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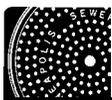
## Property Services

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Three sections of the Minneapolis Public Works Department provide property services information. The Planning and Design section was the source of sewage discharge; information on water came from Water Works and the Solid Waste Division furnished the data on solid waste disposal and recycling. Minnegasco and Northern States Power Company (NSP) provided energy data. The Minneapolis Budget Office compiled data on revenue from franchise fees.

**Water and Sewerage Infrastructure**  
**Solid Waste**  
**Energy**

This chapter can also be found on the city's web site at:  
[www.ci.minneapolis.mn.us/planning](http://www.ci.minneapolis.mn.us/planning)



# Water and Sewerage Infrastructure

The Minneapolis water system serves Minneapolis, Columbia Heights, Crystal, Edina-Morningside, Golden Valley, Hilltop, New Hope, and Bloomington.

The amount of water consumption in 1997 was higher than the average rate of consumption during the past ten years. The total volume of sewage discharged by the City of Minneapolis has remained virtually the same for several years. The rates for conveyance and treatment for 1998 were not available at print date. Rates were \$1,318 per million gallons for 1997.

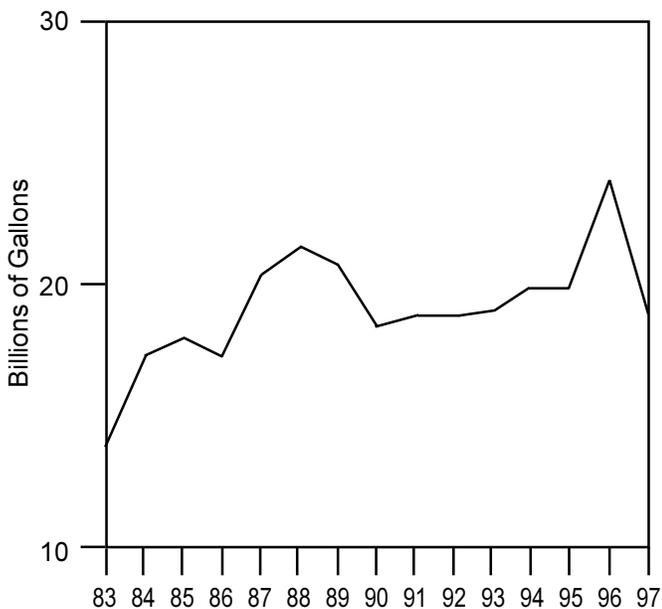
In 1997, water rates increased to \$1.35 per 100 cubic feet, and in 1998 to \$1.43. Sewer rate increases have been steady, while water rates did not increase between 1984 and 1991. Sewer rates for 1998 are \$2.51 per 100 cubic feet with a proposed increase in 1999 to \$2.67 per 100 cubic feet.

### Water Consumption and Quality

In 1997, 23.8 billion gallons of water were delivered to the Minneapolis distribution system and its suburban customers. About 19.2 billion gallons were used in Minneapolis. The following graph indicates the amount of water delivered to Minneapolis customers over the past 15 years.

The quality of the city's water remains excellent. The water quality meets the standards set by the National Safe Drinking Water Act. Laboratory tests are conducted regularly at the treatment plant and the distribution system. Tests indicate that all federal, state and local requirements were met.

BILLIONS OF GALLONS OF WATER DELIVERED TO MINNEAPOLIS, EXCLUDING SUBURBAN CUSTOMERS



The city is committed to maintaining its excellent water quality standards. The City's Water Works initiated the development of the Mississippi River Defense Network (RDN) and has been active for the past five years. RDN is a community-based spills prevention and response effort made up of a collaboration among federal, state and local government as well as individuals within the Upper Mississippi River communities who play important roles in spills response planning and management. The goal of RDN is to prevent spills and to protect the Mississippi River from contamination. Communities of the Upper Mississippi River are now implementing a plan, which includes technical studies, education, and emergency management systems. The Legislative Commission on Minnesota Resources has funded the development of a spill response plan for the Mississippi River, north of the Minneapolis Water Works intakes. In 1998, Water Works entered into a collaborative agreement with other utilities and state agencies to obtain a clean water partnership grant from the Minnesota Pollution Control Agency. The grant is to investigate and respond to source water protection issues through the project entitled, "Upper Mississippi River: Integration of Source Water Protection and Non-point Management."

