

Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 03-5

CALCULATION OF USER CHARGE RATES AND

ADMINISTRATIVE COSTS FOR 2003

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**CALCULATION OF USER CHARGE RATES AND
ADMINISTRATIVE COSTS FOR 2003**

**Research and Development Department
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CALCULATION OF 2003 USER CHARGE RATES

Determination of Total Operations, Maintenance and Replacement (OM&R) Costs

The 2002 Metropolitan Water Reclamation District of Greater Chicago (District) Corporate Fund appropriates \$316,500,000 for the support of operations and maintenance to carry out wastewater treatment and other functions. After subtracting the appropriations of those items disallowed by the United States Environmental Protection Agency (USEPA) in 1979, it was determined that \$304,564,104 of the 2002 budget is OM&R related. A breakdown of this total is shown in Table 1.

The segregation of costs associated with wastewater treatment from costs associated with other functions was based on discussions regarding the District's dedicated ad valorem tax revenues, which were held in September and October 1978 between the District staff and the USEPA staff. In these discussions, non-OM&R budgeted line items were identified and disallowed.

For example, the non-OM&R items disallowed include the following programs:

- 4200 Waterways Control and Stormwater Retention Reservoirs
- 4212 Maintenance of Waterways
- 4700 Flood and Pollution Control Design
- 4800 Flood and Pollution Control Construction

These programs relate to corporate expenditures for waterways operation and maintenance and flood control design and construction. The total of these disallowed program expenditures was \$7,938,408. In addition to this amount, a prorated portion of Program 7000, General Support, was also disallowed because it is the overhead support of the items disallowed under Program 4000. The portion of Program 7000 thus disallowed was \$3,997,488. The total of the disallowed funds considered to be non-OM&R related was \$11,935,896. Three additional funds, portions of the Annuity and Benefit Fund (\$25,538,251), the Reserve Claim Fund (\$16,108,000), and the Construction and Working Cash Fund (\$6,960,998) were added to the OM&R costs raising the total OM&R cost from \$304,564,104 to \$353,171,353. These funds were added because they relate to OM&R costs. The Annuity and Benefit Fund provides for the District's pension program for retired employees and employee disability payments. The Reserve Claim Fund is used for the payment of workmen's compensation, liability claims, and other associated costs. This fund is also used to pay for repair costs if a catastrophe were to strike the District's facilities.

Up until the 1960s, the Construction Fund had been used as a repair and replacement funding mechanism. The use of this fund was suspended because the District embarked on a major program to upgrade its infrastructure, consisting primarily of expansion and

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TABLE 1

TOTAL OM&R COST FOR 2002 & 2003

Budgeted Corporate Fund Programs Directly Related to OM&R Costs	2001 Budget	2002 Budget
1000 Collection	\$ 69,400,000 ¹	\$ 47,200,000 ¹
2000 Treatment	72,400,000 ¹	63,800,000 ¹
3000 Solids Processing	40,000,000 ¹	39,000,000 ¹
4000 Flood and Pollution Control	26,674,061 ^{1,2}	26,861,592 ^{1,2}
5000 Solids Utilization	27,500,000 ¹	25,700,000 ¹
7000 General Support	<u>85,124,385^{1,3}</u>	<u>102,002,512^{1,3}</u>
Sub-Total	\$321,098,446	\$304,564,104
Annuity and Benefit Fund	23,779,466 ⁴	25,538,251 ⁴
Reserve Claim Fund	5,097,000 ⁵	16,108,000 ⁵
Construction & Working Cash Fund	<u>5,377,789⁶</u>	<u>6,960,998⁶</u>
Total OM&R Cost	\$355,352,701	\$353,171,353

¹See Pages 45,132 and 250 of the District's 2002 Budget.

²Program total in Corporate Fund is \$34,800,000. USEPA disallowed costs (Programs 4200, 4700 and 4800) are \$7,938,408 leaving a net of \$26,861,592.

³Program total in Corporate Fund is \$106,000,000. USEPA disallowed costs are \$3,997,488, leaving a net of \$102,002,512. A prorated portion of program 7000, General Support, was disallowed as it was determined in the 1979 User Charge Proposal that this portion was related to the overhead support of items disallowed from Program 4000. This prorated portion is the ratio of the disallowed amount (\$7,938,408) to the total for Programs 1000 through 5000 (\$210,500,000) in the 2002 Budget.

⁴The 2002 Budget allocates \$26,873,175 on Page 47 of the 2002 Budget to the Annuity and Pension Fund. Approximately 4.97% of the District's employees and their expenses are not chargeable to the Corporate or Construction Funds leaving a net of \$25,538,251. The 4.97% number represents the ratio of the salaries budgeted under programs 4200, 4210, 4700 and 4800 against the total salaries budgeted under Programs 1000, 2000, 3000, 4000 and 5000.

