ATTACHMENT A

Compendium – 2008 Comprehensive Plan Text Amendments

Throughout document – Replace "Airport South District" with "South Loop District"

Page 1.2 – Replace Table 1.1 with new table recalibrated to reflect 2010 Census data:

Table 1.1 Household, Population and Employment Forecasts

Year	Households	Population	Employment
2010	35,905	82,893	88,928
2020	38,283	86,892	105,467
2030	39,531	88,953	113,118

Page 2.9 – **Households** - *Revise first paragraph, last sentence:*

Bloomington forecasts average annual growth of ~~164~~ 181 residential units per year from 2010 to ~~through~~ 2030 (see ***Figure 2.2,*** *below*).

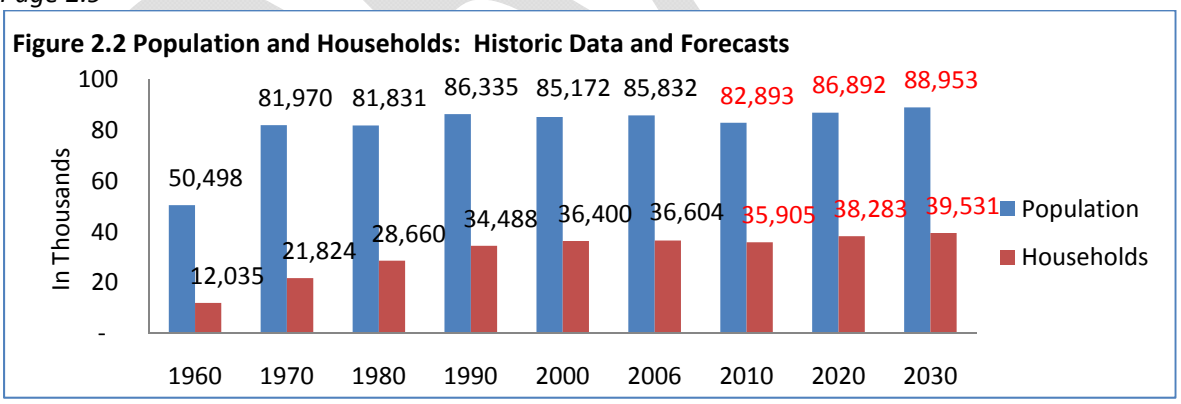
Page 2.9 (sidebar)

Table 2.4
Employment Forecasts

Year	Employment
2000	106,322
2006	94,245
2010	88,928
2020	105,467
2030	113,118

Page 2.9

Figure 2.2 Population and Households: Historic Data and Forecasts



Page 2.10 –**Section 2.4 Associated Land Use Plans** – *Add:*

South Loop District Plan

The *South Loop District Plan*, anticipated to be adopted by the end of 2012, covers the area of Bloomington east of TH 77 with a focus on the area north of East 86th Street. The plan outlines a strategy to transform South Loop from a dispersed, suburban commercial area into a walkable, mixed use urban neighborhood. The primary goals of the *South Loop District Plan* include:

Build on the District's unique mix of assets including: LRT and bus transit, proximity to MSP International Airport, adjacency and convenient access to the Minnesota Valley National Wildlife Refuge, Mall of America and Bloomington Central Station developments, available sites for development.

Mitigate the Districts disadvantages including: aircraft noise, airport zoning restrictions, and access limitations due to freeways and the river valley surrounding the district.

Transform the District's density and character by promoting a mix of land uses based on Transit-Oriented Design (TOD) and sustainable development strategies; creating a hierarchy of complete streets to increase connectivity, accessibility and movement; establishing a safe and interconnected network of parks, trails, and sidewalks; and enhancing place-making through design of public and private spaces.

Accelerate the District's development through strategic public investments that foster place-making and leverage private investments; promotion and branding of the District; and proactive marketing of publicly-owned development sites.

