

## Section 6: Utilities Element



### 6.1 Introduction

**U**tility systems are a necessity for public health, safety, and welfare and play a direct role in physical development and environmental quality. Modern water treatment and distribution, sanitary sewage collection and treatment, surface water management, and gas, electric, and communication services have become so dependable and available as to often be overlooked. Bloomington is currently well served by public and private utilities. For Bloomington to continue to grow and prosper, however, the City must take steps to keep the existing utility infrastructure up-to-date and to ensure the future availability of additional utility capacity.

It is the City of Bloomington's intent to work with public agencies and private utilities to provide high quality, highly dependable utility services while minimizing utility costs and the visual impacts of utility infrastructure through efficient design and operation and coordinated planning.



## 6.2 Water System



This section summarizes in-depth water system plans, which are included within the Comprehensive Plan by reference. These plans include:

- *Water System Master Plan*, prepared by Black and Veatch, 1998.
- *Public Water Supply Emergency and Conservation Plan*, prepared by the City of Bloomington, 1995.

### History

Before 1960, there was no public water system in Bloomington. Users extracted water from private wells. The shallow water table in the eastern portion of Bloomington contributed to a building boom that saw the City's population jump from around 10,000 in 1950 to over 50,000 in 1960. The new, mass-produced homes relied on a well for potable water and a septic tank/cesspool system for waste disposal. In most cases, the well consisted of a

length of pipe with a well point attached, driven into the shallow aquifer about twelve to fifteen feet below the surface, not far from the waste disposal systems. Within a few years, wastewater began to seep into the shallow aquifer, causing its water to be unfit for drinking.

After careful study, a referendum was held in 1959 and voters approved the installation of public water and sanitary sewer systems. In the spring of 1960, a rapid construction program was initiated. Approximately 100 miles of water and sanitary sewer piping were installed in the first year. Originally, water for the system was purchased from the City of Minneapolis and pumped during off-peak hours to reservoirs at 82nd Street and Penn Avenue. To diversify its supply, the City constructed four deep wells and a water treatment plant, which went into operation in 1974.

## Water Supply

Bloomington's current public water supply consists of two sources: groundwater and surface water.

Groundwater is provided by four deep wells located near Normandale Boulevard and Poplar Bridge Road which draw water from the Prairie du Chien-Jordan aquifer. Water from the wells is pumped directly to a nearby water treatment plant. The well water, high in quality but relatively hard, requires softening. The current firm capacity of the wells is 8.6 million gallons per day (mgd) slightly higher than the current 7 mgd capacity of the water treatment plant.

The surface water portion of the supply, purchased wholesale from the City of Minneapolis, consists of treated, lime-softened water drawn from the Mississippi River. Bloomington's agreement with Minneapolis allows the City to draw up to 30 mgd until the year 2017, at which time the contract is anticipated to be renegotiated.

Water in the distribution system is a blend of these two finished, potable waters. The annual average over the past ten years shows the Bloomington well supply contributing 65 percent of the total demand and the Minneapolis supply contributing the remaining 35 percent. Both supplies are stored and pumped from separate, isolated reservoirs into a common distribution system based upon demand.

In order to meet essential demands, increase reliability, increase flexibility (providing a true dual source of supply), reduce reliance on purchased water from Minneapolis, and gain greater control in meeting water quality goals, the City's *Water System*

*Master Plan* recommends adding wells and treatment capacity to increase the supply of treated groundwater to 14 mgd. This recommended improvement is consistent with the projected needs of the community based on growth in population and employment and would allow the City to meet essential demands (defined as average daily usage on an annual basis) should Bloomington lose the ability to draw water from Minneapolis.

The vast majority of Bloomington's water needs are met from the public supply, although some private wells do exist. Private groundwater use is regulated by the Minnesota Department of Natural Resources. The largest private use of groundwater in Bloomington comes from those industrial users who avoid treated water due to cost or chemical reasons. Private groundwater use raises several issues, such as aquifer recharge, proper metering and billing when discharged into the sanitary sewer system, and impact on surface water bodies when discharged into the storm sewer system.

## Water Treatment

Bloomington's water treatment plant, constructed in 1974, softens, clarifies, recarbonates, and filters groundwater prior to distribution. The plant reliably supplies 7 mgd of high-quality, softened water that continues to meet the requirements of the Safe Drinking Water Act. The City's *Water System Master Plan* recommends expanding the water treatment plant at its current location to a capacity of 14 mgd. In addition to a 24-hour a day, fully trained staff of operators, the plant includes a laboratory staffed by two chemists who monitor raw and finished

water quality, analyze storm water runoff, and monitor municipal lake and stream water quality. Microbiological and radiological testing is currently performed by a contract laboratory. Expansion of the City laboratory is recommended in conjunction with the water treatment plant expansion.

Lime softening residuals are a major by-product of the City's water treatment process. Lime is used as the principal softening agent to precipitate out calcium and magnesium ions. Disposal of lime softening residuals is an important consideration in the efficient operation of the plant. Although lime softening residuals are inert, their disposal is costly in economic and environmental terms. The by-product is currently transported by truck to the City's seven storage lagoons in the western industrial area, which have two years' storage capacity. At appropriate intervals, the lagoons are excavated and the lime softening residuals are transported to farm fields. There the residuals are incorporated into the earth as a United States Department of Agriculture approved liming material.



## Water Distribution System

The water distribution system is currently supplied from two sources: the City's wells and water treatment system and two connections to the Minneapolis distribution system. The water from Bloomington's treatment plant is stored in a 4 million gallon treated water reservoir and pumped to the distribution system. The water from Minneapolis is delivered to two-10 million gallon storage reservoirs located at 82nd Street

and Penn Avenue, then pumped to the distribution system on demand.

To achieve the pressure necessary to supply water throughout the city, the distribution system is divided into two pressure zones labeled as the "Normal Zone" and the "High Zone". The High Zone is supplied by pumping from the Normal Zone. In addition to water mains of various sizes, distribution infrastructure in the Normal Zone includes the 1.5 million gallon Valley View Water Tower at 401 E. 90th Street and the

3 million gallon Western Reservoir at 9921 Rich Road. The High Zone includes the 1.5 million gallon Northwest Water Tower at 7201 W. 83rd Street. *Figure 6.1* depicts Bloomington's water distribution system.