⁵From Table 1A on Page 3.

⁶From Table 1C on Page 6.

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TABLE 1A

RESERVE CLAIM FUND

2002 Budget	\$ 30,000,000
Less 2001 Budget	(17,000,000)
Plus 2001 Actual Claims	3,108,000
Total	<u>\$ 16,108,000</u>

Note: Included for the User Charge System are actual expenditures in 2001 plus the amount added to the fund which is the difference in the budget appropriations for 2001 (Page 47 of 2001 Budget) and 2002 (Page 47 of 2002 Budget). The total represents the funding required to bring the fund up to the 2002 appropriated amount. The data for actual claims was provided by the Finance Department on May 2, 2002.

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TABLE 1B

CONSTRUCTION FUND COSTS

Budgeted Programs Directly Related to OM&R Cost	2002 Budget
1000 Collection	\$ 17,644,729.00
2000 Treatment	64,754,959.00
3000 Solids Processing	2,786,092.00
4000 Flood and Pollution Control	13,915,454.00
5000 Solids Utilization	<u>508,703.00</u>
Sub-total of Programs 1000 through 5000	\$ 99,609,937.00
Less Ineligible portion of OM&R Cost applica- ble to Programs 4200, 4210, 4700 and 4800	(13,915,454.00)
Eligible OM&R Cost from Programs 1000 through 5000	<u>85,694,483.00</u>
Ratio of eligible to total program cost	
\$ 85,694,483	= 0.8603
\$ 99,609,937	
7000 Plus General Support (eligible portion) = 0.8603 x 537,263	<u>462,208.00</u>
Total Eligible OM&R Cost	\$ 86,156,691.00

Sources: Information provided by General Administration on June 21, 2002.

improvement of water reclamation plants (WRPs), construction of new WRPs and collection systems and implementation of the Tunnel and Reservoir Plan, the District's solution to combined sewer overflows. Funding for these major capital improvement projects in the Capital Improvements Bond Fund included issuance of long-term debt as authorized by the state of Illinois.

Suspending use of the Construction Fund was appropriate at the time, since funding for capital improvement projects came through the issuance of long-term debt recovered under ad valorem taxes, and replacement costs were recovered by way of the designated fixed asset replacement set aside in the Corporate Fund. The designation for fixed asset replacement funding was negotiated with the USEPA in the original User Charge System (UCS) as a mechanism for identifying and recovering infrastructure replacement costs, etc.

Beginning with 1997, it was determined that the eligible portions of the Construction Fund and the Financing Charges for related working cash funds would be included in the OM&R cost. The eligible portion of the Construction Fund, etc., is now designated for "fixed asset replacement."

The Engineering Department has determined that the eligible portion of the Construction Fund from the 2002 budget is \$30,315,295, as shown on Table 1D, Page 7. The 2002 Budget did not allocate construction working cash funds. (See Page 77 of the 2002 Budget.) The Construction Fund was adjusted for the Construction Fund revenues and ineligible Program 4000 costs. The eligible portion to be included in the OM&R costs was determined to be \$6,960,998, as shown on Table 1C.

Determination of Total Revenue to be Generated by User Charge System in 2002

As shown in Table 2, revenues contained in the 2002 budget derived from sources other than the UCS total \$84,504,177. Subtracting this amount from the total OM&R cost of \$353,171,353 leaves \$268,667,176 to be generated by the UCS in 2003. This is a 16.49 percent increase from the \$230,639,022 which was to be generated in 2002. The revenue derived from the sale or use of the District's assets, and other sources is itemized in Table 2. Such revenues are used in the District's budget preparation process to offset the overall tax levy and the amount to be generated by the UCS.

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TABLE 1C

DETERMINATION OF TOTAL OM&R COST CONSTRUCTION FUND PORTION
ADJUSTED FOR REVENUES FROM OTHER SOURCES

Revenue/Cost Item	For 2003 from 2002 Budget
Net Assets Appropriable (pp 70, 2002 Budget)	\$ 57,552,800.00
Revenue from Current Services Grants (pp 89, 2002 Budget)	0.00
Revenue from Personal Property Replacement Tax (pp 89, 2002 Budget)	3,920,600.00
Reimbursement from Corporate Fund For Payroll and Indirect Costs (pp 89, 2002 Budget)	0.00
Revenue from Money and Property Investment Income and Misc. (pp 89, 2002 Budget)	4,500,000.00
Connection Impact Fees (pp 89, 2002 Budget)	<u>400,000.00</u>
Total Revenues Derived from Other Sources for Construction Fund	\$ 66,373,400.00
Total Costs (from <u>Table 1B</u> on pp 4)	\$ 86,156,691.00
Ratio of Construction Fund Revenue vs.Total Construction Fund Costs $(\$66,373,400) / (\$86,156,691) = 0.7703^1$	
Eligible Construction Fund as Furnished by Engineering Dept. (From <u>Table 1D</u> on pp 7)	\$ 30,315,295.00
Less Proportionate Share for Construction Fund Revenues $(0.7703 \times 30,315,295)^1$	<u>\$ (23,354,297.00)^1</u>
Net Eligible Construction Fund	\$ 6,960,998.00
Plus Net Eligible Portion of Construction Working Cash Fund = 0.8603×0.00 (pp 77, 2002 Budget) as Explained on pp 4 & 5	\$ 0.00
OM&R Cost to be Recovered for Construction Fund Under the User Charge Ordinance	\$ 6,960,998.00

