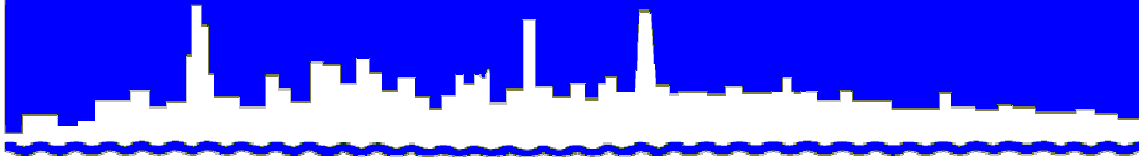


Protecting Our Water Environment



Metropolitan Water Reclamation District of Greater Chicago

***RESEARCH AND DEVELOPMENT
DEPARTMENT***

REPORT NO. 07-66

CALCULATION OF 2008 USER CHARGE RATES

NOVEMBER 2007

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**CALCULATION OF 2008
USER CHARGE RATES**

**Research and Development Department
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CALCULATION OF 2008 USER CHARGE RATES

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

The 2007 Metropolitan Water Reclamation District of Greater Chicago (District) Corporate Fund appropriates \$362,300,000 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 \$351,800,924 of the 2007 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
- 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 4000 expenditures is \$6,879,604. 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 \$3,619,472. The total of the disallowed funds considered to be non-OM&R related was \$10,499,076. Three additional funds, portions of the Annuity and Benefit Fund, the Reserve Claim Fund, and the Construction and Working Cash Fund were added to the OM&R costs raising the total OM&R cost from \$351,800,924 to \$401,036,816. 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 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.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1

TOTAL OM&R COST FOR 2006 & 2007

Budgeted Corporate Fund Programs Directly Related to OM&R Costs		2006 Budget	2007 Budget
1000	Collection	\$ 48,300,000	\$ 58,400,000 ¹
2000	Treatment	72,600,000	74,700,000 ¹
3000	Solids Processing	39,700,000	38,800,000 ¹
4000	Flood and Pollution Control	28,288,386	30,820,396 ^{1, 2}
5000	Solids Utilization	25,300,000	27,800,000 ¹
7000	General Support	<u>96,599,661</u>	<u>121,280,528^{1, 3}</u>
Sub-Total		\$310,788,047	\$351,800,924
Annuity and Benefit Fund		24,660,807	28,857,223 ⁴
Reserve Claim Fund		11,073,000	19,954,500 ⁵
Construction & Working Cash Fund		<u>1,905,238</u>	<u>424,169⁶</u>
Total OM&R Cost		\$348,427,092	\$401,036,816

¹See Pages 49, 235, 316 and 317 of the District's 2007 Budget.

²Program total in Corporate Fund is \$37,700,000. USEPA disallowed costs (Programs 4200, 4700 and 4800) are \$6,879,604 leaving a net of \$30,820,396.

³Program total in Corporate Fund is \$124,900,000. USEPA disallowed costs are \$3,619,472, leaving a net of \$121,280,528. A prorated portion of Program 7000, General Support, was disallowed as it was determined in the 1979 User Charge Proposal that this was related to the overhead support of items disallowed from Program 4000. This prorated portion is the ratio of the disallowed amount (\$6,879,604) to the total for Programs 1000 through 5000 (\$237,400,000) in the 2007 Budget.

⁴The 2007 Budget allocates \$30,889,770 on Page 51 to the Annuity and Pension Fund. Approximately 6.58% of the District's employee salaries are not chargeable to OM&R costs leaving a net of \$28,857,223. The 6.58% number represents the ratio of the salaries budgeted under Programs 4200, 4210, 4300, 4700 and 4800 for the corporate, construction, bond and stormwater management funds 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.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1A

RESERVE CLAIM FUND

2007 Budgeted Cost	\$ 56,705,500
Less 2006 Budgeted Cost	(41,700,000)
Plus 2006 Actual Claims	4,949,000
Total	<u>\$ 19,954,500</u>