### Sewage Discharge and Treatment

The annual discharge has remained under 71 million gallons per day since 1979. Average discharge for 1997 was 61.095 million gallons per day. The estimate for 1998 is 57.5 million gallons per day, a 5.89 percent decrease over 1997. The estimate is within the 77.51 million gallons per day limitation allowed by the Metropolitan Council's system statement for Minneapolis.

The following table shows the annual and daily sewer discharge by the City of Minneapolis over the past 20 years:

Year	Million Gallons Per Year	Million Gallons Per Day
1979	24,085	65.986
1980	23,508	64.405
1981	23,826	62.537
1982	23,101	63.290
1983	24,737	67.773
1984	25,328	69.391
1985	25,885	70.918
1986	25,225	69.110
1987	22,885	62.700
1988	23,700	65.000
1989	21,827	59.800
1990	22,495	61.630
1991	23,735	65.027
1992	23,189	63.532
1993	23,656	64.811
1994	21,871	59.921
1995	21,948	60.132
1996	20,453	56.036
1997	22,300	61.095
1998 (est.)	21,098	57.500

Minneapolis' primary water pollution problem of combined sewer overflows (CSOs) was alleviated with the completion of the sewer separation project in 1995. The city began separating storm sewers from sanitary sewers in the 1930s. With less than one percent of sewers combined, the separated system has reduced sewage treatment costs and reduced flooding caused by surface runoff.

The secondary problem of non-point source pollution exists in the form of urban runoff. Separation of the sanitary system from the storm system reduces pollution of waterways after a rainstorm or snowmelt. Surface runoff does not get into the sanitary system thereby preventing the overflow of raw sewage into rivers and streams.

Non-point source pollution is being addressed in the Minneapolis area by four watershed management organizations, each being responsible for the runoff from its area as mandated by the 1982 legislature. These organizations regulate the watershed areas surrounding Minnehaha Creek, Bassetts Creek, Shingle Creek, and the Middle Mississippi River. The city is also mandated by the U.S. Environmental Protection Agency to improve the quality of its stormwater runoff.

The sewage conveyance and treatment charges from Environmental Services of the Metropolitan Council have increased annually. The cost to treat sewage is now two and one-half times what it was in 1980. The Council has a five-year goal of zero percent increase in rates charged to local communities. The table below shows the annual costs from 1980 to 1997.

Year	Cost/Million Gallons	Annual Cost (Millions)
1980	500	11.7
1981	580	13.2
1982	650	15.0
1983	728	18.0
1984	766	19.4
1985	786	20.3
1986	707	17.8
1987	877	20.1
1988	919	21.8
1989	936	20.4
1990	969	21.8
1991	1,060	25.2
1992	1,097	25.4
1993	1,103	26.1
1994	1,253	27.4
1995	1,277	28.0
1996	1,246	25.5
1997 (est.)	1,318	29.9