¹77.03% of the Construction Fund is funded by revenue from sources other than the User Charge Ordinance.

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TABLE 1D

2001 CONSTRUCTION FUND REPLACEMENT COST

Project No.	Project Title/Description	Eligible Ap-propriation*	% Eli-gible/Total	In-House Cost
<u>2002 Budget Awards</u>				
97-088-2M	North Side WRP, Fine Screens Replace-ment & Sewer Control Rehabilitation	\$ 2,886,000	100	\$ 144,300
99-001-2S	Niles Center Outlet Sewer Rehabilita-tion - II	1,440,000	100	72,000
00-810-2M	Various Locations, Existing Heating Systems Modifications	3,000,000	100	150,000
95,881-2M	Calumet & Lemont WRPs, Digester Gas & HVAC System Improvements	2,000,000	100	100,000
99-176-2S*	Broadview - Bellwood Sewer Rehabilita-tion	-13,000	100	33,450
99-169-2M	Racine Ave PS, Sluice Gates Improvement & Miscellaneous Work	3,200,000	100	160,000
99-265-2S*	Garden Homes & Merrionette Park Outlet Sewer Rehabilitation	170,000	100	51,450

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TABLE 1D

2001 CONSTRUCTION FUND REPLACEMENT COST (Continued)

Project No.	Project Title/Description	Eligible Ap- propriation*	% Eli- gible/ Total	In-House Cost
01-003-2S	Northshore 8 & Golf Glenview 2 Reha- bilitation New Trier & Northfield Town- ships	\$ 2,537,000	100	\$ 126,850
98-260-2M	Calumet WRP, 95 th Pumping Station Coarse Screens Replacement and Miscellaneous	0	100	80,000
	Total	\$ 15,220,000		\$ 918,050
<u>2002 Projects Under Construction</u>				
94-453-2P	Egan WRP Digester Facility Improvements	\$ 2,600,000	100	\$ 130,000
95-104-2E	Stickney WRP Control Panels Replacement	124,000	94	6,200
96-083-2S	North Side WRP Sewer Controls Remodel- ing	1,072,000	100	53,600
96-117-2P	Stickney WRP Replacement Diffuser Pip- ing	3,643,500	100	182,175
96-246-2P	Calumet WRP Piping Replacement	4,808,800	82	240,440
97-089-2E	North Side WRP Electrical Equipment Re- habilitation	106,100	98	5,305

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TABLE 1D

2001 CONSTRUCTION FUND REPLACEMENT COST (Continued)

Project No.	Project Title/Description	Eligible Ap- propriation*	% Eli- gible/ Total	In-House Cost
99-141-2M	Stickney WRP Underground Steam Conden- sate Piping	\$ 169,400	100	\$ 8,470
99-143-2M	Stickney WRP Course Screens Replacement	96,100	100	48,005
	Total	\$ 13,483,900		\$ 693,345
	Grand Total	\$ 28,703,900		\$ 1,611,395

*Difference between 2002 appropriation and amount included in 2001.

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TABLE 2

DETERMINATION OF TOTAL OM&R COST FOR 2001 AND 2002
ADJUSTED FOR REVENUES FROM OTHER SOURCES
AND FOR ADMINISTRATIVE COST

Revenue/Cost Item	For 2002 From 2001 Budget	For 2003 From 2002 Budget
Total OM&R Cost ¹	\$355,352,701	\$353,171,353
Less:		
Net Assets Appropriable ²	(80,815,679)	(54,189,177)
Revenue from Money and Property ²	(13,202,000)	(7,399,000)
Revenue from Current Services for Sewer Service Agreements, Water Sales and Scrap Sales	(281,000)	(431,000)
Revenue from Personal Property Replacement Tax ²	(22,135,000)	(19,476,700)
Reimbursement from Construction Fund ²	(3,800,000)	0.00
Revenue from Miscellaneous Sources including Administra- tive Penalties ²	(4,255,000)	(2,783,300)
Village of Glenview Payment	(225,000)	(225,000)
Administrative Costs to be Re- covered Through Charges Under the User Charge System ³	(5,622,079)	(5,728,687)
Subtotal of Revenues from Other Sources and Administrative Costs	<u>(130,335,758)</u>	<u>(90,232,864)</u>
Adjusted Total OM&R Cost	\$225,016,943	\$262,938,489
Rounded Off Figure	\$225,017,000	\$262,938,000

¹From Table 1 on pp 2.