Note: Included for the User Charge System (UCS) are actual expenditures in 2006 plus the amount added to the fund which is the difference in the budget appropriations for 2006 (Page 49 of 2006 Budget) and 2007 (Page 51 of 2007 Budget). The total represents the funding required to bring the fund up to the 2007 appropriated amount. The data for actual claims was provided by the Finance Department.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1B

CONSTRUCTION FUND COSTS

Budgeted Programs Directly Related to OM&R Cost	2007 Budget
1000 Collection	\$ 5,028,572.00
2000 Treatment	27,085,739.00
3000 Solids Processing	2,684,257.00
4000 Flood and Pollution Control	3,801,399.00
5000 Solids Utilization	<u>298,321.00</u>
Sub-total of Programs 1000 through 5000	\$ 38,898,288.00
Less Ineligible portion of OM&R Cost applicable to Programs 4200, 4210, 4700 and 4800	(3,801,399.00)
Eligible OM&R Cost from Programs 1000 through 5000	<u>35,096,889.00</u>
Ratio of eligible to total program cost	
$\frac{\$ 35,096,889}{\$ 38,898,288} = 0.9023$	
7000 Plus General Support (eligible portion) = 0.9023 x \$3,732,212.00	<u>3,367,475.00</u>
Total Eligible OM&R Cost	\$ 38,464,364.00

Sources: Information from District's Budget Preparation Tool Functional Area Summary Report for 2007 Budget.

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 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 2007 budget is \$15,781,000, as shown on Table 1D. The 2007 Budget did not allocate construction working cash funds. (See Page 81 of the 2007 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 \$424,169, as shown on Table 1C.

Determination of Total Revenue to be Generated by UCS in 2008

As shown in Table 2, revenues contained in the 2007 budget derived from sources other than the UCS total \$148,724,948. 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.

Determination of 2008 User Charge Administration Cost for Each User Charge Class

Table 3 presents the costs for administration of the UCS, 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 administrative cost to be recovered in 2008 is \$6,560,991. By deducting the total of revenue to be generated from other sources and the administrative cost recovery from the total OM&R cost of \$401,036,816 leaves a net OM&R cost of \$245,751,000 which must be collected by the UCS.

Unit Costs of Treatment

District operating records indicate that 490,510 million gallons (MG) of flow, 718,903 thousand pounds (Klbs) of biochemical oxygen demand (BOD), and 1,243,865 Klbs of suspended solids (SS) were treated during 2006 (data from 2006 WRP operating records as compiled by the Research & Development [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 27.84 percent of the cost was attributed to flow, 38.56 percent to BOD, and 33.60 percent to SS. This allocation was based on 2006 cost data and the Maintenance and Operations memorandum dated June 22, 2007. Using the foregoing data, the unit costs of treatment were derived, as shown in Table 4.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1C

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

Revenue/Cost Item	For 2008 from 2007 Budget
Net Assets Appropriable (Page 92, 2007 Budget)	\$ 33,335,500.00
Revenue from Personal Property Replacement Tax (Page 93, 2007 Budget)	1,000,000.00
Revenue from Money and Property Investment Income, etc. (Page 93, 2007 Budget)	1,725,000.00
Connection Impact Fees (Page 93, 2007 Budget)	<u>1,370,000.00</u>
Total Revenues Derived from Other Sources for Construction Fund	\$ 37,430,500.00
Total Costs (from <u>Table 1B</u> on Page 4)	\$ 38,464,364.00
Ratio of Construction Fund Revenue vs. Total Construction Fund Costs (\$37,430,500)/(\$38,464,364) = 0.9731 ¹	
Eligible Construction Fund as Furnished by Engineering Dept. (From <u>Table 1D</u>)	\$ 15,781,000.00
Less Proportionate Share for Construction Fund Revenues (0.9731 x 15,781,000) ¹	<u>\$ (15,356,831.00)</u>
Net Eligible Construction Fund	\$ 424,169.00
Plus Net Eligible Portion of Construction Working Cash Fund. ²	\$ 0.00
OM&R Cost to be Recovered for Construction Fund Under the User Charge Ordinance	\$ 424,169.00

¹ 97.31% of the Construction Fund is funded by revenue from sources other than the User Charge Ordinance.

