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## Property Services

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Three sections of the Minneapolis Public Works Department provide property services information. The Engineering Design section was the source of sewage discharge information; 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.

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**  
**Solid Waste**  
**Energy**



## Water and Sewerage Infrastructure

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

The amount of water consumption in 1998 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 1999 were \$1,257 per million gallons.

In 1998, water rates increased to \$1.43 per 100 cubic feet, and in 1999 to \$1.53 per 100 cubic feet. Sewer rate increases have been steady, while water rates did not increase between 1984 and 1991. Sewer rates for 1999 are \$2.67 per 100 cubic feet.

### Water Consumption and Quality

In 1998, 25.5 billion gallons of water were delivered to the Minneapolis distribution system and its suburban customers. About 20.25 billion gallons were used in Minneapolis. The following graph indicates the amount of water delivered to Minneapolis customers over the past 15 years.

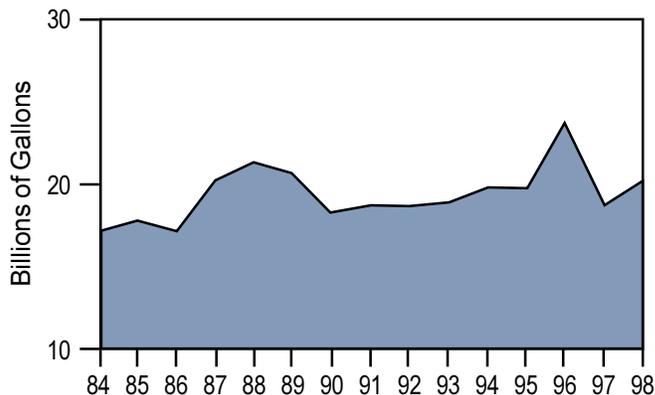
The quality of the city's water remains excellent. Currently, Minneapolis' drinking water is tested and monitored for over 100 regulated and unregulated substances. Every year, nearly 200,000 lab tests are conducted on Minneapolis water at the treatment plant and the distribution system. Tests indicate that water quality meets the standards set by the National Safe Drinking Water Act as well as all state and local requirements.

The city is committed to maintaining its excellent water quality standards. Minneapolis Water Works initiated the development of the Mississippi River Defense Network (RDN) and has been active in it for the past five years. RDN is a community-based spills prevention and response effort which is a collaboration among federal, state and local governments as well as individuals within the Upper Mississippi River communities who play important roles in spills response planning and management. The goal of the RDN is to prevent spills and to protect the Mississippi River from contamination. The RDN has developed a spill response plan which includes technical studies, education, and emergency management systems. In 1999, to assist in implementing the plan, the legislature appropriated \$250,000 to support the acquisition and distribution of spill response equipment and related personnel training. Coordinators of this effort in Minneapolis will also be conducting outreach efforts to industry representatives in an attempt to raise awareness about spills prevention and response.

In 1998, a consortium of state agencies and water utilities (of which Minneapolis Water Works is one) was awarded a Clean Water Partnership grant to protect

surface and ground water resources that are the source of water for communities along the Upper Mississippi River. This project is a collaborative approach to source water protection among approximately 30 community water suppliers who draw water from the Mississippi River. The current project emphasis is on the identification and compilation of water quality and hydrology data and contaminant threats. Eventually, source water protection plans will be prepared for each water supplier. A significant outreach and communication effort, focusing on land use management and source water protection practices, will be a large part of this project.

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



### Sewage Discharge and Treatment

Sewage discharge has remained under 71 million gallons per day since 1980. Average daily discharge for 1998 was 56.715 million gallons per day, a 7.17 percent decrease from the 1997 volume. This 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 sewage discharge by the City of Minneapolis over the past 20 years:

Year	Million Gallons	Million Gallons
	Per Year	Per Day
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	20,700	56.715
1999 (est.)	21,500	58.904

In 1999, the Metropolitan Council Environmental Services sewage conveyance and treatment charges dropped from \$1,350/million gallons to \$1,257/million gallons. This is only the third time in almost 20 years that charges have dropped. Despite the drop, the cost to treat sewage in 1999 is still more than 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 1999.

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	1,318	29.9
1998	1,350	28.7
1999	1,257	27.0

The city is mandated by the U.S. Environmental Protection Agency to improve the quality of its storm water runoff. Problems associated with the discharge of raw sewage into rivers and streams as a result of combined sanitary and storm sewers was alleviated with the completion of the sewer separation project in 1995. The city began separating storm sewers from sanitary sewers in the 1930s. As of the end of 1998, 99.6 percent of total acreage in Minneapolis drained to a storm drain which was separate from the sanitary sewer system. Discussions are continuing with Metropolitan Council Environmental Services regarding the best way to eliminate the few combined sewer overflow events that still occur in severe rainstorms.