²From pp 81 and 82 of 2001 Budget and pp 81 and 82 of 2002 Budget.

³From Table 3 on Page 12.

Determination of 2003 User Charge Administration Cost for Each User Charge Class

Table 3 presents the costs for administration of the User Charge system, which will be recovered by direct charges to Large Commercial-Industrial Users and by inclusion in the User Charge rates for other classes. The actual cost to be recovered in 2003 is \$5,728,687. This amount was subtracted from the total OM&R cost of \$268,667,176 resulting in a net OM&R cost of \$262,938,489 (rounded off \$262,938,000), which must be collected by the User Charge system.

Unit Costs of Treatment

District operating records indicate that 518,913 million gallons (MG) of flow, 765,263 thousand pounds (Klbs) of biochemical oxygen demand (BOD), and 1,089,689 Klbs of suspended solids (SS) were treated during 2001 (data from 2001 water reclamation plant operating records as compiled by the R&D Department). Operating cost accounting data was used to determine the allocation of OM&R costs by parameter, i.e., flow, BOD and SS. The result is that 27.27 percent of the cost was attributed to flow, 38.03 percent to BOD, and 34.70 percent to SS (from Finance Department Reports CMSRO2 for 1995 through 1999). Using the foregoing data, the unit costs of treatment were derived, as shown in Table 4.

These unit costs of treatment will be used in the subsequent analysis for distributing costs by class and in distributing the costs of treating infiltration/inflow (I/I) and stormwater. The basis of the District's User Charge system is its cost to treat each gallon of flow, each pound of BOD and each pound of SS.

Distribution of Equalized Assessed Valuations and Quantities by Source

The sources of loadings to the District and the assessed valuations for these sources are shown in Table 5.

The District utilized the 2000 total equalized assessed value (EAV) for its service area of \$85,520,000,000. This included railroad property. Through a review and evaluation of all tax credits claimed by Large Commercial-Industrial and Tax-Exempt Users in 2001, based on their 2000 ad valorem property taxes, it was established, that the EAV of the Large Commercial-Industrial sources was \$9,436,837,108. These are based on the most recently updated verified User data in the District's files and was for tax year 2000 payable in 2001. Some Users pay property taxes on their facilities which they rent from the City of Chicago, which the city reports on its annual certified statements. This EAV was \$261,786,265. Subtracting the EAV of the Large Commercial-Industrial Users (\$9,436,837,108) and the EAV of the Tax-Exempt Users (\$261,786,265) on City property leaves a total EAV of \$75,821,376,627 for the Residential and Small Nonresidential Commercial-Industrial Users.

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TABLE 3

ADMINISTRATION COSTS
OF USER CHARGE AND SEWAGE AND WASTE CONTROL ORDINANCES
TO BE RECOVERED UNDER USER CHARGE SYSTEM

Small Commercial-Industrial Users ¹	\$ 98,863
Tax-Exempt Users ¹	\$ 389,824
Large Commercial-Industrial Users	
User Charge Verification (UCV) Charges ¹	\$ 2,512,000 ⁴
Minimum Pretreatment Requirement (MPR) Charges ²	\$ 2,293,000 ⁴
Non-compliance Enforcement (NCE) Charges ³	<u>\$ 435,000</u>
Total Administrative Costs to be Recovered from Users Under the User Charge Ordinance	\$ 5,728,687

¹Based on information provided by the District's Finance Department.

²This is an estimate based on the total of the Minimum Activity Expenditures and the Minimum Acceptable Sampling Expenditures.

³This is an estimated amount based on the amount collected for 2002 by the District's Finance Department through September 3, 2002.

⁴These estimated Administrative Costs have been adjusted for District salary increases for 2001 and 2002.

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TABLE 4

UNIT COST OF TREATMENT

Total District Loadings for 2001¹

Volume = 518,913 MG
 BOD = 765,263 Klbs
 SS = 1,089,689 Klbs

Total OM&R Cost = \$ 262,938,000

Allocation of Cost According to Parameters of Flow, BOD & SS²

Flow = 27.27% x \$262,938,000 = \$ 71,703,193
 BOD = 38.03% x \$262,938,000 = \$ 99,995,321
 SS = 34.70% x \$262,938,000 = \$ 91,239,486

Unit Costs of Treatment

Volume = \$ 71,703,193 / 518,913 MG = \$ 138.18/MG
 BOD = \$ 99,995,321 / 765,263 Klbs = \$ 130.67/Klbs
 SS = \$ 91,239,486 / 1,089,689 Klbs = \$ 83.73/Klbs

¹The 2001 District loadings are used in the calculation of 2003 rates because this is the latest full year's operating data at the time the calculations were made. (Source: R&D Department Water Reclamation Plant 2001 Operating Records.)