As a developed community, Bloomington's water distribution system is essentially complete. Bloomington's *Water System Master Plan* recommends several areas in which the distribution system should be upgraded to address fire flow and pressure deficiencies.

Figure 6.1  
11" by 17" map of distribution  
system and infrastructure

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## Water Demand

A water utility must be able to supply water at highly fluctuating levels of demand. Demand levels most important to the design and operation of a water system are average day, maximum day, and maximum hour. **Average day demand** is the annual volume of water supplied divided by the number of days in the year. This number is used for projecting peak demands and for developing probable supply, treatment, and pumping costs and revenue. **Maximum day demand** is the maximum quantity of water used on any day of the year. This number is used to size water supply, treatment, and distribution facilities. The greatest demands on a water system are generally experienced for short periods of time during the maximum demand day. These peak demands are referred to as **maximum hour demands** because they seldom extend over a period of more than a few hours. Pumping and storage requirements are usually determined on the basis of maximum hour demands.

Table 6.1 depicts recent historical water use rates as well as projected future demand. Bloomington's *Water System Master Plan* recommends construction of additional wells and expanded treatment capacity to meet future essential demands and to increase system reliability, flexibility, and overall water quality while optimizing the service life of the water treatment plant.

Water systems are typically designed to meet peak period demands. In Minnesota, water usage varies dramatically throughout the year. Peak periods invariably occur during the hotter and drier months of the summer. Figure 6.2 shows the impact of

**Table 6.1 Historical and Projected Water Demand**

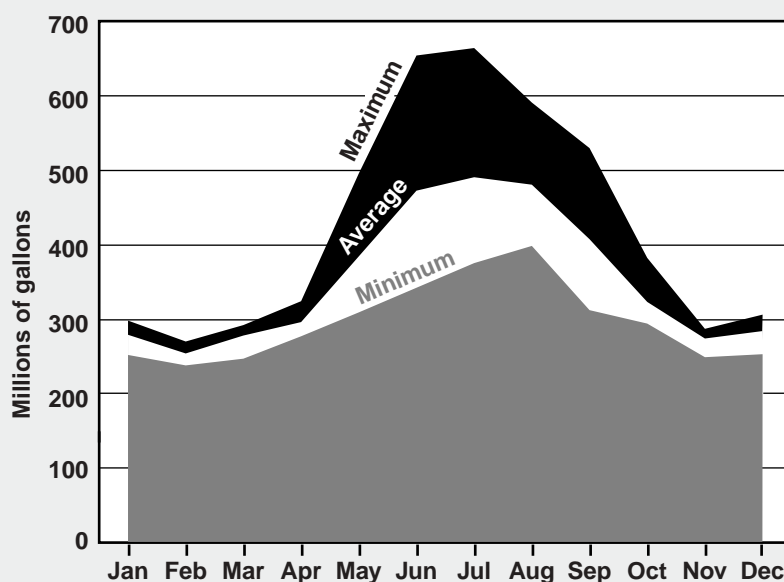
Year	Average Day (mgd)	Maximum Day (mgd)	Maximum Hour (mgd)
1993	10.24	20.09	38.11
1994	11.21	22.68	43.63
1995	11.68	28.08	44.38
1996	12.48	28.18	44.38
1997	11.95	29.65	48.00
1998	12.18	25.90	N/A
2000	12.57	34.72	59.23
2010	13.55	36.83	62.84
2020	14.00	37.87	64.61

Source: Bloomington Utilities Division (historical data) and Black and Veatch (projections).

the seasons on minimum, maximum, and average Bloomington water usage. One way the City attempts to defer or eliminate the need for capital improvements to the water system is to increase local water conservation efforts. Bloomington's *Public Water Supply Emergency and Conservation Plan* identifies several water conservation measures, including: metering;

water audit, leak detection, and repair programs; rate structures; regulations for plumbing fixtures; retrofitting programs; local ordinances; educational programs; and pressure reduction. Current measures include public education, metering upgrades, leak detection, and rate structures.

**Figure 6.2 Monthly Average Water Consumption, 1989 to 1998**



Source: Bloomington Utilities Division



## 6.3 Sanitary Sewer System



**T**his section summarizes the City's *Sanitary Sewer Policy Plan* (1998, Short Elliott Hendrickson), which is included within the Comprehensive Plan by reference.

### History

Before 1960, there was no public sanitary sewer system in Bloomington. Sewage treatment occurred on-site in septic tank cesspool systems. As the population and number of septic systems soared in the 1950s, wastewater began to seep into the shallow aquifer, causing its water to be unfit for drinking. After careful study, a referendum was held in 1959 and voters approved the installation of public water and sanitary sewer systems. In the spring of 1960, a rapid construction program was initiated. In the first year, approximately 100 miles of water and sanitary sewer piping were installed.

Originally, Bloomington's sewage was pumped north through

Richfield and Minneapolis and then treated on a contract basis by the Minneapolis-St. Paul Sanitary District. Sewage treatment in the metropolitan area was later taken over by the Metropolitan Waste Control Commission, now referred to as the Metropolitan Council Environmental Services (MCES). MCES owns and operates regional interceptor sewer lines and sewage treatment facilities while the City of Bloomington owns and maintains local sewer lines. The City maintains certain components of the regional interceptors as defined in a maintenance contract with MCES. Bloomington's sewage now flows southeast, under the Minnesota River near T.H. 77 to the Seneca Wastewater Treatment Plant in Eagan. The Seneca Plant, which also serves Burnsville, Eagan, Savage, and small portions of Apple Valley and Lakeville, was built in 1972, then expanded and upgraded in 1992 to a capacity of 34 million gallons per day (mgd). The original interceptor and

sewage lift station are still operational and act as a redundant system to the regional interceptor that flows south to the Seneca Plant.