Create a sustainable district through promotion of energy conservation and low-impacts site design techniques; exploring district-scale alternative energy systems; use of intelligent transportation technology (ITS) to maximize the efficiency and capacity of the street network; implementing a district shared parking strategy; expanding housing choices; preserving and enhancing existing residential neighborhoods; and protecting natural and cultural resources.

p. 2.10 – Revise text as follows:

Future District Plans

In the future, the Comprehensive Plan is anticipated to be amended to add reference to additional District Plans prepared to coordinate land use, transportation and renewal efforts. ~~Two district plans currently being prepared include the *Penn/American District Plan* and the *Airport South District Plan*.~~ Currently, one district plan– the *Penn/American District Plan* – is being prepared and is anticipated to be completed in 2013.

Page 2.17 **Section 2.6 Future Land Use** - *Delete:*

~~**Airport South Mixed Use**~~
~~This designation works together with the HX-R Zoning District to foster a mixture of intense, employment oriented, tourist oriented, residential and support uses in areas with excellent transit service. The mixed use vision for this area is implemented through the HX-R standards that require residential uses to be included, set minimum development intensities and restrict surface parking.~~

Page 2.17 **Section 2.6 Future Land Use** - *Add:*

South Loop Mixed Use
This designation is intended to foster a mix of office, hospitality, and supportive service and retail uses integrated with higher density residential development in areas with excellent transit service. To establish a true mixed-use, transit-oriented neighborhood, all development projects must include a residential component when required by the underlying zoning, achieve

minimum development intensities, and minimize surface parking. Projects are also expected to incorporate pedestrian enhancements that provide for connections to public transit, public and private outdoor spaces.

Lindau Mixed Use

This designation provides for an integrated mix of commercial and hospitality uses located in a pedestrian-scaled environment along Lindau Link. This area is envisioned as the central core of activity connecting South Loop's predominant development anchors: Mall of America and Bloomington Central Station. A mix of office, hotel, restaurant, and retail land uses should be integrated horizontally (side-by-side) and/or vertically (one use located above another) along Lindau Link. Emphasis will be placed on creating pedestrian-oriented activity at the street level, convenient access to public transit, and attractive public and private outdoor spaces. On-street parking and shared parking arrangements are encouraged.

Innovation and Technology

This designation provides for a flexible mix of office, research and development, and high-tech manufacturing and assembly uses. Medical laboratories and hotels are also appropriate uses. Development may include service and retail businesses when allowed in the underlying zoning district. This designation is intended to foster a diversity of employment opportunities in a setting with high quality and sustainable site and building design and excellent accessibility.

Page 2.18 – Replace existing table with table below:

Table 2.6 Guide Plan Designations, 2008 Comprehensive Plan Update

Designation (Estimated Employees/Acre)	Acres	Percent	Estimated Residential		Residential Density Range in Units/Acre	
			Percent	Acres	Min	Max
Low Density Residential	7,231	29.2	100	7,231	0	5
Medium Density Residential	710	2.9	100	710	5	10
High Density Residential	859	3.5	100	859	10	No limit
Public	1,728	7.0	0	0	NA	NA
Quasi-Public	608	2.5	0	0	NA	NA
Conservation	4,755	19.2	0	0	NA	NA
Water	2,000	8.1	0	0	NA	NA
Office (82)	540	2.2	0	0	0	60
General Business (33)	167	0.7	0	0	0	83
Community Commercial (33)	281	1.1	0	0	0	83
Regional Commercial (33)	201	0.8	0	0	0	83
High Intensity Mixed Use (100)	123	0.5	0	0	0	60
South Loop Mixed Use (100)	110	0.4	3.4	4	30	131
Innovation & Technology	115	0.5	0	0	NA	NA
Lindau Mixed Use	35	0.1	0	0	NA	NA
Industrial (30)	1,071	4.3	0	0	NA	NA
Right-of-Way	4,214	17.0	0	0	NA	NA

Source: Bloomington Planning Division, 2012

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Page 3.2 – Update **Figure 3.1 Housing Units, 1960 – 2030**