²Percent distribution of cost-to-load parameters derived from the Finance Department CMSR02 Reports for the years 1995 through 1999.

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TABLE 5

DISTRIBUTION OF EQUALIZED ASSESSED VALUATIONS AND QUANTITIES
BY SOURCES

Source	Equalized Assessed Valuation (\$)	Volume (MG)	BOD (Klbs)	SS (Klbs)
Residential and Small Nonresidential Commercial Industrial ¹	\$75,821,376,627 ³	289,618	287,434	405,790
Large Commercial-Industrial ¹	\$ 9,436,837,108 ²	27,861	129,119	52,785
Tax-Exempt ¹ (and governmental)	\$ 261,786,265 ³	11,833	23,201	40,683
I/I, Rain and Recycle (See Table 6)		189,601	325,509	590,431
Total (Approximate Due to Roundoff)	\$85,520,000,000 ⁴	518,913	765,263	1,089,689

¹The quantities shown on these lines constitute the billable flows and loads for the classes indicated.

²EAV is based on actual tax credits reported to District Users. The tax credit data was taken from the 2001 annual statements filed by the Users. This data is verified by ad valorem tax bills submitted with the 2001 annual statements. \$39,162,874 in 2000 real estate taxes were claimed by Large Commercial-Industrial Users in 2001, and the District's 2000 tax rate was 41.5 cents per \$100.00 of EAV. Therefore, $(\$39,162,874/0.415) \times \$100 = \$9,436,837,108$, the imputed EAV of the Large Commercial-Industrial Class.

³Similarly, Users in the City of Chicago airports paid real estate taxes of \$1,086,413 on certain airport parcels which were rented for commercial usage. Based on this tax paid, the EAV of this City owned property was $(\$1,086,413/0.415) \times \$100 = \$261,786,265$. The EAV of the Residential and Small Nonresidential Commercial-Industrial Class is computed by deducting all other figures from the total EAV.

⁴Total EAV is for the year 2000 as supplied by the Country Assessor, Multiplier = 2.2235.

Allocation of Rain, I/I and Recycle

As stated earlier, the total quantities of flow, BOD and SS are determined from District operating records. Following is an explanation of how these quantities were allocated to the four sources of Residential and Small Nonresidential Commercial-Industrial, Large Commercial-Industrial, Tax-Exempt, and I/I, Rain, and Recycle, as shown in Table 5.

It was noted that in the rates for the years prior to 1987, the Recycle item was not included. This item was introduced in the 1987 User Charge rate calculations for BOD and SS because failure to include this item results in disproportionately high and improper assignment of BOD and SS concentrations and total loadings to the Residential and Small Nonresidential Commercial-Industrial (R&SNC-I) class. This item was designated "Recycle" because, currently, samples of plant loadings include substantial "loadings" due to recycle of in-plant wastestreams and thus do not adequately reflect User-generated loadings. In the 2003 calculations, the recycle flow volume was established as 38.775 MGD or 14,153 Mg/year, based on the March 28, 2002 memorandum from the Maintenance and Operations Department providing the 2001 recycle flow volume.

The initial BOD and SS loadings assigned to the R&SNC-I Class in Table 5, prior to the allocation of I/I, Rain and Recycle in Table 6, were computed based on the volume for the R&SNC-I Class listed in Table 5 (computed as in prior years), and the standard domestic concentrations of 119 mg/L for BOD and 168 mg/L for SS as specified in Section 7f of the User Charge Ordinance. I/I, Rain and Recycle flows in Table 6 were determined to be 189,601 MG per year.

Analysis of Dry- and Wet-Weather Flows

The method of determining dry- and wet-weather flows in the 2001, 2002 and 2003 rate-setting process was revised from the method used in the rate calculations for 2000 and previous years. For rate settings prior to 1982, rain-attributed loads were derived by extracting all loads received at a WRP on a day with 0.10 inches of precipitation or more, projecting the remaining loads over 365 days, and subtracting this value from total WRP flows. This method, however, does not account for rain loads received days after a storm due to the lag time required for flows to arrive from the perimeter of a collection area.