² No appropriation has been made for Construction Working Cash Fund in the 2007 Budget.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1D

2007 CONSTRUCTION FUND REPLACEMENT COST

Project No.	Project Title/Description	Eligible Appropriation	% Eligible	In-House Cost
<u>2007 Budget Awards</u>				
03-822-2M	Elevator Improvements, CWRP, SWRP, LWRP, NSWRP, EWRP, KWRP, HPWRP	1,447,000	70	72,000
02-110-2E	Replace Electrical Distribution System and Replace Conduit and Cable at SWRP and Mainstream P.S.	5,884,000	100	294,000
00-809-1E	*Remote Unmanned Sites, Smoke Annunciation	208,000	50	10,000
04-824-2P	*Tertiary Filter Rehabilitation, New Pump VFDs & Other Plant Improvements, HPWRP, EWRP, KWRP	890,000	75	45,000
05-018-2S	Sewer and Structure Rehabilitation, NSA	1,013,000	100	51,000
05-147-2M	HVAC Improvements, SWRP	5,000,000	100	250,000
Total 2007 Awards		<u>\$14,442,000</u>		<u>\$722,000</u>

*2007 adjusted for the difference in the estimated and actual 2006 appropriation amounts.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 1D (Continued)

2007 CONSTRUCTION FUND REPLACEMENT COST

Project No.	Project Title/Description	Eligible Appropriation	% Eligible	In-House Cost
<u>2007 Projects Under Construction</u>				
02-818-2P	*Cleaning of Anaerobic Digesters and Other Rehabilitation, SWRP and CWRP	0	20	0
00-473-1D	Replace Casework, Fumehoods and Miscellaneous Work, EWRP, SWRP, KWRP	0	74	0
05-826-2P	Post Aeration Tank and Phosphorus Removal Facilities, HPWRP and EWRP	0	0	0
00-184-2M	Rehabilitation of Imhoff Galleries, SWRP	<u>588,000</u>	100	<u>29,000</u>
	Total Projects Under Construction	<u>\$588,000</u>		<u>\$29,000</u>
	Grand Total	\$15,030,000		\$751,000

*2007 adjusted for the difference in the estimated and actual 2006 appropriation amounts.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 2

DETERMINATION OF TOTAL OM&R COST FOR 2006 AND 2007
ADJUSTED FOR REVENUES FROM OTHER SOURCES
AND FOR ADMINISTRATIVE COST

Revenue/Cost Item	For 2006 From 2007 Budget	For 2008 From 2007 Budget
Total OM&R Cost ¹	\$348,427,092	\$401,036,816
Less:		
Net Assets Appropriable ²	(56,062,258)	(105,995,948)
Revenue from Investments, Land Rentals, Sewer Permit Fees, Service Agreements, and Electricity Generation	(12,331,000)	(17,459,000)
Revenue from Personal Property Replace- ment Tax ²	(24,000,000)	(23,421,000)
Revenue from Miscellaneous Sources of Administrative Penalties but not including Village of Glenview Payment ²	(2,024,000)	(1,624,000)
Village of Glenview Payment	<u>(225,000)</u>	<u>(225,000)</u>
Subtotals of Revenues from Other Sources	(94,642,258)	(148,724,948)
Administrative Costs to be Recovered through Charges Under the UCS ³	(6,386,674)	(6,560,991)
Revenues from Other Sources and Administrative Costs	<u>(101,028,932)</u>	<u>(155,285,939)</u>
Adjusted Total OM&R Cost	\$247,398,160	\$245,750,877
Rounded Off Figure	\$247,398,000	\$245,751,000

¹ From Table 1 on page 2.

² From pages 83 and 84 of 2006 Budget and pages 85 and 86 of 2007 Budget.