2010 – Total Units (37,641); [25,007 Single-units & 12,634 Multi-units]
2020 – Total Units (38,631); [25,007 Single-units & 13,624 Multi-units]
2030 – Total Units (39,431); [25,007 Single-units & 14,424 Multi-units]

Page 3.7 – Update **Table 3.6** *in sidebar:*

Table 3.6 Household Forecasts

Year	Households
2006	36,604
2010	35,905
2020	38,283
2030	39,531

Source: Bloomington Planning Division & U.S. Census Bureau

Page 4.19 – **Figure 4.7 Land Use – Transit Relationship** – *revise to update existing LRT stations (see attached mark-up)*

Page 4.33 – Recalibrate **Table 4.2** *to reflect 2010 Census data and revised forecasts in South Loop (see next page)*

Page 4.35 – Add to Figure 4.14 – P-18: I-494 and East Bush Lake Road (CSAH 28) – Construct westbound ramp.

Page 4.51 – **Section 4.6 Airport South District**

- Change to: Section 4.6 South Loop District
- Revise first paragraph, last sentence as follows:

Bloomington has a history of planning for the ~~Airport South District~~ South Loop District that is being carried forward ~~in 2008 and 2009~~ with the preparation of a~~n *Airport South District*~~ *South Loop District Plan* and an update of the *Alternative Urban Areawide Review* (AUAR) that applies to the district.

- Revise fourth paragraph as follows:

Bloomington has amended its official controls to require the inclusion of dense residential uses near two LRT stations (BCS Station and American Boulevard Station). ~~263 units at an average of 91 units per acre have been added since LRT opened.~~ Since LRT opened, 263 units have been added at an average density of 91 units per acre. Bloomington forecasts close to ~~1,500~~ 1,790 additional high density units in the ~~Airport~~ South Loop District between 2009 and 2030.

- Replace "Goal #6" with "Goal #5" in the last paragraph.

Page 4.55 – **Strategy 2.3** – *delete the first bullet, which reads "Complete the planned addition of a Hiawatha LRT station at American Boulevard" (completed in 2010).*

Page 4.59 – **Strategy 5.2** – *delete last two bullets, which read "Complete the planned addition of a Hiawatha LRT station at 34th Avenue and American Boulevard" and "Implement plans for Hiawatha LRT stations that can accommodate LRT trains of three car lengths" (completed in 2010-11).*

Page A4.4 **Section A4 Transportation Appendix**

- Revise P-15: I-494 and 34th Ave. – Reconstruct as ~~folded~~ diverging diamond interchange ~~(to west)~~.
- Add - P-18: I-494 and East Bush Lake Road (CSAH 28) – Construct westbound ramp.