In the 1982 through 1989 rate calculations, rain-attributed flows were determined by an analysis of the daily plant operating records for a previous year. For the 1986 through 1989 rate calculations, the records for 1985 were used. Because the dry-weather flow is thought to be relatively stable, it was felt that a separate determination each year was not warranted. The month in 1985 exhibiting the lowest total precipitation was identified

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TABLE 6

ALLOCATION OF I/I, RAIN AND RECYCLE

Class Loadings	Flow (MG)	%	BOD (Klb)	%	SS (Klb)	%
<u>Dry-Weather Loadings</u>						
Residential and Small Nonresi- dential Commercial-Industrial ¹	289,618	87.95	287,434	65.36	405,790	81.28
Large Commercial-Industrial ²	27,861	8.46	129,119	29.36	52,785	10.57
Tax-Exempt (and Governmental) ²	11,833	3.59	23,201	5.28	40,683	8.15
TOTAL	<u>329,312</u>	<u>100.00</u>	<u>439,754</u>	<u>100.00</u>	<u>499,258</u>	<u>100.00</u>
<u>Allocating I/I, Rain and Recy- cle</u>						
Residential and Small Nonresi- dential Commercial-Industrial	166,747		212,761		479,894	

¹Residential and Small Nonresidential Commercial-Industrial (R&SNC-I) flows are derived by subtracting rain, I/I and recycle figures as well as known Large Commercial-Industrial and Tax-Exempt loads from the grand totals. Standard domestic sewage concentrations of 119 mg/L for BOD and 168 mg/L for SS are used (as specified in Section 7g of the User Charge Ordinance) and have been applied to the volume so derived to establish the R&SNC-I BOD and SS loadings, respectively.

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TABLE 6

ALLOCATION OF I/I, RAIN AND RECYCLE (Continued)

Class Loadings	Flow (MG)	%	BOD (Klb)	%	SS (Klb)	%
Large Commercial-Industrial	16,041		95,575		62,424	
Tax-Exempt (and Governmental)	6,813		17,174		48,112	
TOTAL ³	<u>189,601</u>		<u>325,509</u>		<u>590,431</u>	
GRAND TOTAL ⁴	518,913		765,263		1,089,689	

²These numbers were arrived at from the District's records of all 2001 User Charge Annual Certified Statements.

³Daily M&O department records for the District's seven WRPs for the year 2001 show a total volume treated of 518,913 MG. The projected annual dry-weather volume is 941 x 365 days = 343,465 MG. I/I, Rain and Recycle flows are equal to Total Flow (518,913 MG) minus Dry-Weather Flow (343,465 MG), or 175,448 MG plus Recycle (14,153 MG) = 189,601 MG. See page 15 for an explanation of the Recycle item as first introduced in the 1987 User Charge rate calculations. Totals may not equal sum of components due to rounding.

⁴Grand totals come from 2001 operating records as explained on page 14.

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The month of January 1985 was chosen because it has these characteristics and, therefore, represented a baseline condition. The flow and pollutant loadings for each day during this month were calculated and totaled for the month. The monthly sums were then divided by the number of days in the month.

The difference between total dry-weather load and the total load was considered to be the wet-weather or rain load. For the 1990 through 1998 rate calculations, the Rain and I/I flows were determined by using 1988 plant operating data. The operating records from each WRP were screened to find the five lowest flow days. These days were averaged and used as dry-weather flow for each of the seven WRPs. The seven WRPs were tabulated to give a District-wide daily dry-weather flow quantity of 911 million gallons per day. The tabulated daily dry-weather flow was converted into an annual volume.

However, for the 1999 and 2000 rate calculations, it was decided to update the dry-weather flow quantity and methodology, because the 1988 data was then ten years old and the method did not account for changes which may reasonably occur over time. Therefore, for 1999 and 2000, the User Charge rate calculation utilized the average of the five lowest days for each of the previous five years for which flow data was available to identify the average dry-weather flow. WRP flow data was available for 1994 through 1998 for the 2000 rate calculations. For each WRP the five lowest days for each year were averaged for each of the five available years.

Based on 1994 through 1998 WRP operating data, the average daily dry-weather flow was 923.34 million gallons per day (MGD) (rounded off to 923 MGD). The highest year was 1997 with an average dry weather flow of 939.90 MGD, while the lowest year was 1995 with 890.73 MGD.