³ From Table 3 on page 11.

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 UCS 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 2005 total equalized assessed value (EAV) for its service area of \$130,590,000,000 (see Page 42 of the Budget). This included railroad property. Through a review and evaluation of all tax credits claimed by Large Commercial-Industrial and Tax-Exempt Users in 2006, based on their 2005 real estate property taxes paid in 2006, it was established, that the EAV of the Large Commercial-Industrial sources was \$12,294,850,159 (see Table 5). These are based on the most recently updated verified User data in the District's files and were for tax year 2005 payable in 2006. Some tax-exempt Users pay property taxes on their facilities which they utilize for commercial purposes. This EAV was \$366,284,762 (see Table 5). Subtracting the EAV of the Large Commercial-Industrial Users (\$12,294,850,159) and the EAV of the Tax-Exempt Users (\$366,284,762) on city property leaves a total EAV of \$117,928,865,079 for the Residential and Small Nonresidential Commercial-Industrial (R&SNC-I) Users.

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 R&SNC-I, Large Commercial-Industrial, Tax-Exempt, and I/I, Rain, and Recycle, as shown in Table 5.

The Recycle 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 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 2008 calculations, the recycle flow volume was established as 14,180 MG for 2006, based on the July 25, 2007 memorandum from the District's Maintenance and Operations Department providing the 2006 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. I/I, Rain and Recycle flows were determined to be 184,694 MG for 2006 (see Table 6).

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 3

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

Small Commercial-Industrial Users ¹	\$ 118,241
Tax-Exempt Users ¹	\$ 400,750
Large Commercial-Industrial ^{2, 3, 4} Users	<u>\$ 6,042,000</u>
Total Administrative Costs to be Recovered from Users	\$ 6,560,991

¹Based on information provided for by the District's Finance Department for 2006 expenditures and the District's financial records.

²This Administrative Cost is the total estimated revenue for Minimum Pretreatment Requirement Charges and User Charge Verification Charges that will be recovered under the UCS in 2008.

³The assessed Administrative Cost Recovery Charges for the Large Commercial-Industrial Users are in accordance with Appendix E of the District's User Charge Ordinance.

⁴This amount also includes non-compliance expenditures to be recovered under the District's Sewage and Waste Control Ordinance.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 4

UNIT COST OF TREATMENT

Total District Loadings for 2006¹

Volume	=	490,510 MG
BOD	=	718,903 Klbs
SS	=	1,243,865 Klbs

Total OM&R Cost = \$ 245,751,000

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

Flow	=	27.84% x \$245,751,000 = \$ 68,417,078
BOD	=	38.56% x \$245,751,000 = \$ 94,761,586
SS	=	33.60% x \$245,751,000 = \$ 82,572,336

Unit Costs of Treatment

Volume	=	\$ 68,417,078/ 490,510 MG = \$ 139.48/MG
BOD	=	\$ 94,761,586/ 718,903 Klbs = \$ 131.81/Klbs
SS	=	\$ 82,572,336/ 1,243,865 Klbs = \$ 66.38/Klbs

¹The 2006 District loadings are used in the calculation of 2008 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 2006 Operating Records)

²Percent distribution of cost-to-load parameters derived from the Maintenance and Operations Memorandum dated June 22, 2007

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 5

DISTRIBUTION OF EQUALIZED ASSESSED VALUATIONS AND QUANTITIES BY SOURCES

Source	Equalized Assessed Valuation (EAV) (\$)	Volume (MG)	BOD (Klbs)	SS (Klbs)
R&SNC-I	\$ 117,928,865,079 ³	274,032	271,966	383,952
Large Commercial-Industrial ¹	\$ 12,294,850,159 ²	20,418	124,202	39,559
Tax-Exempt ¹ (and governmental)	\$ 366,284,762 ³	11,366	17,203	40,064
I/I, Rain and Recycle (See Table 6)		184,694	305,532	780,290
Total (Approximate Due to Roundoff)	\$130,590,000,000 ⁴	490,510	718,903	1,243,865

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 2006 annual statements filed by the Users. This data is verified by real estate property tax bills submitted with the 2006 annual statements. \$38,728,778 in 2005 real estate taxes were claimed by Large Commercial-Industrial Users in 2006, and the District's 2005 real estate property tax rate was 0.315 cents per \$100.00 of EAV. Therefore, $(\$38,728,778/0.315) \times \$100 = \$12,294,850,159$, the computed EAV of the Large Commercial-Industrial Class.