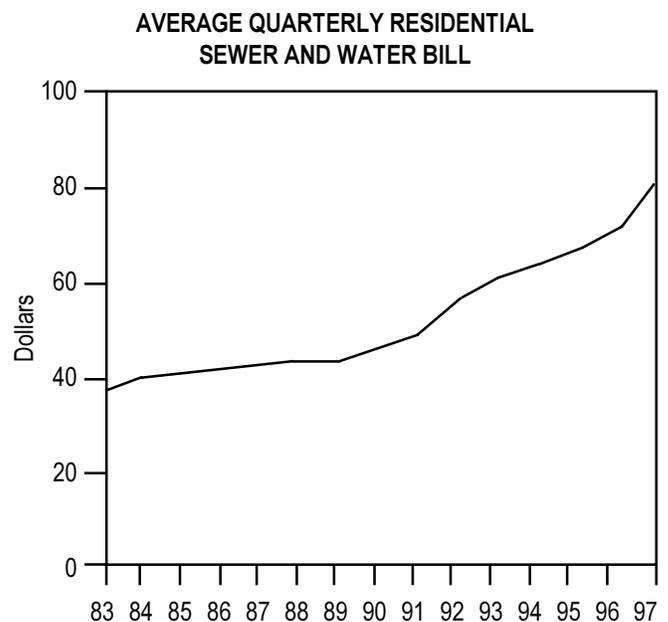
### Cost of Service

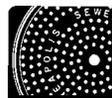
The city began replacing all residential water meters in the city with remote reading units in 1992. Minneapolis is the largest city in the United States to rely on automatic water meter reading. The new system allows for accurate water consumption figures for customer billing. At the end of 1996, the program was completed with 85 percent of the customers on automatic meters. The remaining 15 percent will be installed with either a combination telephone or radio reading system. Installation of radio reading equipment began in 1998.

The cost per household of providing combined sewer and water service generally has continued to rise during the decade. Sewer rate increases have been steady, while water rates did not increase from 1984 until 1991. Sewer rates were \$2.35 for 1997 and \$2.51 for 1998. In 1992, water rates were increased from \$.85 to \$1.10; in 1993, the rate increased to \$1.19, in 1994, it remained the same. In 1995 the rate increased to \$1.23; in 1996 increased to \$1.29; and in 1997 increased to \$1.35. In 1998, the rates increased to \$1.43.

With the installation of automatic meters, the city began to convert from quarterly billing to monthly billing in 1995. Currently, over 85 percent of all households are billed monthly. The average quarterly bill for 1998 is estimated at \$80.93. The following graph shows the average quarterly residential water and sewer billing for the past 15 years.

Sewer rate increases are primarily a result of increased charges for sewer treatment levied by Metropolitan Council Environmental Services. Increases are also related to the mandated sewer separation (Combined Sewer Overflow) program. Water rate increases in 1992 and 1993 reflect the increased costs of providing water service to residents.





**Condition of Systems**

In addition to the municipal water supply, other sources of water in the city include Park Board wells, two springs and 69 commercial wells. Forty of these commercial wells are used for human consumption and food manufacturing. The remaining 29 commercial wells are used for air conditioning. The State of Minnesota Health Department monitors the chemical and bacterial content of well water. If the water in any of these wells exceeds safety standards, appropriate action is taken to correct the hazard.

The condition of the approximately one thousand-mile distribution system ranges from fair to good. There are approximately 50 main breaks per year. However, some mains are severely restricted in their carrying capacity due to tuberculation. Most of the large water mains (24 inch and larger) have been cleaned and lined. A program for cleaning and lining of small mains was implemented in 1996 and will continue for many years. The age of the sewer infrastructure itself has become a major concern in recent years. Some areas in the system are over one 100 years old. Often the need for repair exceeds the available resources.

The following table indicates the number of miles of sanitary sewers, storm drains, sewer interceptor tunnels and storm drain tunnels.

Year	MILES OF			
	Sanitary Sewers	Storm Drains	Sewer Interceptor Tunnels	Storm Drain Tunnels
1982	826.7	400.7	25.0	21.5
1983	826.7	404.5	25.0	22.0
1984	827.3	410.5	25.0	22.2
1985	827.3	414.4	25.0	22.5
1986	827.6	420.3	25.0	22.2
1987	828.0	424.9	29.6	22.6
1988	827.5	435.9	29.6	22.6
1989	828.5	455.5	29.6	22.9
1990	828.5	463.4	31.3	22.9
1991	828.5	463.4	31.3	22.9
1992	828.5	470.6	31.3	22.9
1993	828.6	477.0	31.3	22.9
1994	828.9	483.4	31.3	23.1
1995	828.9	491.9	31.3	23.1
1996	829.0	498.1	31.3	23.1
1997	828.9	501.5	31.3	23.1

The Division of Solid Waste and Recycling was created from Public Works General Services in 1991, when it served 118,818 dwelling units. That year, 139,749 tons of waste was collected. By the end of 1997, the Division provided service to 108,683 residential units, 500 municipal locations and 2,752 litter containers, collecting 160,002 tons of debris.

Solid waste services include collection of garbage, recyclable materials, large items, and yard waste from all single-family through four-unit dwellings. Larger residential dwellings and commercial establishments may be granted city service on a case-by-case basis. "Drop-off" programs are provided for used motor oil, tires, household batteries, construction and building debris and large amounts of waste from "spring cleaning" or "move-outs."