For the 2001, 2002 and 2003 rate calculations, the District determined that it would utilize the total of the seven consecutive lowest flow days recorded in 1999 at each of the District's WRPs for identifying the average daily dry weather flow. This method accounts for a complete normal workweek for each WRP along with weekends. Utilizing this method, the dry weather flow for 1999 was 941 MGD. The tabulation of this 1999 data is shown in Table 7.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 7

LOWEST SEVEN CONSECUTIVE DAYS AVERAGE FLOW
AT WRPS for 1999

WRP	Million Gallons Per Day
Stickney	527.00
North Side	198.00
Calumet	167.00
Egan	19.30
Hanover	5.74
Kirie	22.86
Lemont	<u>1.40</u>
Total	941.00

Distribution of I/I, Rain, and Recycle OM&R Costs

As shown in Table 5 on page 14, there are four sources of loadings to the District's WRPs. However, under the ad valorem tax system, there are three sources which contribute toward the payment of OM&R costs: the Residential and Small Nonresidential Commercial-Industrial User classes and the Large Commercial-Industrial User class. Of the two remaining sources, namely, the Tax-Exempt class, and I/I, Rain and Recycle, only the Tax-Exempt class source can contribute toward the payment of OM&R costs. The OM&R costs to treat flows and loads from the remaining source, I/I, Rain, and Recycle must be distributed to the Residential and Small Nonresidential Commercial-Industrial, Large Commercial-Industrial and Tax-Exempt classes in proportion to the dry-weather loads and flows contributed by these three regulated classes. The results of the distribution of loads and flows are shown in Table 6.

Calculation of Rates for the Large Commercial-Industrial and Tax-Exempt Classes

After allocating the I/I, Rain, and Recycle-attributed flows to the three classes, a cost for each class was calculated by multiplying each class parameter quantity by the unit cost generated in Table 4 on page 13. The results of these calculations are shown in Table 8. Please note that the class totals shown include the administrative cost for each class distributed to volume, BOD and SS in proportion to the total other costs, for each parameter, for each class. These costs, totaling \$263,428,708 must be recovered by the District through the ad valorem (real estate) tax system and User surcharges.

In summary, the total OM&R cost by class is:

Residential and Small Non-residential Commercial-Industrial	\$202,678,181
Large Commercial-Industrial	45,073,593
Tax-Exempt	15,676,934
TOTAL	<u>\$263,428,708</u>

The Residential and Small Nonresidential Commercial-Industrial classes' OM&R costs are collected through the District's dedicated ad valorem tax system. Using the equalized assessed class value of \$75,821,376,627 for the Residential and Small Nonresidential Commercial-Industrial classes as shown in Table 5, and the class OM&R cost of \$202,678,181 for the Residential and Small Nonresidential Commercial-Industrial classes, as shown in Table 8, the ad valorem residential OM&R rate for 2001 was determined as follows:

$$\$202,678,181 / \$75,821,376,627 = 0.267 / \$100 \text{ EAV}$$

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

COST PER PARAMETER AND TOTAL COST PER USER CLASS FOR 2003 RATES

Class	Flow (MG)	BOD (Klbs)	SS (Klbs)	Total
Residential and Small Nonresidential Commercial-Industrial	456,365	500,195	885,684	
UNIT COST	\$138.18	\$130.67	\$83.73	
TREATMENT COST	\$63,060,516	\$65,360,481	\$74,158,321	\$202,579,318
+ ADMINISTRATION COST	<u>\$30,775</u>	<u>\$31,897</u>	<u>\$36,191</u>	<u>\$98,863</u>
CLASS TOTAL	\$63,091,291	\$65,392,378	\$74,194,512	\$202,678,181
Large Commercial- Industrial	43,902	224,694	115,209	
UNIT COST	\$138.18	\$130.67	\$83.73	
TREATMENT COST	<u>\$6,066,378</u>	<u>\$29,360,765</u>	<u>\$9,646,450</u>	<u>\$45,073,593</u>
CLASS TOTAL	\$6,066,378	\$29,360,765	\$9,646,450	\$45,073,593
Tax-Exempt (and Governmental)	18,646	40,375	88,795	
UNIT COST	\$138.18	\$130.67	\$83.73	
TREATMENT COST	\$2,576,504	\$5,275,801	\$7,434,805	\$15,287,110
+ ADMINISTRATION COST	<u>\$65,701</u>	<u>\$134,534</u>	<u>\$189,589</u>	<u>\$389,824</u>
CLASS TOTAL	\$2,642,205	\$5,410,335	\$7,624,394	\$15,676,934
TOTAL COST				\$263,428,708

This constitutes the OM&R rate for all classes under the ad valorem tax system and represents an 11.25 percent increase from the 2002 rate of 0.240/\$100 EAV.

In the collection of ad valorem tax revenues, the Cook County Treasurer has experienced a shortfall over the years due to delinquencies. The actual extent of this shortfall is unknown. To compensate for this shortfall, however, it is customary for taxing bodies to increase their tax levies by an amount which approximates the shortfall. The District's budget for 2002 included a 3.0 percent allowance for tax revenues uncollected in the year of levy.

The calculation of the ad valorem residential OM&R rate of 0.267/\$100 EAV is without the allowance for uncollectibles. This rate adjusted by 3.0 percent for uncollectibles would be 0.259/\$100 EAV. The adjusted ad valorem OM&R rate is 62.4 percent (0.259/0.415) of the estimated total 2000 ad valorem tax rate.