³Similarly, Users in the City of Chicago airports and a private college paid real estate taxes of \$1,153,797 for properties which were utilized for commercial usage. Based on this tax paid, the EAV of the tax-exempt class was $(\$1,153,797/0.315) \times \$100 = \$366,284,762$. The EAV of the R&SNC-I Class is computed by deducting all other figures from the total EAV.

⁴Total EAV is for the year 2005 as supplied by the Cook County Assessor. Multiplier for 2005 = 2.7320.

Analysis of Dry- and Wet-Weather Flows

The method of determining dry- and wet-weather flows in the 2001 through 2004 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 as January.

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 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.

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 6

ALLOCATION OF I/I, RAIN AND RECYCLE

Class Loadings	Volume (MG)	%	BOD (Klb)	%	SS (Klb)	%
<u>Dry-Weather Loadings</u>						
R&SNC-I ¹	274,032	89.61	271,966	65.79	383,952	82.82
Large Commercial-Industrial ²	20,418	6.68	124,202	30.05	39,559	8.53
Tax-Exempt (and Governmental) ²	<u>11,366</u>	<u>3.72</u>	<u>17,203</u>	<u>4.16</u>	<u>40,064</u>	<u>8.64</u>
TOTAL	305,816	100.00	413,371	100.00	463,575	100.00
<u>Allocating I/I, Rain and Recycle</u>						
R&SNC-I	165,498		201,016		646,268	
Large Commercial-Industrial	12,331		91,801		66,586	
Tax-Exempt (and Governmental)	<u>6,864</u>		<u>12,715</u>		<u>67,436</u>	
TOTAL ³	184,694		305,532		780,290	
GRAND TOTAL ⁴	490,510		718,903		1,243,865	

¹ 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.

² These numbers were arrived at from the District's records of all 2006 User Charge Annual Statements.

³ Daily M&O Department records for the District's seven WRPs for the year 2006 show a total volume treated of 490,510 MG. The projected annual dry-weather volume is 876.7 x 365 days = 319,996 MG. I/I, Rain and Recycle flows are equal to Total Flow (490,510 MG) minus Dry-Weather Flow (319,996 MG), or 170,514 MG plus Recycle (14,180 MG) = 184,694 MG. See Page 10 for an explanation of the Recycle item as first introduced in the 1987 User Charge rate calculations.

⁴ Grand totals come from 2006 operating records as explained on Page 5. Totals may not equal the sum of individual components due to rounding.

Beginning with the 2001 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.

However, in subsequent years there was a significant reduction in dry weather flows. This reduction may be due to general reduction in Commercial-Industrial activities. Since significant variations in dry weather flow from year-to-year have an impact on the User Charge rates, a moving average of the dry weather flow from the most recent five years is now being used in the User Charge rate calculations. This insures a greater stability to the User Charge rates.

For the 2008 User Charge rate calculations, the average of the total dry weather flow from 2002 through 2006 is utilized. The five year average is 876.7 MGD with a high of 906.9 MGD observed in 2006 and a low of 839.78 MGD seen in 2005. This information is shown in Table 7.