## Collection Network

Almost 100 percent of Bloomington's current population is connected to the sanitary sewer collection system. Once entering the system, sewage flows by virtue of gravity and with the help of 28 lift stations that pump sewage to a higher elevation to keep it flowing. Bloomington's sewer lines range in diameter from six to 48 inches. *Figure 6.3* depicts the location of the sanitary sewer service districts, while *Figure 6.4* depicts sanitary sewer infrastructure.

As a fully developed city, Bloomington's sanitary sewer system is essentially complete. The system is relatively new and

is characterized by the latest engineering and construction techniques. Looking forward, major issues concerning the system include making improvements as necessary to accommodate future redevelopment; working with MCES to meet long-term treatment capacity needs; continuing efforts to identify the presence of inflow and infiltration; and performing preventative system maintenance.

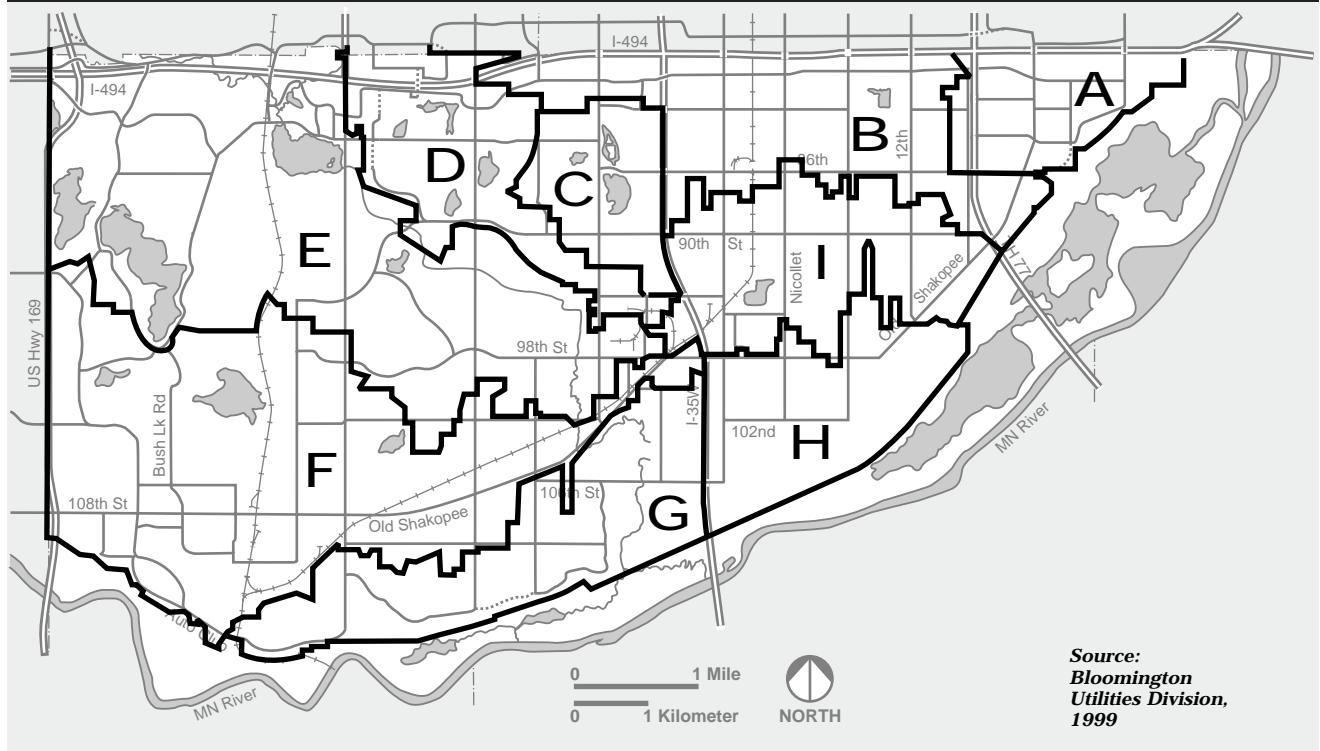
Of serious concern for any sanitary sewer system are infiltration, inflow, and blockage. Infiltration is the seepage of groundwater into sewer pipes through cracks or joints. Inflow is the entrance of clear water into the system from a single point such as a sump pump, foundation drain, or sewer access covers. Blockage occurs when pipes are clogged or obstructed by solids or tree roots. Infiltration and inflow increase the volume of sewage, thereby increasing treat-

ment costs and potentially requiring premature infrastructure improvements. Blockage must clearly be avoided for the system to work effectively.

In their management of the sanitary sewer collection network, the City's Public Works Department has initiated many preventative maintenance efforts to proactively avoid infiltration, inflow, and blockage. Efforts that occur on an on-going basis include: pipe cleaning; chemical and mechanical treatment to control tree root intrusion; sewer television inspection; main line repairs, service line repairs, lift station maintenance, and monitoring; changing castings and covers on manholes; and eliminating sump pump connections.

Sewer lines that serve a regional purpose are owned and operated by Metropolitan Council Environmental Services (MCES). As discussed in its *Water*

**Figure 6.3 Sanitary Sewer Districts**



Source:  
Bloomington  
Utilities Division,  
1999



**Table 6.2**  
**Current and Projected Average Daily Sanitary Sewer Flow**

Year	Residential (mgd)	Commercial/Industrial (mgd)	Average Daily (mgd)
1997	6.55	3.70	10.25
1998	6.61	3.78	10.39
1999	6.64	4.16	10.80
2000	6.65	4.27	10.92
2001	6.66	4.32	10.98
2005	6.70	4.56	11.26
2010	7.09	4.73	11.82
2015	7.15	4.76	11.91
2020	7.19	4.80	11.99

Source: Bloomington Utilities Division.

*Resources Management Policy Plan*, the Metropolitan Council proposes requiring cities to purchase MCES interceptor lines which it feels no longer have a regional role. This proposal includes one MCES line in Bloomington identified as 3-BN-499. This line serves portions of both Edina and Bloomington and runs across the city from its entrance point near the I-494/Highway 100 intersection to the intersection of 90th Street and 18th Avenue. This interceptor currently meets the criteria for

servicing a regional role and projected sewage flow increases in Edina will strengthen that role. The City of Bloomington expects the 3-BN-499 line to remain under MCES operation due to its regional role in serving portions of two communities and the fact that it does not meet the criteria for removal from the regional system as outlined in the *Water Resources Management Policy Plan*, (December 1996, p. 45).

