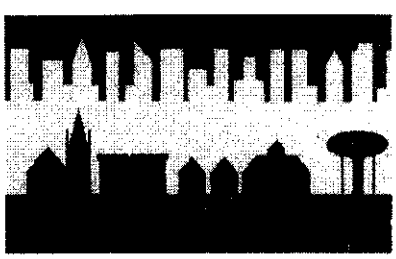
Draft Report for Discussion Purposes Only

James City Service Authority

Independent Water System Rates

December 9, 2003



MUNICIPAL & FINANCIAL
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James City Service Authority
Analysis of Cost of Service Differentials in Independent Systems
16 December 2003

Issue:

JCSA owns and operates six independent water systems in developments that are not interconnected with JCSA's main water system. Some of these six systems may eventually be interconnected to the JCSA's Primary Service Area (PSA), but it is very unlikely that some of the six will ever be integrated with the PSA. The unit operating and capital costs for the six independent water systems are significantly higher than those for the water system in the PSA, due primarily to diseconomies of scale. At present, JCSA uses a single rate structure for all of its service areas (i.e., one common rate is charged in the Primary Service Area as well as the six independent service areas). This means, in effect, that the customers in the PSA are subsidizing the cost for customers in the independent systems. Some of the members of the JCSA Board have asked that an analysis be conducted of alternatives that could eliminate or mitigate this situation for future development of independent systems. The County's Subdivision Ordinance requires that any development over six lots build a "central" water system and donate it to the JCSA. This requirement establishes the possibility of the perpetuation of this situation. This paper offers recommendations on how to address these situations in the future.

Cost of Service Analysis:

In order to determine the actual cost of providing service to each of the independent systems on a "stand alone" basis separate from the costs related to the JCSA Primary Service Area, a simple cost of service analysis was completed for each of the independent systems. The analysis included calculating the net revenue requirements for each of the independent systems and developing independent system rates based upon consumption in each system. A combined independent system revenue requirement and rate was also calculated. The following section describes the analysis in detail. The financial and operating data related to each independent system was provided by JCSA staff. The assumptions used in the cost of service analysis appear in the Appendix to this paper.

1. Production and Customer Data

The estimated average daily water production within the independent systems is approximately 100,000 gallons combined. The daily production varies between a low of 5,244 gallons per day (GPD) in the Wexford system to a high of 53,733 GPD in the Stonehouse system. There are a total of 332 customers within the independent systems. The Stonehouse system (serving 136 customers) is the largest of the independent water systems and will likely be connected to the central system within the next 10 years.

2. Operating and Maintenance Expenses

The operating and maintenance (O&M) costs of the JCSA's independent systems may be considered to be comprised of personnel-related expenses (administrative, maintenance, and operator salaries), utilities (electric and gas) and miscellaneous operating costs (facilities/equipment repair and maintenance, supplies and materials). The O&M costs make up the majority of the cost of service within each independent system. The total O&M costs incurred by JCSA related to operating the independent systems during Fiscal Year 2003 was approximately $150,000. The O&M costs projected forward for Fiscal Year 2004 for each of the individual systems are listed in the Cost of Service table at the end of this section of the Report.

3. Reserves

Good management practices dictate that cash reserves be accumulated to provide for contingencies and unplanned major expenses. We recommend the establishment of two types of reserves for JCSA's independent systems: an Operating Reserve and a Repair, Renewal, and Rehabilitation ("3R") Reserve. Operating reserves are typically set as a percentage of a system's O&M budget. At this time we recommend the reserves be initially established at a level of 3% of operating costs. The establishment of operating reserves at this level will not have a significant impact (i.e., increase) on rates at this time. These reserve levels can be adjusted in future years as JCSA's reserves are accumulated and/or drawn down. For the Fiscal Year 2004, operating reserves for the combined independent system were set at approximately $4,495. The operating reserves for each of the independent systems are listed in the Cost of Service table.