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

As shown in Table 5, 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 R&SNC-I User classes, the Large Commercial-Industrial User class and the Tax-Exempt class. The OM&R costs to treat flows and loads from the I/I, Rain, and Recycle must be distributed to the R&SNC-I, 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. The results of these calculations are shown in Table 8. Please note that the totals shown include the administrative cost for the R&SNC-I Class and the Tax-Exempt Class. For the Tax-Exempt class, the administrative costs have been distributed to volume, BOD and SS in proportion to the total treatment costs for each parameter. The administrative cost is not included for the Large Commercial-Industrial User Class. These costs, totaling \$246,261,549 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:

R&SNC-I	192,153,646
Large Commercial-Industrial	40,085,091
Tax-Exempt	<u>14,022,812</u>
TOTAL	\$246,261,549

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TABLE 7

SEVEN CONSECUTIVE DAYS
 DRY WEATHER FLOW IN MGD

	2002	2003	2004	2005	2006
Calumet	178.00	165.00	159.00	146.00	177.00
Stickney	494.00	463.00	494.00	474.00	495.00
Northside	174.00	186.00	186.00	173.00	184.00
Lemont	1.23	1.49	1.44	1.42	1.63
Kirie	21.82	20.88	21.64	20.01	23.19
Egan	17.4	17.0	19.0	19.5	20.30
Hanover	5.56	5.71	4.44	5.85	5.78
Totals	892.01	859.08	885.52	839.78	906.90

Five year average is 876.7 MGD

The R&SNC-I classes' OM&R costs are collected through the District's dedicated ad valorem tax system. Using the equalized assessed class value of \$117,928,865,079 for the R&SNC-I classes as shown in Table 5, and the class OM&R cost of \$192,153,646 for the R&SNC-I classes, as shown in Table 8, the ad-valorem residential OM&R rate was determined as follows:

$$\$192,153,646/\$117,928,865,079 = 0.163/\$100 \text{ EAV}$$

This constitutes the OM&R rate for all classes under the ad valorem tax system and represents a 9.9 percent decrease from the 2007 rate of 0.181/\$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 2007 included a 3.5 percent allowance for tax revenues uncollected in the year of levy.

The calculation of the ad valorem residential OM&R rate of 0.163/\$100 EAV is without the allowance for uncollectibles. This rate adjusted downward by 3.5 percent for uncollectibles would be 0.157/\$100 EAV. The adjusted ad valorem OM&R rate is 49.9 percent (0.157/0.315) of the District's total 2005 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:

Volume:	\$ 4,567,831/20,418	MG	=	\$223.72/MG
BOD:	\$ 28,471,355/124,202	Klbs	=	\$229.23/Klbs
SS:	\$ 7,045,905/39,559	Klbs	=	\$178.11/Klbs

The Tax-Exempt class OM&R costs must be fully collected by the UCS. 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:

Volume:	\$ 2,617,525/11,366	MG	=	\$230.29/MG
BOD:	\$ 4,059,506/17,203	Klbs	=	\$235.98/Klbs
SS:	\$ 7,345,781/40,064	Klbs	=	\$183.35/Klbs

METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO

TABLE 8

COST PER PARAMETER AND TOTAL COST PER USER CLASS
FOR 2008 RATES

Class	Volume (MG)	BOD (Klbs)	SS (Klbs)	Total
R&SNC-I	439,530	472,982	1,030,220	
UNIT COST	\$ 139.48	\$ 131.81	\$ 66.38	
TREATMENT COST + ADMINISTRATION COST CLASS TOTAL	\$61,305,644	\$62,343,757	\$68,386,004	\$192,035,405 <u>\$ 118,241</u> \$192,153,646
Large Commercial- Industrial	32,749	216,003	106,145	
UNIT COST	\$ 139.48	\$ 131.81	\$ 66.38	
TREATMENT COST CLASS TOTAL	<u>\$4,567,831</u> \$4,567,831	<u>\$28,471,355</u> \$28,471,355	<u>\$7,045,905</u> \$7,045,905	<u>\$ 40,085,091</u> \$ 40,085,091
Tax-Exempt (and Governmental)	18,230	29,918	107,500	
UNIT COST	\$ 139.48	\$ 131.81	\$ 66.38	
TREATMENT COST + ADMINISTRATION COST CLASS TOTAL	\$2,542,720 <u>\$ 74,805</u> \$2,617,525	\$3,943,492 <u>\$ 116,014</u> \$4,059,506	\$7,135,850 <u>\$ 209,931</u> \$7,345,781	\$ 13,622,062 <u>\$ 400,750</u> \$ 14,022,812
TOTAL COST				\$246,261,549