## Demand

Bloomington currently generates sewage at an average level of over 10.0 million gallons per day (mgd). Commercial/industrial users generate approximately 36% of that flow while residential users generate 64%.

*Table 6.2* depicts current and projected future sanitary sewer flows as stated in the City's *Sanitary Sewer Policy Plan*. The projections reflect generation rates of near 75 gallons per day per resident and near 40 gallons per day per employee. Total flow is projected to increase 9.8% between 2000 and 2020. The projections and their methodology is described in greater detail within the *Sanitary Sewer Policy Plan*.

The *Sanitary Sewer Policy Plan* also includes detailed analysis of sewer infrastructure at the subdistrict level to identify improvements needed to accommodate anticipated growth and redevelopment. Based on that analysis, the plan makes several recommendations to maintain the capacity and integrity of the existing system to the year 2020.

Figure 6.4  
11" by 17" map of sanitary  
sewer infrastructure

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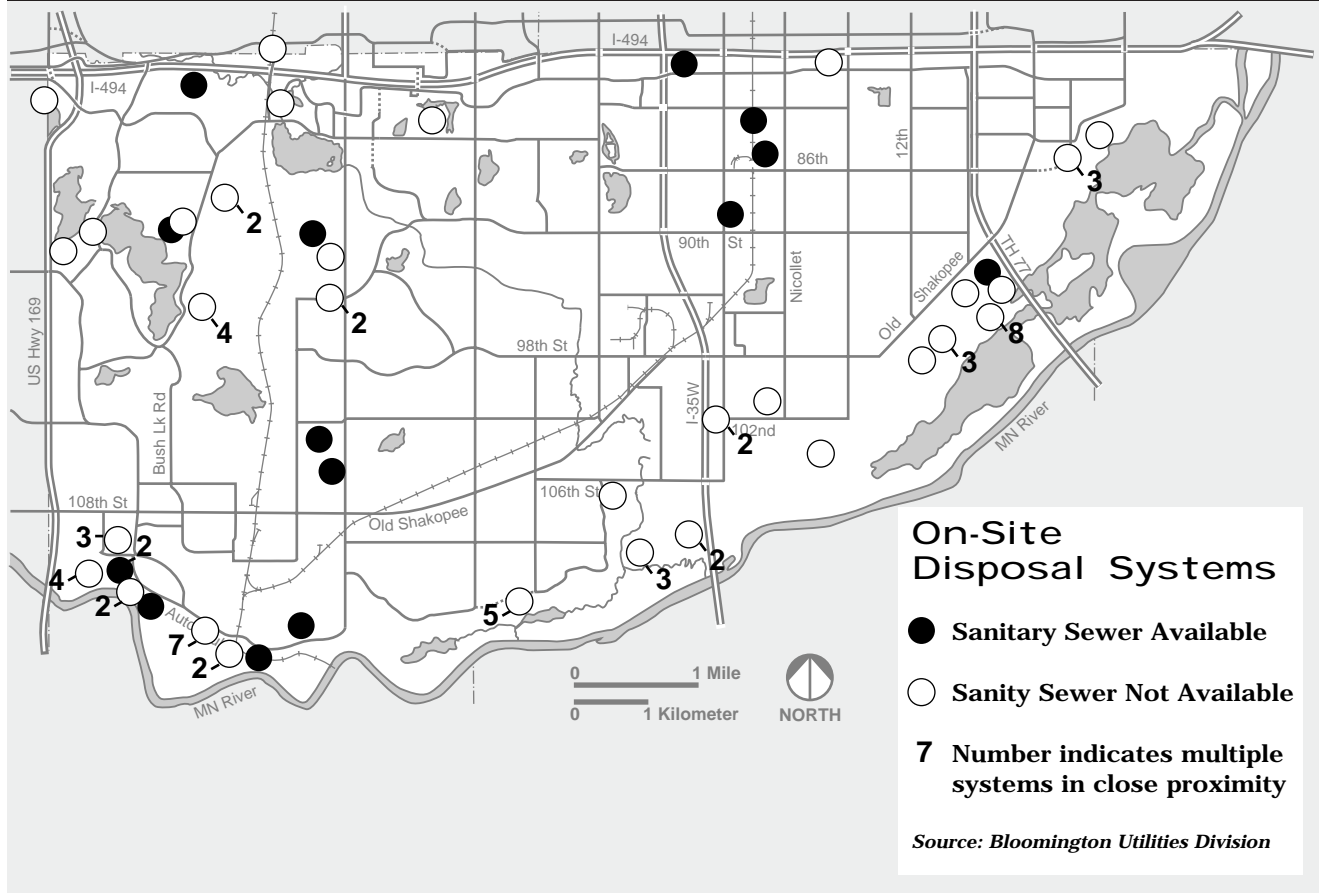
## On-Site Disposal Systems

As of 2000, it is estimated that 83 Bloomington properties continue to utilize individual on-site disposal systems. *Figure 6.5* depicts the location of active on-site disposal systems according to whether sanitary sewer access is available. Properties producing domestic or industrial wastes are required by City Code Section 11.26 (c) to connect to the public sewer system within two years of sewer availability. The City regulates the operation of on-site disposal systems in accordance with Minnesota Pollution Control Agency regulations. The Bloomington Environmental

Services Division is responsible for coordination and enforcement of on-site disposal system ordinances.

In accordance with Minnesota Rules Chapter 7080, the City will continue to implement a comprehensive management program for on-site disposal systems. The management program requires on-site disposal system owners to have their systems inspected and serviced at least every three years. The program includes a computerized notification and tracking system along with enforcement policies and procedures.

**Figure 6.5 Location of Active On-site Disposal Systems**





## 6.4 Surface Water Drainage System



This section summarizes the City's *Comprehensive Surface Water Management Plan* (1999, WSB, Inc.) and *Wetland Protection and Management Plan* (1997, City of Bloomington), which are included as part of the Comprehensive Plan by reference.