Many municipal utilities establish Repair, Replacement and Rehabilitation ("3R") reserves to provide funds to pay for unexpected major repairs and planned replacement or rehabilitation of equipment or other major fixed assets. These reserves can be used to pay for capital costs in order to avoid or minimize the amount that would otherwise be recovered through user fees (and possibly result in a significant rate increase). Typically, the annual "3R" reserve contribution is calculated as a percentage of the systems' book value. The percentage used is determined after considering factors such as the size and age of a system, whether or not any reserves are currently set aside, and the potential impact on rates.

Since the JCSA does not currently have a "3R" Reserve (or something similar) in place for the independent systems, a major consideration in determining the percentage recommended to establish each reserve was to minimize the short-term impact on user fees. The initial percentage was set at 0.4% of book value. In the future, this percentage can be adjusted based on the level of reserves, planned expenditures, and the related impact on user fees. For Fiscal Year 2004 the "3R" reserve for the combined independent system was set at $20,564. The "3R" reserves for each of the independent systems are shown in the Cost of Service table below.

4. Revenue Requirement

The revenue requirement is determined by summing the operating and maintenance expenses, operating reserves, "3R" reserves and as any other expenses incurred by JCSA while operating the independent systems. The revenue requirement for the combined systems for Fiscal Year

2004 is $179,384. The individual revenue requirements for each independent system are shown in the Cost of Service table below.

Independent Systems Cost of Service

System	FY04 Operating Expenses	FY04 Operating Reserve	FY04 "3R" Reserve	Total Revenue Requirement
Stonehouse	$ 77,057	$ 2,311	$ 6,425	$ 85,793
Wexford	$ 20,023	$ 601	$ 2,351	$ 22,975
Racefield	$ 8,933	$ 268	$ 2,665	$ 11,866
Glenwood	$ 17,605	$ 528	$ 2,560	$ 20,693
Kings Village	$ 16,359	$ 491	$ 3,085	$ 19,935
Ware Creek	$ 14,349	$ 430	$ 3,478	$ 18,257
Combined	**$154,326**	**$4,629**	**$20,564**	**$179,519**

6. Rate Alternatives

The customers that are served by the independent systems are currently billed for water usage based on JCSA's existing rate schedule. The existing rate schedule for residential customers is shown below.

Existing Rate Schedule

Block	Quarterly Usage	Rate (per 1,000 gallons)
1st	<15,000 gallons	$2.30
2nd	> 15,000 gallons < 30,000 gallons	$2.60
3rd	> 30,000 gallons	$7.45

Two rate alternatives were considered for the independent systems, including an independent system wide rate and rates for each individual system. The rates were developed as an average cost per 1,000 gallons rather then an inclining block rate structure currently used by the JCSA. The average cost per customer was also calculated. Rates were calculated for the next 4 years based on the increasing expenses and customer growth using the assumptions previously mentioned. The combined independent system rates are presented below followed by the independent system rates.

Combined Independent Systems Rate Schedule

Fiscal Year	2004	2005	2006	2007
Rate per 1,000 gallons	$4.93	$5.01	$5.10	$5.18
Average Annual Cost per Customer	$540	$549	$558	$576

Independent System Rate Schedule

System	2004 Rate per 1,000 gallons	2004 Average Annual Cost per Customer	2005 Rate per 1,000 gallons	2005 Average Annual Cost per Customer	2006 Rate per 1,000 gallons	2006 Average Annual Cost per Customer	2007 Rate per 1,000 gallons	2007 Average Annual Cost per Customer
Stonehouse	$4.37	$630	$4.45	$641	$4.53	$653	$4.61	$664
Wexford	$12.00	$1,094	$12.20	$1,112	$12.41	$1,131	$12.62	$1,150
Racefield	$3.15	$359	$3.19	$364	$3.24	$369	$3.28	$374
Glenwood	$8.19	$713	$8.32	$ 725	$8.46	$736	$8.60	$748
Kings Village	$5.27	$406	$5.35	$413	$5.44	$419	$5.52	$425
Ware Creek	$3.83	$285	$3.89	$ 289	$3.94	$293	$4.00	$297

7. Impact on Primary Service Area Customers

While the unit cost of providing service to the independent systems on an individual basis may be more expensive than providing service to the Primary Service Area, it appears that identifying or allocating costs to the independent system customers will have little impact on the bills received by the customers in JCSA's Primary Service Area. As previously mentioned, the total revenue requirement for the combined independent systems is estimated to be about $180,000 per year. This represents about 4% of the total revenue requirement for the Water Fund. If the customers located in the independent service areas were charged the full cost of service, customers within the Primary Service Area would potentially see a 3% reduction in the water portion of their annual water and sewer bill.