The 2008 rates compare with current 2007 rates as follows:

<u>Class Parameters</u>	<u>2008</u>	<u>2007</u>	<u>% Change</u>
Large Commercial-Industrial			
Volume \$/MG	\$223.72	\$224.87	-0.51
BOD \$/Klbs	\$229.23	\$228.39	+0.37
SS \$/Klbs	\$178.11	\$173.01	+2.95
Tax-Exempt			
Volume \$/MG	\$230.29	\$231.07	-0.34
BOD \$/Klbs	\$235.98	\$234.69	+0.55
SS \$/Klbs	\$183.35	\$177.77	+3.14
OM&R Factor	0.499	0.504	-0.99

The above comparison shows a mirror decrease in the rate for flow for both the Large Commercial-Industrial and Tax-Exempt User classes. For both classes, the rate for BOD increased by less than one percent and the rate for SS increased by approximately three percent. The 2006 WRP loadings varied from 2005 as follows: the flow increased by 14.96 percent, the BOD loading decreased by 11.27 percent and the SS loading increased by 4.71 percent. The increase in the flow and SS Plant loadings lowers the direct unit costs for treatment while the decrease in the BOD would raise this direct unit cost for treatment. The OM&R decreased slightly from \$247 million to \$246 million.

The loadings for the Large-Commercial-Industrial User Class for 2006 versus 2005 varied as follows: flow decreased by 3.60 percent, BOD increased by 5.07 percent and SS decreased by 1.93 percent. The reduced seven-day average dry weather flows observed for 2002 through 2006 and the increase in the total flow to our WRPs observed in 2006 resulted in an I/I, Rain and Recycle volume of 184,694 MGD for the 2008 rate calculations. This represents a 61.69 percent increase over the I/I Rain and Recycle volume observed in 2005.

The increased allocation of the recycle loadings onto the Large Commercial-Industrial and the Tax-Exempt User Classes was the main reason for the three percent increase in the SS rate for 2008 over 2007.

Administrative Cost Recovery

The costs incurred by the District in 2005 in administering the Sewage and Waste Control Ordinance (SWCO) and the User Charge Ordinance (UCO) were considered in determining the 2007 User Charges for the Large Commercial-Industrial User class, the R&SNC-I 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 (Board) 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. Similarly, the cost for administering the User Charge Verification requirements (UCV) of the UCO was 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 were recovered from Users who are found in noncompliance with the SWCO. The UCV charges are recovered from the Large Commercial-Industrial User class.

A portion of the costs associated with MPR, NCE, and UCV were recovered under Section 10 and Appendix F of the UCO. On November 4, 2004 the Board amended the UCO to remove the recovery of the NCE Charges from the UCO. Since the NCE charges are incurred by a User for violations of effluent limitations specified in the SWCO it was determined that the collection of the NCE charges under the SWCO was more fair, efficient and equitable. The collection of the NCE charges in the SWCO was also approved by the Board on November 4, 2004. These changes became effective January 1, 2005. Appendix F of the UCO was redesignated as Appendix E and the MPR and UCV charges applicable to 2005 and subsequent years are now incorporated therein. The NCE charges for 2005 and subsequent years are now incorporated in Appendix F, Enforcement Response Procedure, Paragraph I of the SWCO.

The portion of the MPR and UCV costs that are recovered through the UCS are subject to change every year to reflect District expenses. As shown in Table 1 of this report, the total OM&R cost has been increased from \$348,472,092 in 2006 to \$401,036,816 in 2007 – an increase of 15.08 percent. In order to keep pace with this increase, the 2008 MPR, UCV, and NCE were increased by 15 percent over the 2007 rates.