### The Need for Management

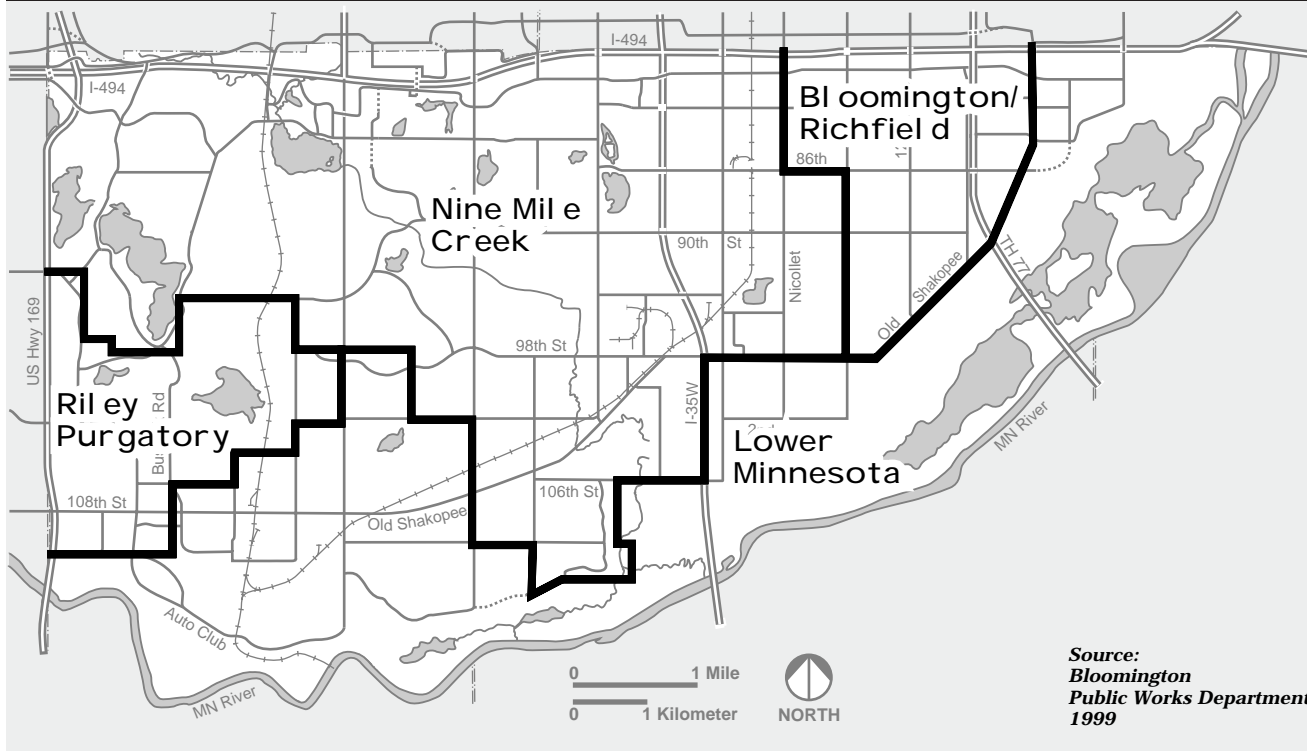
Urbanization alters the natural drainage patterns of rainfall and melting snow. Increased impervious surface area restricts water from entering the soil, which causes more water to exit a site faster than when it was vegetated. If not properly managed, the cumulative effect of this phenomenon leads to increased flooding potential. Urbanization also adds pollutants to draining water that can have negative effects on our water bodies and the life forms that depend on them.

To reduce flooding potential and improve water quality, the City of Bloomington has constructed a comprehensive surface water management system as development has occurred. This system relies on open drainage ways; drainage pipe; lift station pumps;

private and publicly constructed retention and detention ponds; and natural wetlands and water bodies. When possible, the City has used natural drainage ways and wetlands within this system. Using these natural systems benefits the City by lowering costs, improving water quality in lakes and streams, saving valuable wildlife habitat, and retaining the beauty of the natural environment.

Regulatory agencies, as well as the Metropolitan Council, share Bloomington's view on the importance of surface water management. The City follows the Metropolitan Council's *Interim Strategy to Reduce Non-Point Source Pollution* and has adopted the Minnesota Pollution Control Agency's *Protecting Water Quality in Urban Areas* policies commonly known as "Best Management Practices" (City Code Section 19.57). The City's *Comprehensive Surface Water Management Plan* and *Wetland Protection and Management Plan* discuss local methods to further joint goals and policies regarding surface water management while assessing problems and proposing corrective actions.

**Figure 6.6 Watershed Districts**



### Watershed Districts

In 1956, state law created and empowered Watershed Districts to work with cities and property owners to improve flood storage capacity and to protect water

quality and wetlands. As depicted in *Figure 6.6*, the City of Bloomington shares land area with three Watershed Districts and a Watershed Management Organization. These entities each have their own watershed management plans. Bloomington's

surface water plan is in accordance with the requirements of the individual watershed plans for the Bloomington area.



## 6.5 Private Utility Systems

In addition to water, sanitary sewer, and storm sewer service, development relies upon the availability of private utilities, notably electricity, natural gas, and communications. While local governments do not control the provision of these services, they do have limited regulatory authority over the location and design of the conveyance infrastructure. The City will facilitate the continued development of these private utilities while minimizing associated adverse impacts.

### Electricity

Electric service in Bloomington is provided by Northern States Power (NSP) through a complex network of facilities, the most visible of which include major transmission lines along the I-494 corridor and Park Avenue, four substations, and the coal-fired Black Dog power plant directly across the Minnesota River in Burnsville. (See Figure 6.7.) Within the next twenty years, several issues related to the existing electric infrastructure are expected to impact Bloomington.