In addition to the sewer separation project, the city coordinates other efforts to improve the quality of storm water runoff including street sweeping, installation of ponds and grit chambers, and educational efforts to raise people's awareness about storm water issues. This past year, the city has been developing a storm water ordinance, the purpose of which is to further improve storm water quality. The ordinance will likely be approved in late fall of 1999.

Aside from city efforts, non-point source pollution is also 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, Bassett Creek, Shingle Creek, and the Middle Mississippi River.

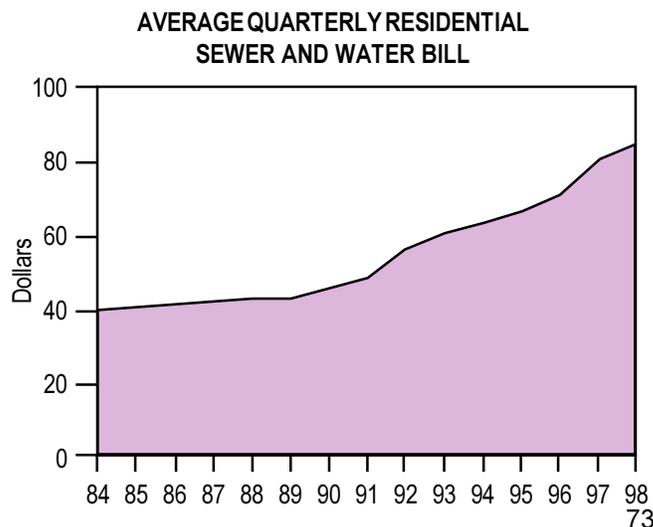
### Cost of Service

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 1999, the program was completed with 92 percent of the customers on automatic meters. Arrangements are being made to install automatic water meter readers on the majority of the remaining 8 percent. If the city's Utility Billing Department begins to charge a fee for manual meter reading, 98-99 percent of customers will be on automatic meters by 2001.

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 \$2.51 for 1998 and \$2.67 for 1999. Aside from the period from 1984-1991, water rate increases have been steady as well. The rate in 1998 was \$1.43; in 1999 the rate rose to \$1.53.

With the installation of automatic meters, the city began to convert from quarterly billing to monthly billing in 1995. As of August 1, 1999, 100 percent of households are billed monthly. The average monthly bill for 1999 is estimated at \$28.26. For comparison purposes with previous years, the average quarterly bill for 1999 (approximately \$84.78) is shown on the following graph.

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 1000-mile water distribution system ranges from fair to good. Water main breaks occur relatively infrequently. There were 36 water main breaks in 1998 and as of the end of October 1999 there have been 21 breaks. Some mains are severely restricted in their carrying capacity due to tuberculation (a build-up of materials on pipe walls). In order to address this problem, a program for cleaning and lining of small mains was implemented in 1996 and will continue for many years.

The overall condition of the sanitary sewers is generally good, although the age of the sewer infrastructure is a concern. Some areas in the system are over 100 years old. Often the need for repair exceeds the available resources. During 1998 there were ten segments of sewer that needed major repair and 9,000 feet of sewers relined. The goal of the current lining program is to completely line all cement sewers within the city. There are a total of 25 miles of cement pipe, 13 miles of which have been lined.

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

### MILES OF

Year	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
1998	829.4	504.6	31.3	23.2

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 1998, the Division provided service to 107,919 residential units, 444 municipal locations and 2,864 litter containers, collecting 155,619 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 from previous years without an increase in fees.

## Garbage Collection

In 1997, the Division collected 110,567 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
1998	5,309	1,667

### 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 21,871 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 1998, the Division collected 3,680 tons, an increase of 421 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. In 1998, approximately 292 tons of these items were collected.

### 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 1998, 20,537 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.

### Hazardous Waste

The collection of unwanted garden and household hazardous wastes in Minneapolis is coordinated through

the Hennepin County Department of Environmental Services. The County maintains two permanent collection sites and offers occasional mobile drop-off sites.

### 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
1998	517.3

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. In 1998 the number of general vouchers issued jumped to 11,291, largely due to the tremendous popularity of the program.

Other efforts include the collection of 1,692 tons of concrete and construction and paving materials, 313 tons of tires and 22 tons of household batteries. Also, the Division continued to maintain 2,864 public litter containers with regular collection schedules.

### Awards

The Solid Waste and Recycling Division continues to enjoy an impressive array of national recognition. In 1998, 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. In 1999, Minneapolis drivers placed first and second in the rear loader division and first place overall.

**MINNEAPOLIS RECYCLING AND SANITATION TONNAGE AND TIPPING FEES  
1982-1998**

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
1998	107,919	21,871	3,680	20,537	109,531	39.00	11,291

\*Construction and paving vouchers added in 1993.