Table 4.2 Households, Population and Employment Forecasts

	Households**				Population**				Employment***			
TAZ	2006	2010	2020	2030	2006	2010	2020	2030	2006	2010	2020	2030
471	142	137	281	568	324	309	546	1,020	3,313	2,725	3,102	3,127
472	249	241	1,045	1,524	446	426	1,752	2,542	7,903	6,296	9,622	13,489
473	689	666	666	666	1,351	1,290	1,290	1,290	16,189	21,925	27,666	28,177
474	923	892	892	892	2,047	1,955	1,955	1,955	1,741	1,432	1,432	1,557
475	1,087	1,051	1,051	1,051	2,507	2,395	2,395	2,395	343	282	282	282
476	969	937	949	949	2,221	2,121	2,152	2,152	79	65	65	65
477	2,247	2,361	2,369	2,369	5,325	5,446	5,458	5,458	1,317	1,083	1,083	1,083
478	1,072	1,236	1,236	1,236	2,860	3,057	3,057	3,057	-	-	-	-
479	806	790	790	934	1,952	1,891	1,891	2,128	-	-	-	-
480	743	718	718	718	1,981	1,892	1,892	1,892	-	-	-	-
481	845	817	817	817	1,949	1,862	1,862	1,862	1,919	1,578	1,578	1,703
482	270	261	261	261	713	681	681	681	743	641	734	734
483	74	72	72	55	199	190	190	146	2,661	2,189	2,189	2,541
484	173	167	167	167	427	408	408	408	907	839	839	964
485	857	828	876	876	2,052	1,960	2,039	2,039	307	253	253	253
486	767	741	741	741	1,695	1,619	1,619	1,619	4,781	3,932	3,932	3,932
487	1,068	1,079	1,079	1,103	2,121	2,101	2,101	2,140	2,031	1,671	1,671	1,671
488	206	199	321	345	497	475	475	514	1,874	1,647	2,016	2,640
489	1,404	1,357	1,357	1,367	3,038	2,902	3,139	3,165	280	230	230	230
490	1,073	1,037	1,037	1,037	2,882	2,753	2,753	2,753	-	-	-	-
491	2,308	2,231	2,331	2,427	5,725	5,468	5,641	5,799	365	300	300	300
492	2,175	2,103	2,103	2,103	4,867	4,649	4,649	4,649	1,542	1,268	1,268	1,268
493	1,756	1,701	1,708	1,909	4,134	3,958	3,976	4,318	146	201	201	201
494	967	935	935	935	2,255	2,154	2,154	2,154	-	-	-	-
495	589	569	569	569	1,560	1,490	1,490	1,490	74	61	61	61
496	36	35	35	35	67	64	64	64	5,115	4,482	4,835	4,835
497	216	209	209	209	507	484	484	484	4,039	3,322	3,322	3,322
498	606	586	586	586	1,624	1,551	1,551	1,551	428	352	352	352
499	201	194	484	484	359	343	821	821	3,981	3,177	4,372	4,645
500	-	-	-	-	-	-	-	-	7,245	5,959	5,959	6,084
501	1,590	1,625	1,625	1,625	4,075	4,035	4,035	4,035	1,815	1,493	1,493	1,493
502	630	609	879	879	1,357	1,296	1,741	1,741	3,105	2,425	2,425	3,046
503	1,004	971	971	971	2,403	2,295	2,295	2,295	-	-	-	-
504	110	106	106	106	217	207	207	207	7,800	8,084	10,209	11,074
505	1,669	1,613	1,633	1,633	3,908	3,733	3,784	3,784	275	226	226	226
506	965	933	933	933	2,345	2,240	2,240	2,240	-	-	-	-
507	1,656	1,601	1,601	1,601	3,736	3,568	3,568	3,568	-	-	-	-
508	697	674	674	674	1,422	1,358	1,358	1,358	96	79	79	79
509	1,186	1,147	1,147	1,147	2,848	2,720	2,720	2,720	376	309	309	309
510	1,272	1,212	1,765	1,765	2,741	2,588	3,501	3,501	4,467	3,871	3,871	3,871
511	1,267	1,225	1,225	1,225	2,990	2,856	2,856	2,856	184	151	151	151
512*	-	-	-	-	-	-	-	-	200	165	165	165
517*	-	-	-	-	-	-	-	-	1,352	1,898	4,107	4,120
534*	-	-	-	-	-	-	-	-	2,306	1,897	1,897	1,897
535*	2	2	2	2	5	5	5	5	2,305	1,896	2,648	2,648
537*	1	1	1	1	3	3	3	3	-	-	-	-
541*	36	35	35	35	97	93	93	93	132	109	109	109
542*	-	-	-	-	-	-	-	-	507	417	417	417
Citywide	36,604	35,905	38,283	39,531	85,832	82,893	86,892	88,953	94,245	88,928	105,467	113,118

Notes:

*TAZ is split between multiple jurisdictions.

** 2010 TAZ Households and Population were reduced by 3.3% and 4.5% respectively to reflect the difference between the 2010 forecast in the 2008 Comprehensive Plan and 2010 U.S. Census count.

2020 & 2030 forecasts were adjusted for the 2010 difference; however, the South Loop District TAZ's (471, 472, and 473) forecasts were also adjusted based on the District Plan growth projections.