Due to a federal runway protection zone for the planned north/south airport runway at the Minneapolis/St. Paul International Airport, the recently constructed substation at 7900 28th Avenue South will need to be relocated and the major overhead power lines will need to be placed underground. NSP also plans to significantly increase the size of this substation to accommodate anticipated growth in the Airport South District. If the expanded substation is relocated to a visible,



on-street site, it will need extensively screened through the use of attractive walls and landscaping. The underground portion of the line should also be extended to encompass the entire Airport South District from 34th Avenue to T.H. 77.

Systemwide, NSP projects demand to increase around 1.5% per year. Due to anticipated commercial redevelopment, forecasts for Bloomington are higher (2% to 2.5% growth in demand per year). To accommodate increased demand in Bloomington and the southeast metropolitan area, NSP plans to rebuild the 79th Street corridor transmission lines east of the Wilson substation at Nicollet Avenue and I-494 as a double circuit which will require the replacement of existing power line support structures along the line with larger, taller structures. NSP also plans to expand and improve the Wilson substation at Nicollet Avenue and 79th Street. Both the transmission line and the Wilson substation are high visibility locations. These projects will need to be completed in a manner

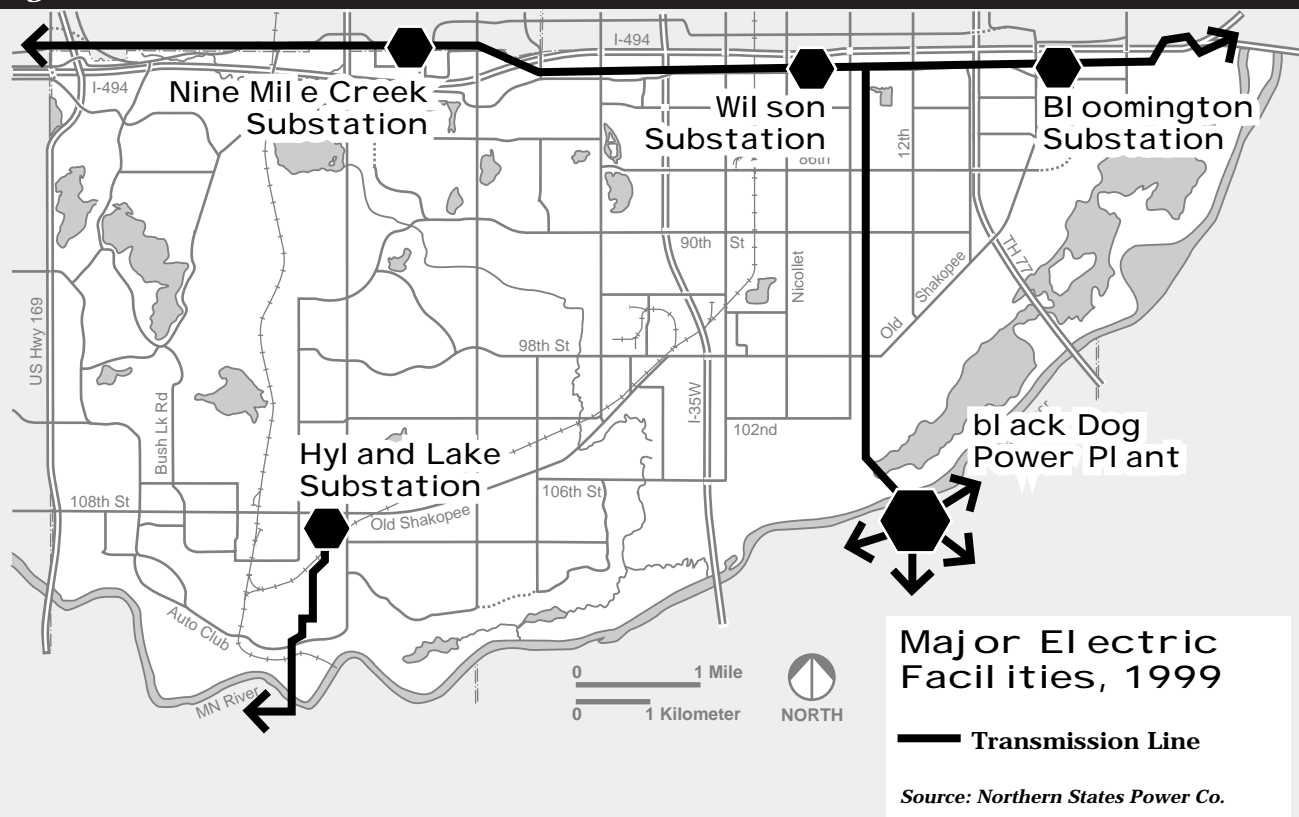
that minimizes negative impacts on surrounding property.

The electric industry may potentially be deregulated in the next five to 10 years, allowing several providers to sell electricity through the existing NSP infrastructure. While deregulation will have a major impact on electric providers and offer additional choices to the consumer, it should have little affect on the conveyance infrastructure in Bloomington. Deregulation may affect the future of the coal-fired Black Dog power plant in Burnsville, given its relatively high per unit production costs and the fact that is currently used primarily during peak demand periods.

### Natural Gas

Reliant Energy/Minnetgasco provides natural gas in Bloomington with 670 miles of distribution lines serving 29,000 metered homes and businesses. Bloomington is also home to high pressure transmission lines that convey natural gas from the south to customers throughout the western metropolitan area.

Figure 6.7



Reliant Energy/Minnegasco currently has no need for new transmission lines within Bloomington and no plans for major changes to the existing lines. Natural gas supply and demand is forecast to remain relatively stable over the next twenty years. While additional users will come on line as the region grows, overall demand should remain static through continued efficiency improvements and insulation methods. The natural gas industry will likely be deregulated in the next five to 10 years, allowing several providers to sell natural gas through the existing Reliant Energy/Minnegasco infrastructure. While deregulation will have a major impact on natural gas providers and offer additional choices to the consumer, it should have little effect on the overall conveyance infrastructure.