Alternatives Identified:

A. Create a "trust fund" or endowment for any newly created independent systems, with the income from the trust fund used to offset ongoing operating and capital costs, with an intent that the net operating and capital costs be similar to those of the PSA. Make the "deposit" to the trust fund:

- When the lot is recorded for subdivision by the developer, or
- Impose the amount of the "deposit" to the trust fund as a lien on the property, payable over a specified period of time (or payable in full if the property is sold before the lien is satisfied), and have the County's property tax system act as the collection vehicle, transferring the revenues generated each year to the trust fund.

B. Create a special taxing district, and have the revenues collected (via the County's property tax system) directed to the JCSA to offset the costs of operating and maintaining the independent systems. The special taxing district could allocate costs on either the assessed value of the property or a charge per lot. This approach has the advantage of allowing the amount of revenues generated to be periodically adjusted. However, this alternative has the disadvantage of being "perpetual."

C. Charge the same user rates in the independent systems as in the PSA, but impose a very explicit surcharge on those rates, to be termed a "cost equalization charge."

D. Develop separate user rates for each independent service area that recovers all operating costs.

E. Develop a common user rate for all six independent service areas combined that recovers all operating costs.

8. Quantification of Long-Term Cost Differential

As an alternative to implementing individual rates for each system, the payment of a 6-year lien was considered. In order to develop an appropriate lien, the long-term cost differential between the actual costs of operating the independent system and what the customers currently contribute needed to be quantified. The following analysis was completed to quantify the long-term cost differential. Based on the actual 2003 consumption for residents within the independent system service areas it was estimated that the average customer uses approximately 27,400 gallons per quarter. At the current rates this amounts to an annual water bill of $266. Assuming the combined independent system rate was implemented customers would see average annual bills of approximately $540, an increase of $274 per year. Assuming a constant differential the 6-year forgone revenues or possible lien per customer equates to approximately $5,480 (a payment of $274 per year for 20 years). If the lien were paid in a lump sum "up front" payment (assuming an inflation rate of 3%) the one-time up front payment would be $4,000 (the approximate net present value of 20 years worth of payments).

9. Conclusions

Based upon the cost of service analysis for the independent systems, we have concluded that:

- The establishment of separate rates for customers served by the independent systems would have no material impact upon the Primary Service Area customers, but would have a major impact (increase) on the bills of the customers served by the independent systems.

- The administration and maintenance of independent system rates would create an additional administrative burden for the Customer Service/Billing Department.

- A simple means of eliminating the cost differences for future independent water system is to establish a "Rate Equalization Fund" to be funded by (1) the developer when the lots are recorded at $4,000 per lot or (2) lien placed on the lot when it is recorded and collected when the lot is sold.

10. Recommendations

As a result of the findings and conclusions presented above, we make two specific recommendations:

- Maintain the current practice of using a common rate structure for all JCSA customers.
- For new independent water systems, establish a "rate equalization fund" by charging a one-time "up front" $4,000 payment (the approximate net present value of $5,480 collected over 20 years) for all the new lots established to be paid by the developer when the lot is sold – payment will be secured by a lien.

APPENDIX

Assumptions Used in the Analysis

In order to project future revenue requirements and offsetting revenues from water and sewer rates and capacity fees, several assumptions were made regarding future economic conditions and growth within the independent systems. Assumptions were made regarding the following items:

Element	Annual Percentage
Inflation	3%
Customer Growth Rate	2%
Operating Reserve	3%
Repair, Renewal and Rehabilitation ("3R") reserve	0.4%
Estimated Household Consumption	250 gpd / EDU