey, Glass & Post, a subsidiary of Post, Buckley, Schuh & Jernigan, Inc., to prepare a study. This was completed in the fall of 1969. The study indicated that the most economical way of obtaining additional water for the Florida Keys would be to enlarge the size of the desalting complex. It could then provide all the water needed in the city of Key West and by the government activities therein, plus additional water which could be pumped up the pipeline from the southern end. The pipeline would, in effect, be fed from both ends so that a six-million gallon pipeline could handle twelve-million gallons.

This was put in the form of a proposed Supplemental Agreement No. 3 to the Navy Contract and presented to the Navy in October of 1969, prior to the December deadline set up in Supplemental Agreement No. 2. In February of 1970, proposed Supplemental Agreement No. 3 was forwarded with a favorable endorsement, by Navy/Key West through the administrative chain of command, to Headquarters in Washington, D. C. for review. This review process lasted over two years.

In July of 1970, the Florida Keys Aqueduct Commission was redesignated as the Florida Keys Aqueduct Authority (FKAA) by Act of the Florida State Legislature.

In January of 1973 the United States Navy, acting for the Government agreed that it was their intent to get out of the utility business and transfer the pipeline to the Florida Keys Aqueduct Authority. Subsequently, legislation was introduced in both Houses of Congress to accomplish this fact but in January of 1974, when it appeared that there would be problems with special legislation, a decision was made among all parties concerned that the Navy Aqueduct System would be transferred to the Florida Keys Aqueduct Authority through the existing legislation for surplus property, in conjunction with the General Services Administration and the Department of Health, Education and Welfare. After some delays in Administration, Environmental Impact Studies, etc., on February 8, 1976 the property was deeded to the Florida Keys Aqueduct Authority. A four-month transition period ensued and on June 1, 1976 the Florida Keys Aqueduct Authority took over full ownership and operation of the existing pipeline and facilities, including the Florida City well field and Treatment Plant.

During the Legislative session of 1976, enabling legislation relating to the Florida Keys Aqueduct Authority was revised to provide for a referendum September balloting to see if the residents of the Aqueduct Authority's area desired to have the Directors elected rather than appointed by the Governor. In addition, a referendum was to be held on whether any further issues of revenue bonds would be subject to prior approval by the voters in a referendum ballot.

FLORIDA KEYS AQUEDUCT  
ISSUE STUDY TEAM

- I. Introduction
- II. Proposed Water Supply Expansion
- III. Summary of Funding Sources
- IV. Issue Discussion
- V. Issue Team Responsibilities
- VI. Attachments

## I. INTRODUCTION

The existing pipeline and water supply system of the Florida Keys Aqueduct Authority (FKAA), which the FKAA received from the Navy in February 1976, is in very poor structural condition and needs to be replaced by a system with increased capacity. Engineering studies have estimated it will cost 71 million dollars to bring the system up to improved standards. A number of unresolved problems, such as how to finance the project and how to coordinate with the Department of Transportation bridge replacement program, have been increasingly directed at the Governor's office and the Legislature. In an attempt to resolve these problems, Governor Askew has organized the Florida Keys Aqueduct Issue Study Team. The objectives of the issue team are to:

1. IDENTIFY AND RESOLVE ALL ISSUES RELATED TO IMPROVING THE WATER SUPPLY.
2. FORMULATE A UNIFIED STATE/LOCAL STRATEGY FOR IMPROVING THE WATER SUPPLY SYSTEM IN THE FLORIDA KEYS.
3. LOCATE REALISTIC FUNDING SOURCES AND TAKE STEPS TOWARDS OBTAINING SUCH FUNDS.
4. IDENTIFY LEGISLATIVE MEASURES WHICH MAY HELP TO RESOLVE THE PROBLEMS.

II. FLORIDA KEYS AQUEDUCT AUTHORITY  
PROPOSED WATER SUPPLY EXPANSION

PHASE I

Expansion of Florida City water treatment plant to 11.5 mgd	\$ 3,600,000
200,000 ft. 36" line from Florida City to Tavernier - @ \$92/ft.	<u>18,400,000</u>
Subtotal	<u>22,000,000</u>

PHASE II

227,000 ft. of 30" line from Tavernier to Marathon 201,500 ft. @ \$74/ft.	14,911,000
Bridge Crossing 25,500 ft. @ \$150/ft.	<u>3,825,000</u>
Subtotal	<u>18,736,000</u>