### Communications

The 1980s and 90s have been a time of great transition for the communications industry. In 1980, the industry was limited primarily to the land line telephone system and over the air television and radio. Since that time, many new technologies have come into fruition, including: cable and satellite television; two-way radio; paging; cellular and PCS phone service; fiber optic cable; and, even, satellite phone service. The rise of the Internet and high speed data transmission technologies has greatly increased the demand for additional communications services. Each of these new technologies requires its own infrastructure, such as communication towers, satellite dishes, or a grid of buried or above-ground cable. In order to increase competition, ensure the provision of desired technologies, or maximize

revenues, the Federal government, before auctioning blocks of available frequencies to the highest bidder, has overridden or limited the ability of local jurisdictions to regulate the infrastructure associated with many new communications technologies.

While the provision of advanced communications technology is important to the city's residents and businesses, and vital to the continued economic development of the city, the associated infrastructure can be aesthetically unattractive and present negative impacts to existing services. The City strives to encourage and facilitate the continued development of high quality communications infrastructure while minimizing any associated adverse impacts upon the community or upon the reliability of existing services that are often delivered via the public rights-of-way.



## 6.6 Goals, Policy Objectives, and Implementation Actions

### Utilities Goal 1

Dependably and affordably provide a high quality public water supply.

#### Policy Objective 1.1

**Expand Bloomington’s groundwater supply to 14 million gallons per day. An expansion of Bloomington’s ground water supply is necessary to ensure that essential demands are met in the event that the Minneapolis supply is lost, to increase system reliability, to increase flexibility by providing a true dual source of supply, to reduce reliance on the Minneapolis supply, and to gain greater control in meeting water quality goals.**

##### Implementation Actions

- Construct new wells to increase the City’s supply of groundwater.
- Expand the existing water treatment plant to a capacity of 14 million gallons per day.

#### Policy Objective 1.2

**Protect the quality and quantity of the groundwater supply.**

##### Implementation Actions

- Encourage continued development of a metropolitan groundwater model, as a tool to define aquifers and aquifer recharge areas and as a basis for aquifer protection and management.
- Construct new public water supply wells to meet Minnesota Department of Health wellhead protection requirements.
- Continue active enforcement of the State Well Code through the City’s Environmental Services Division.
- Continue to require that unused wells be sealed at the time of property transfer.
- Continue to track data on underground storage tanks and hazardous material spills within the city.

#### Policy Objective 1.3

**Maintain a secondary water supply to meet peak period demands and improve system reliability and flexibility.**

##### Implementation Action

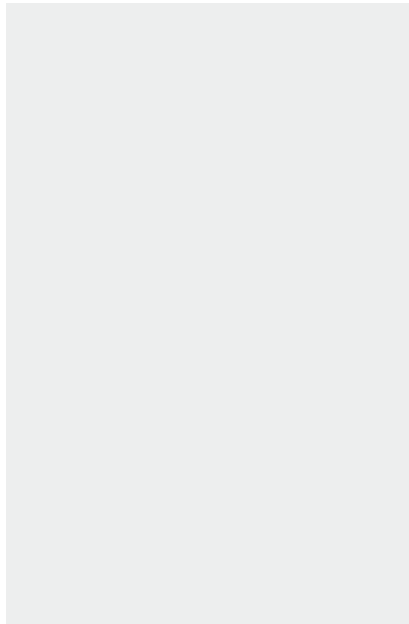
- Continue to implement the existing water purchase contract with the City of Minneapolis.

#### Policy Objective 1.4

**Reduce the need for disposal and storage of water treatment by-products.**

##### Implementation Actions

- Change the water treatment process, when feasible, to reduce the production of lime softening residuals.
- Develop lime softening residuals disposal alternatives including, but not limited to, the possible recycling of lime softening residuals for agricultural and/or industrial uses.



**Utilities  
Goal 2**

**Dependably and affordably convey sanitary sewage into the regional treatment system.**

**Policy Objective 1.5**

**Construct improvements to the water distribution system as necessary to meet area demands and to address any fire flow or pressure deficiencies.**

**Implementation Action**

- Improve the water distribution system as recommended in the *Water System Master Plan*.

**Policy Objective 1.6**

**Reduce per capita water demand.**

**Implementation Action**

- Explore water conservation measures outlined in the City's *Public Water Supply and Emergency Conservation Plan* to the extent deemed feasible and beneficial. Conservation measures include: metering; water audit, leak detection, and repair programs; rate structures; regulations for plumbing fixtures; retrofitting programs; local ordinances; educational programs; and pressure reduction.

**Policy Objective 2.1**

**Construct improvements to the sanitary sewer collection system as necessary to meet the increased demand resulting from continued growth and redevelopment.**

**Implementation Action**

- As warranted and in a cost effective manner, implement improvements to the sanitary sewer collection system that are recommended in the Sanitary Sewer Policy Plan.

**Policy Objective 2.2**

**Maintain an efficient and effective sanitary sewer collection system.**

**Implementation Actions**

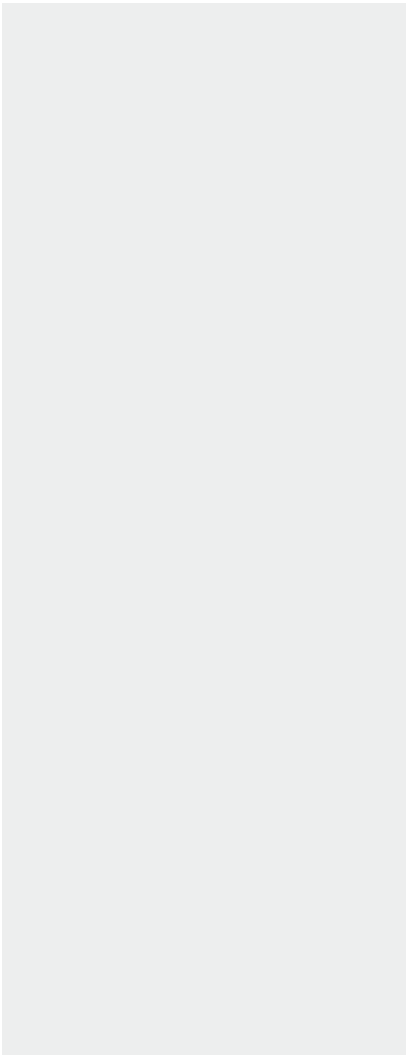
- Continue a phased sewer infrastructure replacement program.
- Continue the sanitary sewer preventative maintenance program.