For collection purposes, the city is split roughly in half. City forces collect residences east of Interstate 35W and south of Lowry Avenue Northeast. A consortium of 33 private haulers, Minneapolis Refuse, Inc. (MRI), collect the remaining half of the city. The type and level of services provided are identical for all city residents; however, the specific methods used by the city and MRI forces differ slightly. Splitting the city for collection purposes allows constant comparison and competition between operating methods, service levels, equipment types, and private and public enterprise, insuring cost-effective services for Minneapolis residents.

In 1994, the Division became an enterprise operation, no longer being funded by the general fund of the City of Minneapolis. By reorganizing operations and reducing expenses, the Division has been able to provide service at increased levels as previous years without an increase in fees.

**Garbage Collection**

In 1997, the Division collected 112,177 tons of garbage which include tonnage from the Dirty Collection Point (DCP) program and the Annual Neighborhood CleanSweeps. Up to two large burnable items are collected each garbage day from each serviced address.

The DCP program began on the city side in June, 1992 and was implemented city-wide in July, 1993. Garbage crews make note of properties with dirty or messy collection points on their routes. The crews then leave a tag on the garbage cart explaining the violation. Letters are sent to property owners, utility bill-payers and property residents describing the violation and asking them to clean the area before the next collection day. If the site is not cleaned by the next collection day, city crews clean the area and the property owner is billed for the cost of the cleanup.

Unpaid fees are added to the property tax assessment. The number of properties added to this program in the past six years are:

	Properties Warned	Properties Cleaned
1992	790	238
1993	3,711	721
1994	6,911	1,769
1995	3,491	1,028
1996	3,310	1,351
1997	4,330	1,329

### Recycling

The Minneapolis Recycling Program continued to be one of the most extensive in the nation. Our source-separated recycling stream consists of junk mail, newspapers, magazines and catalogues, clear, green, blue and brown glass bottles and jars, food and beverage cans, aluminum foil, household batteries, corrugated cardboard, mixed paperboard, plastic bottles and phone books, amounting to nearly 25,868 tons. The collection of milk cartons and drink boxes ended in 1997 due to a weakened market.

### Large Item Collection

Due to changes in state law and requirements at the Hennepin County incinerator, a separate weekly collection for appliances and large items was initiated in 1990. Prior to this time, large items were collected with the garbage.

In June of 1992, large item collection was changed to every other week. Residents were allowed to set out up to two appliances or large metal items on recycling day for pick-up the following work day. The direct advantage of every other week collection is cost savings and reduced vehicular traffic. In 1997, the Division collected 3,259 tons, an increase of 636 tons from the previous year.

In addition, the recycling program was expanded in 1997 by instituting separate collection of televisions, computers and computer monitors for processing and recycling.

### Yard Trimmings

Collection of yard trimmings is seasonal and varies greatly with the weather. Spring and fall yard trimmings tonnage are usually higher than summer. In 1997, 19,627 tons of yard trimmings were collected and disposed of at private composting facilities. There, the materials are de-bagged, composted and rendered into mulch or compost.

### Other Solid Waste Efforts

The Division operates the annual Neighborhood CleanSweep Program. This program provides staff, vehicles and disposal to organized neighborhoods. Volunteers gather debris from basements, attics, garages, and dispose of any amount of general household debris. Residents are encouraged to utilize vouchers to haul certain non-burnable materials to the transfer station for disposal.

The tonnage collected through the Neighborhood CleanSweeps:

Year	Tons
1992	72.6
1993	73.6
1994	438.0
1995	577.0
1996	679.3
1997	671.2

In addition to Neighborhood CleanSweeps, Minneapolis residents can take up to 2,000 pounds of almost any material except household hazardous waste to the transfer station without additional charge. Over the past four years, use of the transfer station through the Voucher Program has been encouraged. Interest in the program is evident in the number of vouchers requested and use has increased by an average of 1,000 annually. In 1994, the Division issued 5,007 vouchers; 6,732 were issued in 1995; 7,543 were issued in 1996; 8,771 were issued in 1997.

Other collection efforts include 1,491 tons of concrete and construction and paving materials, 278 tons of tires and 23 tons of household batteries. Also, the Division continued to maintain 2,752 public litter containers with regular collection schedules.

