

2. The user classifications used for the revenue program were "residential and mini-commercial", five categories of commercial use including "hospitals", "laundries", "restaurants", "grocery" and an "other" classification, and "industrial" and "institutional".
3. Water sales data for the wet winter months of November through March provide the best basis for estimating the contribution of users to the sewer system because most of the water purchased during the winter is disposed of to the sewer system (i.e., little irrigation of lawns and gardens).
4. Analysis of monthly sewage flows obtained from wastewater treatment plant records and from readings of the Brooktrails meter, provided the data needed to estimate the total annual sewage flows contributed by Willits and by Brooktrails and allowed an estimate for infiltration/inflow to be made.
5. Infiltration/inflow to the Willits collection system is substantial and for FY 84-85 exceeded the contributed volume of sewage. The contributed volume was 174.01 MG versus 184.25 MG of infiltration/inflow. For comparison the infiltration/inflow for Brooktrails was only 5.51 MG versus 52.20 MG of contributed waste.
6. Analysis of seven years of monthly sewage flow data showed that the FY 84-85 flow pattern could be used as a typical year for the revenue program. No appreciable increase in flow has been noted over the seven-year period.
7. The present dry weather or contributed, flow is 0.48 mgd, 0.14 mgd and 0.62 mgd, respectively, for Willits, Brooktrails and the system as a whole.

TABLE 5
 CITY OF WILLITS
 WASTEWATER REVENUE PROGRAM AND RATE ANALYSIS
 CONTRIBUTED AND I/I COMPONENTS OF SEWAGE FLOW FOR FY 84-85

Description	Sewage Flow								
	Willits			Brooktrails			Total		
	MG	agd	%	MG	agd	%	MG	agd	%
Total Wastewater	358.26	.982	86.1%	57.71	.158	13.9%	415.97	1.140	100.0%
Contributed Wastewater	174.01	.477	76.9%	52.20	.143	23.1%	226.21	.620	100.0%
Infiltration/Inflow	184.25	.505	97.1%	5.51	.015	2.9%	189.76	.520	100.0%

Peak Daily Infiltration (Based on 1985 Data)

Maximum Daily Flow (agd)	2.990
Contributed Flow (agd)	.620
Infiltration/Inflow (agd)	2.370

8. Wastewater strength characteristics (i.e., BOD and suspended solids) are not presently available for commercial, industrial or institutional users in Willits. Typical values for these constituents included in the State guidelines were thus used for allocating costs. The plant influent average BOD and suspended solids values for 1985 were used for the residential-mini-commercial category, for Brooktrails and for other users not referenced in the State guidelines.

System Evaluation

1. Although a revenue program is not a wastewater master plan, estimates of system and plant present worth and replacement needs are required in order to estimate revenue requirements for replacement and reserve funds.
2. The present replacement cost for the sewage collection system is approximately \$1.8 million. Updating a cost estimate prepared by others in 1974 showed that the present day system rehabilitation costs would be in the \$1.1 million range. It is believed that sewer system repairs and replacements should have the highest funding priority because of the advanced deterioration of the system and severe infiltration/inflow problems.
3. The approximate treatment plant present worth, or replacement, cost is in the \$3.5 to \$4 million range. The City has estimated the replacement value of equipment and other items with relatively short service lives to be approximately \$650,000.
4. Many of the improvements recommended in Barrett, Harris and Associates, Inc. 1983 report dealing with expansion and improvements to the plant have been addressed by the City or are no longer needed. Sludge processing equipment has been purchased for installation this year. A mobile generator

frequency. While little damage was done, it is recommended that the City undertake a diking program on a phased basis. It is recommended that the main plant area be diked first. This will protect the operations building and key equipment which would suffer major damage if inundated. Costs for diking the entire plant area were estimated to be in the \$500,000 to \$600,000 range. Through phasing and the letting of small contracts these costs can probably be reduced.

For budgeting purposes the City has estimated that the current value of above-ground equipment having a definable service life is approximately \$650,000. This estimate provides some basis for projecting equipment replacement needs.

Summary

The preceding discussion provides some basis for establishing reserve and capital replacement/improvements funds for both the sewage collection system and for the plant. This subject of establishing such funds will be discussed in greater detail in ensuing chapters.

In this author's opinion, sewer system repairs and replacements should leave the highest funding priority.

hdt