The User Charge rates for the Large Commercial-Industrial class are equal to the total cost per parameter for this class divided by the billable flow and loads, as shown in Tables 5 and 8. Using this data, the following rates were established for the Large Commercial-Industrial User class:

Flow:	\$ 6,066,378/27,861	MG	=	\$217.74/MG
BOD:	\$ 29,360,765/129,119	Klbs	=	\$227.39/Klbs
SS:	\$ 9,646,450/52,785	Klbs	=	\$182.75/Klbs

The Tax-Exempt class OM&R costs must be fully collected by the User Charge System. Using the total cost per parameter for this class divided by the billable flow as shown in Tables 5 and 8 the following rates were established for the Tax-Exempt User class:

Flow:	\$ 2,642,205/11,833	MG	=	\$223.29/MG
BOD:	\$ 5,410,335/23,201	Klbs	=	\$233.19/Klbs
SS:	\$ 7,624,394/40,683	Klbs	=	\$187.41/Klbs

The 2003 rates compare with current 2002 rates as follows:

<u>Class Parameters</u>	<u>2003</u>	<u>2002</u>	<u>% Change</u>
Large Commercial-Industrial			
Flow \$/MG	\$217.74	\$185.09	+17.64
BOD \$/Klbs	\$227.39	\$197.10	+15.37
SS \$/Klbs	\$182.75	\$151.53	+20.60

<u>Class Parameters</u>	<u>2003</u>	<u>2002</u>	<u>% Change</u>
Tax-Exempt			
Flow \$/MG	\$223.29	\$190.74	+17.07
BOD \$/Klbs	\$233.19	\$203.22	+14.75
SS \$/Klbs	\$187.41	\$156.16	+20.01
OM&R Factor	0.624	0.558	+11.83

The above comparison shows significant increases in the rates for both the Large Commercial-Industrial and Tax-Exempt User classes. These large increases are due to a number of factors. The rate calculation uses financial data from the District's 2002 Budget, District operating cost and loading data for 2001 and User loading data for 2001. These are the most recent data available. While the District's total OM&R costs showed no increase between 2001 and 2002, the recoverable OM&R cost increased from \$225 million to \$263 million due to reduced budget surpluses from 2001 carried forward to the 2002 Budget. This reduction is the principal reason for the increase in rates. Increases in District plant loadings caused an increase in the rates due to the increased infiltration/inflow and stormwater loadings that are allocated to the three User classes. Significant plant loading increases were noted for flow and suspended solids in 2001. Reductions in User loadings cause an increase in the rates since the allocated class costs are divided by the loadings to determine the rates. Although User loadings have followed a slight, but steady decreasing trend for several years for all three parameters, the Large Commercial-Industrial User class flow loading dropped by nearly eight percent in 2001.

Administrative Cost Recovery

The costs incurred by the District in 2001 in administering the Sewage and Waste Control Ordinance (SWCO) and the User Charge Ordinance (UCO) were considered in determining the 2003 User Charge for the Large Commercial-Industrial User class, the Residential and Small Nonresidential Commercial-Industrial User class, and the Tax-Exempt User class.

Prior to 2001, the administrative costs were included in determining the User Charge rates for flow, BOD and SS for the above three classes of Users and/or were recovered from users subject to federal categorical pretreatment standards. However, on December 7, 2000, the District's Board of Commissioners amended the UCO, which altered the method of recovery of the administrative costs. Under these amendments, the cost for administering the minimum pretreatment requirements (MPR) and the cost for administering the noncompliance enforcement activities (NCE) of the SWCO were segregated from the administrative costs. Simi-

larly, the cost for administering the User Charge Verification requirements (UCV) of the UCO were also segregated from the administrative costs.

Beginning in 2001, the MPR charges are recovered from the Significant Industrial Users in the Large Commercial-Industrial User class. The NCE charges are recovered from Users who are found in noncompliance with the SWCO. The UCV charges are recovered from the Large Commercial-Industrial User class.

The activities associated with MPR, NCE, and UCV are explained in detail in Section 10 of the UCO. The applicable MPR, NCE, and UCV charges are listed in Appendix F of the UCO.

The Schedule of Charges listed in Appendix F of the UCO are based on the unit costs for inspection, sampling, analysis and administration of District's activities and were used in computing the 2003 User Charge rates. For stability and the planning purposes of the industrial community no changes were made to the MPR, NCE and UCV rates for 2002 contained in Appendix F of the UCO. In computing the 2003 User Charge rates, the Schedule F Charges were revised to reflect increases in unit costs for inspection, sampling, analysis and administration due to the increases in District salary costs.

Prepared by (Signature on file) Date 2/25/2003
Approved by (Signature on file) Date 2/25/03