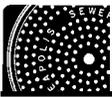
### Awards

The Solid Waste and Recycling Division continues to enjoy an impressive array of national recognition. For two years, the Division placed first in the Recycling Division, second place in the Rear Loader Division and second place in Overall Performance in the Minnesota Refuse Recycling Truck Road-E-O, sponsored by the Independent Waste Haulers of Minnesota, a division of the Solid Waste Association of North America.

**MINNEAPOLIS RECYCLING AND SANITATION TONNAGE AND TIPPING FEES  
1982-1997**

Year	Number of Customers	Recycling Tonnage	Large Items And Major Appliances Tonnage	Yard Waste Tonnage	Garbage Tonnage	Garbage Tipping Fees (Dollars/Ton)	Vouchers
1982	124,018	1,026			131,995	\$21.48	
1983	124,018	2,901			131,049	22.06	
1984	122,754	7,152			135,412	22.51	
1985	123,694	6,265			138,814	25.70	
1986	124,206	6,579			147,793	26.21	
1987	N/A	7,851			144,246	28.49	
1988	N/A	10,036		5,249	130,064	38.12	
1989	N/A	14,540		7,914	131,790	75.00	N/A
1990	118,818	20,178	1,414	14,042	112,818	95.00	N/A
1991	118,818	20,490	3,322	15,144	101,793	95.00	3,143
1992	117,828	21,489	2,718	16,160	104,561	95.00	2,391
1993	115,382	22,250	2,250	17,127	104,700	95.00	3,932*
1994	114,468	23,217	2,326	16,379	103,484	60.00	5,008
1995	113,594	21,988	2,318	16,987	104,268	45.00	6,732
1996	112,710	21,733	2,622	17,935	103,454	45.00	7,543
1997	108,683	25,868	3,259	19,627	111,248	41.00	8,771

\*Construction and paving vouchers added in 1993.



Natural gas and electricity are provided to residents by privately owned utilities. Residential natural gas consumption decreased 8.4 percent in 1997. Residential electricity consumption was 1,216 million kilowatt hours in 1997, an increase of 5.2 percent from 1996 consumption. Franchise fees paid to the city were estimated at \$12.1 million for electricity and \$5.9 million for natural gas in 1998.

### Natural Gas Consumption

Residential natural gas consumption decreased by 8.4 percent in 1997 compared to 1996 due to warmer weather in 1997. For the first nine months of 1998, the average billing rate for the residential heating class decreased 10 percent compared to the previous year, primarily due to decreased wholesale gas costs.

Residential natural gas consumption is divided into space heating and non-space heating. Non-space heating includes ranges and water heaters. In 1997, residential space heating used 14.351 billion cubic feet of natural gas. Natural gas consumption for residential non-space heating was .070 billion cubic feet. The resident heating average for the first nine months of 1998 was, at print date, 1 percent warmer than normal.

### AVERAGE RESIDENTIAL NATURAL GAS RATES PER MCF IN DOLLARS 1980-1998 (MCF = million cubic feet)

Year	Rate/MCF In Dollars	Percent Change
1980	3.18	9.6
1981	4.18	31.4
1982	5.01	19.9
1983	5.91	18.0
1984	6.00	1.5
1985	5.79	(3.5)
1986	5.05	(12.8)
1987	4.38	(13.3)
1988	4.50	2.7
1989	4.51	0.2
1990	4.51	0
1991	4.40	(2.4)
1992	4.69	6.6
1993	5.24	11.7
1994	5.26	0.4
1995	4.83	(8.2)
1996	5.35	10.8
1997	6.08	12.0
1998 (Jan. - Sept.)	5.45	(10.0)