**Policy Objective 2.3**

**Reduce per capita/per employee sanitary sewage generation rates.**

**Implementation Actions**

- Continue proactive efforts to reduce and eliminate infiltration and inflow.
- Implement water conservation measures outlined in the City's *Public Water Supply and Emergency Conservation Plan* to the extent deemed feasible and beneficial.



**Policy Objective 2.4**

**Reduce the number of on-site sewage disposal systems while ensuring that existing on-site systems are properly maintained.**

**Implementation Actions**

- Enforce City ordinances requiring connection to the public sanitary sewer system within two years of availability.
- Limit the establishment of new on-site disposal systems.
- Continue implementation of the City’s comprehensive management program for on-site disposal systems.

**Policy Objective 2.5**

**Work with Metropolitan Council Environmental Services (MCES) to ensure coordinated local and regional sanitary sewage conveyance and treatment.**

**Implementation Actions**

- Periodically review and evaluate sewer collection network capacity and treatment capacity in conjunction with MCES to ensure long-term viability of the system.
- Encourage proactive regional capital improvements planning to schedule long-term expansions to treatment facilities as necessary.
- Due to its regional role as defined by the Metropolitan Council’s *Water Resources Management Policy Plan* (December 1996, p. 45), request the MCES to remove the regional interceptor sewer line 3-BN-499 from the list of sewer lines to be reconveyed to local government.

**Utilities  
Goal 3**

**Ensure that the public and private surface water management system is constructed to economically meet community needs as development occurs.**

**Policy Objective 3.1**

**Limit the potential for flooding.**

**Implementation Actions**

- Hold new development runoff to pre-development runoff rates.
- Utilize existing natural ponding areas for the impoundment and treatment of surface water runoff, unless such use is not recommended by the *Wetland Protection and Management Plan*.
- Work with property owners to identify and implement economical solutions to minimize damage risks to existing structures in flood prone areas.
- For new structures, require a minimum of two feet of freeboard between the lowest structure opening and the water elevation of the 1% chance event.

## Policy Objective 3.2

**Maintain or improve the quality of water in area lakes, streams, and rivers.**

### Implementation Action

- Using the provisions outlined in the *Comprehensive Surface Water Management Plan*, require the pretreatment of storm water runoff to Nationwide Urban Runoff Program (NURP) recommendations in the design and construction of new, or modifications to existing, storm water conveyance systems.
- Require applicants to receive permits from the appropriate watershed district.
- Conform to the Metropolitan Council's *Interim Strategy to Reduce Nonpoint Source Pollution to all Metropolitan Water Bodies*.
- Continue to enforce the City's *Shore Area Protection Ordinance*.
- Continue implementing a comprehensive street sweeping program.
- Require the inclusion and maintenance of skimmers in new pond outlets while retrofitting skimmers in existing pond outlets where feasible and practical.
- Continue public education efforts on water quality issues. *Some important educational issues include lawn fertilizing, lawn waste management, pet waste disposal, and private parking lot sweeping.*
- Implement the *Wetland Protection and Management Plan's* Capital Improvement Plan as the Storm Water Utility budget allows.
- Implement a policy regarding the establishment of vegetated buffer zones around wetlands.
- Implement a fertilizer and pesticide management ordinance to restrict the use of chemical lawn treatments with high phosphorous content.
- Implement an invasive and exotic species vegetation control program for city maintained water bodies.

## Utilities Goal 4

**Work with NSP to accommodate Bloomington's electricity needs while mitigating adverse impacts.**

## Policy Objective 4.1

**Minimize the impact of electric infrastructure on surrounding land uses.**

### Implementation Actions

- Require new or expanded substations to be extensively screened and landscaped.
- Work towards the replacement of the existing overhead transmission line underground within the Airport South District from 34th Avenue to T.H. 77.
- Require existing local service electric distribution lines be placed underground whenever an adjacent arterial or collector street is reconstructed.
- Require new electric lines to be placed underground, if feasible.



**Utilities  
Goal 5**

**Work with Reliant Energy/Minnegasco to accommodate the city’s natural gas needs while mitigating adverse impacts.**

**Policy Objective 5.1**

**Monitor and review changes in high pressure natural gas transmission lines.**

**Policy Objective 5.2**

**Support efforts to conserve natural gas.**

**Policy Objective 5.3**

**Require natural gas control valves to be placed underground when technically feasible.**

**Utilities  
Goal 6**

**Encourage and facilitate the continued development of a high quality communications infrastructure while minimizing any associated adverse impacts upon the community or upon the reliability of existing services delivered via the public rights-of-way.**

**Policy Objective 6.1**

**Minimize the number of communication towers citywide.**

**Implementation Actions**

- Require antennas to be upon existing towers or structures such as buildings, water towers, or power line support structures when it is technically feasible to do so.
- Require new towers to be designed to accommodate multiple users.

**Policy Objective 6.2**

**Encourage communication towers be designed and located to minimize adverse impacts on the surrounding area.**

**Implementation Actions**

- Use zoning tools to encourage towers to locate first in industrial areas, then in commercial areas, and finally at public and quasi-public uses in residential areas.
- Regulate tower height based on the tower’s proximity to residential property.
- Encourage the use of stealth and camouflage techniques to reduce the visual impact of communication towers.

**Policy Objective 6.3**

**Transfer the costs associated with placing private communication infrastructure in the public rights-of-way away from the general taxpayer and onto the provider and user of the service.**

**Implementation Actions**

- Charge appropriate fees to providers placing communication infrastructure in public rights-of-way.
- Encourage coordination and communication between public and private utilities when placing utilities underground to identify collocation opportunities.

**Policy Objective 6.4**

**Recognize federally imposed limits on the regulation of communications infrastructure while working to keep those limits fair and equitable.**

**Implementation Action**

- Lobby the FCC and Congress to retain local zoning control over communications infrastructure.

**Policy Objective 6.5**

**Encourage new communications infrastructure be placed underground when it is technically feasible.**