PHASE III

236,000 ft. of 24" line from Marathon to Stock Island:	
165,500 ft - @ \$53/ft.	8,771,500
70,500 ft - @ \$123/ft.	<u>8,671,500</u>
Includes modification to Long Key and Ramrod pumping stations.	Subtotal
	<u>17,443,000</u>
Total including eng. and admin. fees	\$61,079,000

ALTERNATE #1

Pumping stations only at Florida City and distribution at Key West

42" line to Tavernier	
36" line to Marathon	
30" line to Key West est. cost	\$71,600,000
1978 dollars add approximately	\$10,000,000

Engineering and Estimates by Black, Crow & Eidness. Detailed engineering report and discussions of various water supply alternatives can be found in "Engineering and Financial Report for the Florida Keys Aqueduct Authority." Black, Crow & Eidness Engineers. Revised May 1976.

### III. SUMMARY OF FUNDING SOURCES

#### 1. Local

One funding source which will have to be utilized is revenue bonds floated by the FKAA. However, there are two limitations which restrict this option from solving the entire funding problem. First, the FKAA presently has an outstanding bonding obligation of 12 million dollars. Their indenture agreement with these bondholders limits their bonding capacity to 32 million; thus giving them only an additional 20 million bonding capacity. Second, revenue bonds would be supported by water rates. FKAA's existing water rate is \$3.56 per thousand gallons with an additional \$1.06 per thousand fuel adjustment cost giving a total cost per thousand gallons of water of \$4.62. For comparison, the City of Tallahassee charges 37¢ per thousand gallons. Consequently, any rate hikes which may be necessary to support major expansions of the FKAA system will be looked at very critically by the users who are now paying the highest cost for potable water in the United States. This is an important consideration because any revenue bond issue must by statute be approved by referendum vote.

#### 2. State

There are no existing funding programs at the state level which would provide funds for the construction of the improved water system. Any funding from the state would have to come in the form of a legislative appropriation. Senator Vernon Holloway sponsored a bill in the 1977 Legislative Session which would have appropriated 26 million dollars to the FKAA. The 26 million is the

estimated cost to replace the pipeline to an improved size on all of the 37 bridges scheduled to be rebuilt. This 26 million is a part of the total pipeline improvement cost of 71 million. This bill was not passed; however, SB 36-B also sponsored by Sen. Holloway was passed. SB 36-B (Attachment F) authorizes the Florida Department of Transportation to "pay the costs of relocating and replacing water supply facilities up to an amount equal to federal funds received by Florida specifically for that purpose, or is authorized to pay these costs up to an amount received from federal non-transportation funds by Florida and utilized for projects on the state highway system." This bill, in conjunction with an allocation from the Governor's Economic Development Administration (EDA) discretionary funds, has provided 8.1 million dollars for pipeline replacement on specific bridges.

### 3. Federal

An intensive search revealed only two federal programs which could fund the pipeline project. These were the Economic Development Administration (EDA) and the Farmers Home Administration (FMHA). The FMHA indicated that they would not have the funds to support a program of the pipeline's magnitude. In 1975, EDA gave a 2.8 million Title IX grant to the FKAA to fund the construction of a reverse osmosis water plant and other various projects for upgrading the water supply system in the Keys. The FKAA had 11 grant applications submitted for consideration under the 1977 Public Works Program in which Florida received 100 million dollars of EDA funds. None of the applications were selected for funding by EDA and all the applications were generally given a low priority rating.

A special congressional appropriation has been discussed as a possible funding source. However, Congressman Dante Fascell, in a letter to FKAA Chairman

Delio Cobo (Attachment D) clearly states that this approach is unrealistic.

It may be possible to obtain some additional funds for the pipeline in relation to the appropriation for the bridge reconstruction project. But again this is not an optimistic source.

#### 4. Other Proposals

A substantial portion of the demand on the water system can be attributed to in-state and out-of-state tourists. This has led to some discussions on the possibility of a visitor/tourist fee which would help defray the cost of providing public facilities in the Keys. However, such a fee would require special legislation and would need to include a mechanism for obtaining revenues and a procedure for distributing these revenues among the agencies providing public facilities (FKAA, Monroe County and municipalities).

It is apparent that none of the above sources would by itself be able to finance the entire water supply improvement program. An intergovernmental effort with funding from a combination of the above sources appears to be the only potential solution. This need for an intergovernmental effort further emphasizes the necessity of a unified state/local strategy.

#### IV. ISSUE DISCUSSION

A unified state/local position will not be possible until all of the various issues related to the water supply improvement program are thoroughly discussed and resolved. As can be seen from the items outlined below, there is controversy and there are differing points of view. A lack of inter-governmental coordination at all levels and a misunderstanding of various agencies' economic, social, and environmental constraints have created some of these problems.