# Energy

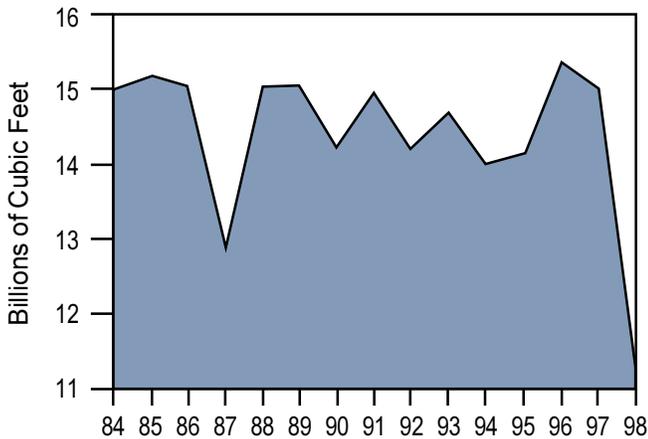
Natural gas and electricity are provided to residents by privately owned utilities. Residential natural gas consumption decreased 20 percent in 1998 due to warm weather. Residential electricity consumption was 1,244 million kilowatt hours in 1998, an increase of 2.3 percent from 1997 consumption. Franchise fees paid to the city were estimated at \$12.8 million for electricity and \$4.7 million for natural gas in 1999.

## Natural Gas Consumption

Residential natural gas consumption decreased by 20 percent in 1998 compared to 1997 due to warmer weather in 1998. For the first eight months of 1999, the average billing rate for the residential heating class decreased 3.5 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 1998, residential space heating used 11.285 billion cubic feet of natural gas. Natural gas consumption for residential non-space heating was .064 billion cubic feet. The residential heating average for the first eight months of 1999 was 14 percent warmer than normal.

**RESIDENTIAL NATURAL GAS CONSUMPTION  
1984 - 1998**



## Natural Gas Rates

The rate per million cubic feet (MCF) for the first eight months of 1999 was \$5.29, a decrease from \$5.48/MCF in 1998. Natural gas rates for the interruptible class in 1998 ranged from \$2.54-\$3.38/MCF. Average rates for the firm class ranged from \$5.23-\$6.12/MCF. The commercial-industrial rates varied greatly by consumption patterns and customer class.

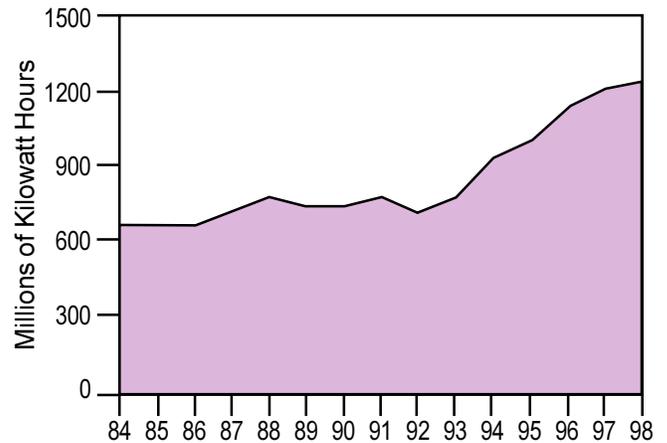
**AVERAGE RESIDENTIAL NATURAL GAS RATES  
PER MCF IN DOLLARS  
1980-1999  
(MCF = million cubic feet)**

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	13.6
1998	5.48	(9.9)
1999 (Jan.-Aug.)	5.29	(3.5)

## Electricity Consumption

In 1998, residential electricity consumption was 1,244 million kilowatt hours, an increase of 2.3 percent from 1997. During the first eight months of 1999, 883 million kilowatt hours were used. Since 1992, residential electrical consumption has increased by 348 million kilowatt hours, or 38.8 percent.

**RESIDENTIAL ELECTRICITY CONSUMPTION  
1984 - 1998**



## Revenue

Average NSP revenue for residential service has increased from \$64.4 million in 1992 to \$102 million in 1998. Revenue generated in residential sales per kilowatt hour has increased from 7.18 cents in 1992 to 8.20 cents in 1998. Revenues from commercial-industrial service have increased from \$175.5 million in 1992 to \$238.3 million in 1999, an increase of 35.8 percent. Average revenue per kilowatt hour (in cents) is shown in the table below.

### NSP REVENUE PER KILOWATT HOUR (IN CENTS) 1980-1999

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	8.20	0.7	5.44	2.0
1999 (Jan-Aug)	8.26	0.8	5.59	2.9

\*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	12,544,338	4,621,084	1,834,539	18,999,961
1999(est.)	12,810,000	4,700,000	1,890,000	19,400,000

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