*** 2010 TAZ Employment was reduced by 17.75% to reflect the difference between the 2010 forecast and the 2010 MnDEED count plus three percent. MnDEED estimates that 97 percent of all jobs are covered by unemployment insurance (including the self-employed, insurance and real estate salespeople, and others who work only on a commission basis). Therefore, the number of covered employees, as calculated by MnDEED, is adjusted by a factor of three percent to account for Bloomington employees who are not covered by unemployment insurance. The statewide three percent adjustment is used because the actual percentage of Bloomington employees not covered by unemployment insurance is not known. 2020 & 2030 forecasts were adjusted for the 2010 difference; however, the South Loop District TAZ's (471, 472, and 473) forecasts were also adjusted based on the District Plan growth projections.

Page 6.5 – **Section 6.1 Water System** – *revisions to Table 6.1 (see attached mark-up)*

Pages 6.7 through 6.13 **Section 6.2 Sanitary Sewer System** – *miscellaneous revisions (see attached mark-up)*

Page 6.19 –**Sec. 6.4 Private Utilities** - *Add:*

District Energy

District energy systems produce heating or cooling in a centralized location which is then distributed to multiple users or buildings. District energy systems provide higher efficiencies and emit less pollution than dispersed heating and cooling systems. Cogeneration, a form of district energy, utilizes waste energy from the electricity generation process to fuel district energy systems.

The City is currently evaluating the feasibilbility and cost-effectiveness of developing a district energy system to serve South Loop. Implementation will require coordination and partnering with multiple parties such as Centerpoint Energy, Xcel Energy, MAC, local businesses, and others. If a decision is made to build a district energy system in South Loop, investment should be made before significant development occurs to allow maximum flexibility in locating the system infrastructure.

Page 6.21 – **Goal 2, Strategy 2.1** – *delete first bullet, which reads "Finalize implementation of the three remaining recommendations from the 1998 Sanitary Sewer Policy Plan".*

Page 7.3 - **Figure 7.1 Parks, Arts and Recreation Facilities** – *revise map to add note: "Consult South Loop District Plan for area's details." (see attached mark-up)*

Page 8.2 – Revise **Table 8.1 Bloomington Zoning Districts –** delete and add as follows:

Zoning District		Density/Intensity Min	Density/Intensity Max	Lot Size Min
~~CX-2~~	~~Mixed use district for the Mall of America Phase I site~~	~~NA~~	~~2.0 FAR~~	~~NA~~
~~HX-2~~	~~Mixed use district for the Mall of America Phase II site~~	~~NA~~	~~2.0 FAR~~	~~20 acres~~
CX-2	Mixed use district for the Mall of America sites	NA	2.0 FAR	150,000 s.f.
UX	Urban mixed use district	0.7 FAR	2.0 FAR	NA
IT	Innovation and technology	0.4 FAR	1.5 FAR	80,000 s.f.

Page 8.3 - **Figure 8.1 Bloomington Zoning Map** – *revise zoning map to reflect current zoning and add note: "Consult South Loop District Plan for details on proposed zoning." (See attached mark-up)*