For the November 10 meeting in Key West, each member of the issue team should thoroughly review each of the issues and be prepared to offer recommendations in line with their agencies' responsibilities or functions. Written comments should be submitted in addition to participating in the November 10 meeting.

The issue team should not feel constrained to discuss only those issues raised below. Each member is encouraged to identify others. Also, it should be noted that neither the order, wording nor style is intended to represent any federal, state or local agency position.

##### 1. FKAA Functions Transferred to Monroe County

During the 1977 Legislative session a bill was introduced in a House committee which would have abolished the FKAA and transferred its functions and responsibilities to Monroe County. The bill did not get out of committee; however, it became very controversial at the local level and generated a lot of discussion.

Should the responsibilities and functions of the FKAA be transferred to Monroe County? Are there any advantages or disadvantages to such a transfer?

## 2. Water Availability in South Dade County

The FKAA is proposing a pipeline with a design capacity capable of transporting 19.5 mgd from the Florida City wellfields. The FKAA is presently pumping 6.5 mgd and they have a South Florida Water Management District Consumptive use permit to withdraw, in increasing increments, up to 13.5 mgd by 1985.

Will the water be available in the South Dade wellfields and will the FKAA be able to obtain a permit for 19.5 mgd if the growth in the Keys requires it?

## 3. Growth Management

The local governments in the Florida Keys must be able to manage growth in accordance with the ability to provide public facilities. The following figures illustrate the need for an effective program.

The proposed pipeline system could transport 19.5 mgd and according to FKAA calculations support 92,000 permanent residents and 38,000 tourists.

92,000 potential future residents		
- <u>58,000 existing residents</u>		
34,000 new residents		
<u>34,000 new residents</u>	=	<u>850 new residents</u>
40 years (design life of pipeline)		year
<u>850 new residents</u>	=	<u>370 new dwelling units</u>
2.3 residents per dwelling unit		year

For perspective, the F. W. Dodge construction start statistics show that in all of Monroe County there were 320 dwelling units started in 1976, 307 in 1975, 1730 in 1974 and 1950 in 1973. Although this is a very generalized analysis it illustrates the need to regulate and coordinate the number of dwelling units permitted each year with the capacity of necessary public facilities such as water.

What local land use management policies and regulations may be necessary to insure that development in the Keys

will not outrun the system improvements or the financial capability of governments to provide the necessary public facilities?

A related growth management question is whether state and federal governments should subsidize public facilities, and indirectly growth, where local agencies can not pay the entire cost and where the area has been recognized as environmentally unique and sensitive?

#### 4. Funding Responsibilities

The Florida Keys have been recognized as an area containing resources of regional, state and national importance and the local governments have taken steps to protect these resources. The physiographic nature of the Florida Keys presents special problems which result in a much higher cost for public facilities than on mainland Florida. These and other factors have been utilized to indicate that the funding of the new water supply system should be an intergovernmental effort.

In this regard, what percentage of the total project cost should be funded by 1) local, 2) state, and 3) federal entities? Identify any rationale used to arrive at these percentages.

#### 5. Coordination of Bridge and Pipeline Replacement Programs

Florida DOT has a bridge replacement program which over a 5 year period will reconstruct 37 of the 44 bridges in the Florida Keys. The FCAA pipeline is carried on these 37 bridges, and the cost to replace the pipeline to an improved size in the approaches and on the new bridges is 26 million dollars. The cost to replace the improved size pipe only where it is necessary to remove the existing bridge and build a new one is 8.1 million dollars. A bill passed by the 1977 Legislature in conjunction with an allocation of \$8.1 million of the Governor's EDA Discretionary funds has provided this amount to be used for pipeline replacement on the specific bridges. All the new bridges are being constructed with additional structural support and design considerations such as extended abutments, so as to be able to carry

the improved pipeline. However, if additional funds (to \$26 million) are not provided over the next 4 years, the existing pipeline will apparently remain on the old bridges. The disposition of the approaches to these old bridges and the structural condition of the bridges raises an additional question.

Will the FKAA be able to have access to and maintain the old pipeline until a new line is in place on the new bridges?

#### V. FUTURE ISSUE TEAM RESPONSIBILITIES

After the November 10, 1977 meeting, all the comments and information will be reviewed by the Department of Administration and a draft report containing findings and recommendations will be prepared. The draft report will be sent to each member of the team for further comments. These comments will be utilized to draft the final report which will be submitted to the Governor around the first week of December. All written comments will be attached to the final.