RESIDENTIAL NATURAL GAS CONSUMPTION  
1983 - 1997



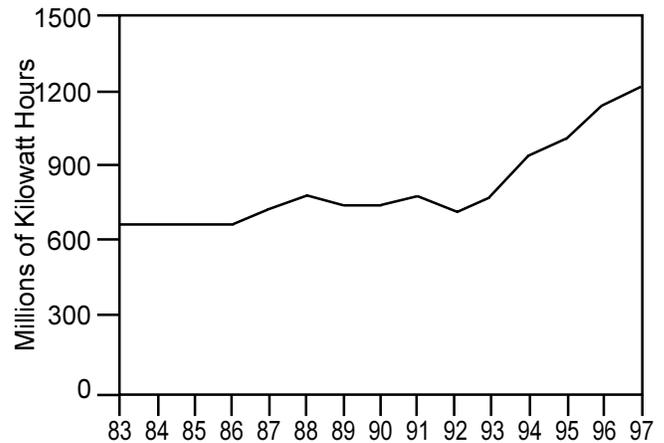
### Natural Gas Rates

The rate per million cubic feet (MCF) for the first nine months of 1998 was \$5.45, a decrease from \$6.08/MCF in 1996. Natural gas rates for the interruptible class in 1997 ranged from \$2.94-\$4.17/MCF. Average rates for the firm class ranged from \$5.90-\$6.08/MCF. The commercial-industrial rates varied greatly by consumption patterns and customer class.

### Electricity Consumption

In 1997, residential electricity consumption was 1,216 million kilowatt hours, an increase of 5.2 percent from 1996. During the first seven months of 1998, 702 million kilowatt hours were used. Since 1992, residential electrical consumption has increased by 320 million kilowatt hours, or 35.7 percent.

RESIDENTIAL ELECTRICITY CONSUMPTION  
1983 - 1997



## Revenue

Average NSP revenue for residential service has increased from \$64.4 million in 1992 to \$99.0 million in 1997. Revenue generated in residential sales per kilowatt hour has increased from 7.18 cents in 1992 to 8.14 cents in 1997. Revenues from commercial-industrial service have increased from \$175.5 million in 1992 to \$235.7 million in 1997, an increase of 34.3 percent. Average revenue per kilowatt hour (in cents) is shown in the table below.

### NSP REVENUE PER KILOWATT HOUR (IN CENTS) 1980-1998

Year	Res.	Percent Change	Comm'l. Ind.	Percent Change
1980	4.85	10.0	3.67	11.9
1981	5.25	8.3	3.94	7.4
1982	5.81	10.7	4.29	8.9
1983	5.98	2.9	4.28	0.0
1984	7.48	25.1	5.26	22.9
1985	6.15	(17.8)	4.39	(16.5)
1986	6.47	5.2	4.59	2.3
1987	6.26	(3.2)	4.41	(3.9)
1988	6.77	8.1	4.71	6.8
1989	6.69	(1.1)	4.60	(2.3)
1990	7.16	7.0	4.90	6.5
1991*	7.30	2.0	4.95	1.0
1992	7.18	(1.6)	4.80	(3.0)
1993*	7.69	7.0	5.12	6.7
1994	7.85	2.2	5.16	0.8
1995	8.10	3.1	5.25	1.7
1996	8.06	(0.5)	5.24	(0.2)
1997	8.14	1.0	5.33	1.7
1998 (Jan.-Jul.)	8.10	(0.5)	5.35	0.4

\*In 1996, NSP updated the 1991 and 1993 revenue per kilowatt-hour data. The chart reflects the updated information.

## Franchise Fees

The city receives revenue in the form of franchise fees from NSP and Minnegasco. Bus stop and parking ramp use and cable television franchise fees are also reported. The chart below shows the electricity and natural gas fee revenues over the last ten years.

Year	Electric NSP	Natural Gas Minnegasco	Other*	Total
1988	\$5,482,110	\$3,703,175	\$834,557	\$10,019,842
1989	5,268,307	3,740,515	851,977	9,860,799
1990	5,743,661	3,526,819	1,024,862	10,295,342
1991	9,021,522	4,007,531	1,163,985	14,193,038
1992	9,182,601	4,761,545	1,185,507	15,129,653
1993	10,089,068	5,819,102	1,306,021	17,214,191
1994	11,346,800	5,913,500	1,364,700	18,625,000
1995	11,685,773	4,908,736	1,420,926	18,015,435
1996	11,719,727	6,326,764	1,960,289	20,006,780
1997	12,008,608	6,700,132	1,543,058	20,251,798
1998 (est.)	12,100,000	5,920,000	1,580,000	19,600,000

\*Bus-stop, parking ramp and cable television franchise fees.