Transit Support

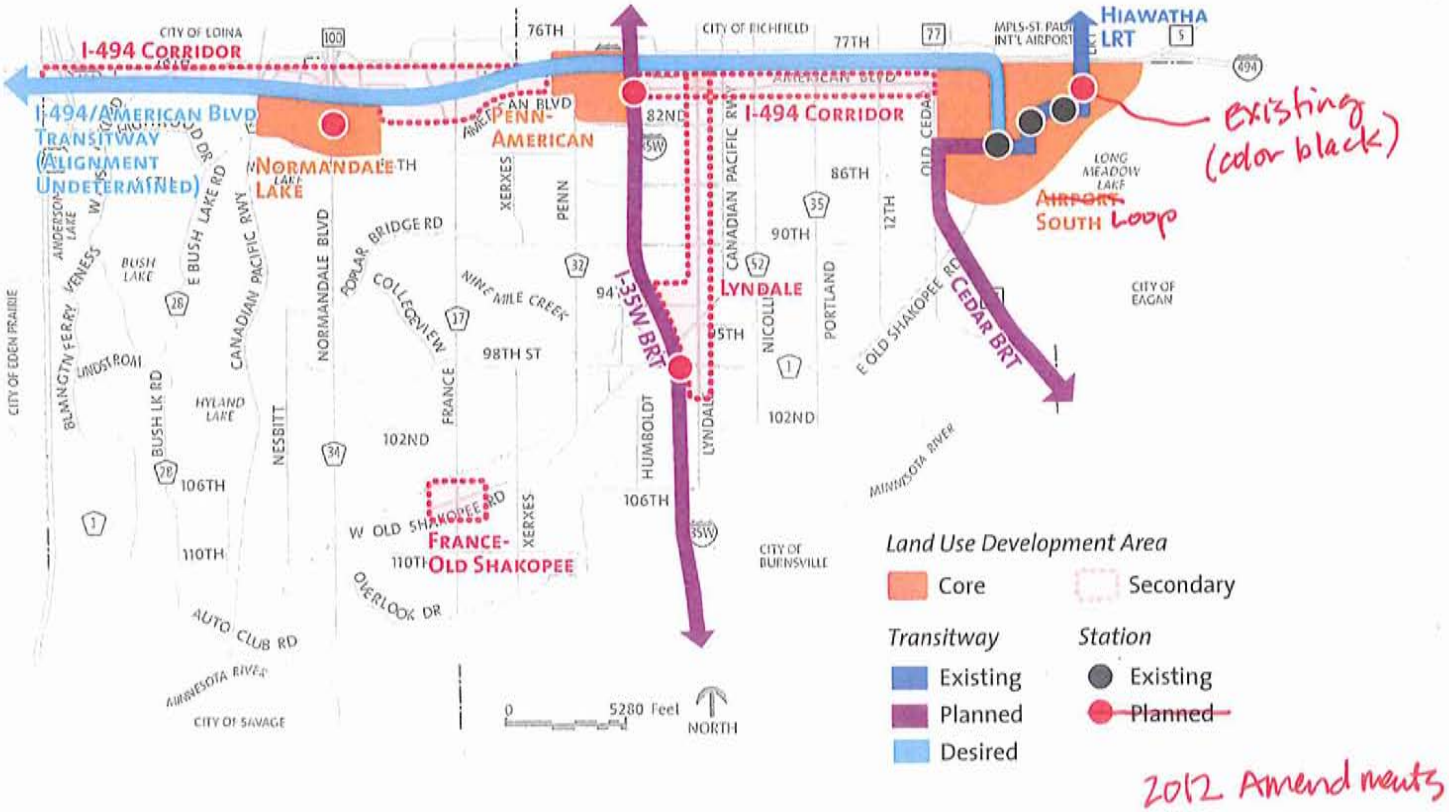
To do its part in supporting a quality transit system, Bloomington will:

- Focus additional development and redevelopment in locations that are easily served by high quality transit (see ***Figure 4.7**, below*).
- Provide quality infrastructure connections between transit stops and origins/destinations.
- Use official controls where appropriate to require new development to be transit-friendly (reduced setbacks, streetside entrances, on-site sidewalks, transit shelter easements, pedestrian ways separated from drive aisles).
- Continue to evaluate its TDM policies and practices, including transit components, to determine effectiveness, react to new opportunities and lead the region in innovative practices.
- Create a citywide bikeway system that improves access to transit.

Transit Success

The success of a transit route is heavily dependent upon the land use and density along the route as well as the availability of connections between the transit stop and the destination. While transit providers control route locations and service characteristics, cities control land use, density and the infrastructure connecting transit stops and destinations.

Figure 4.7 Land Use – Transit Relationships



Source: Bloomington Planning Division, 2008.

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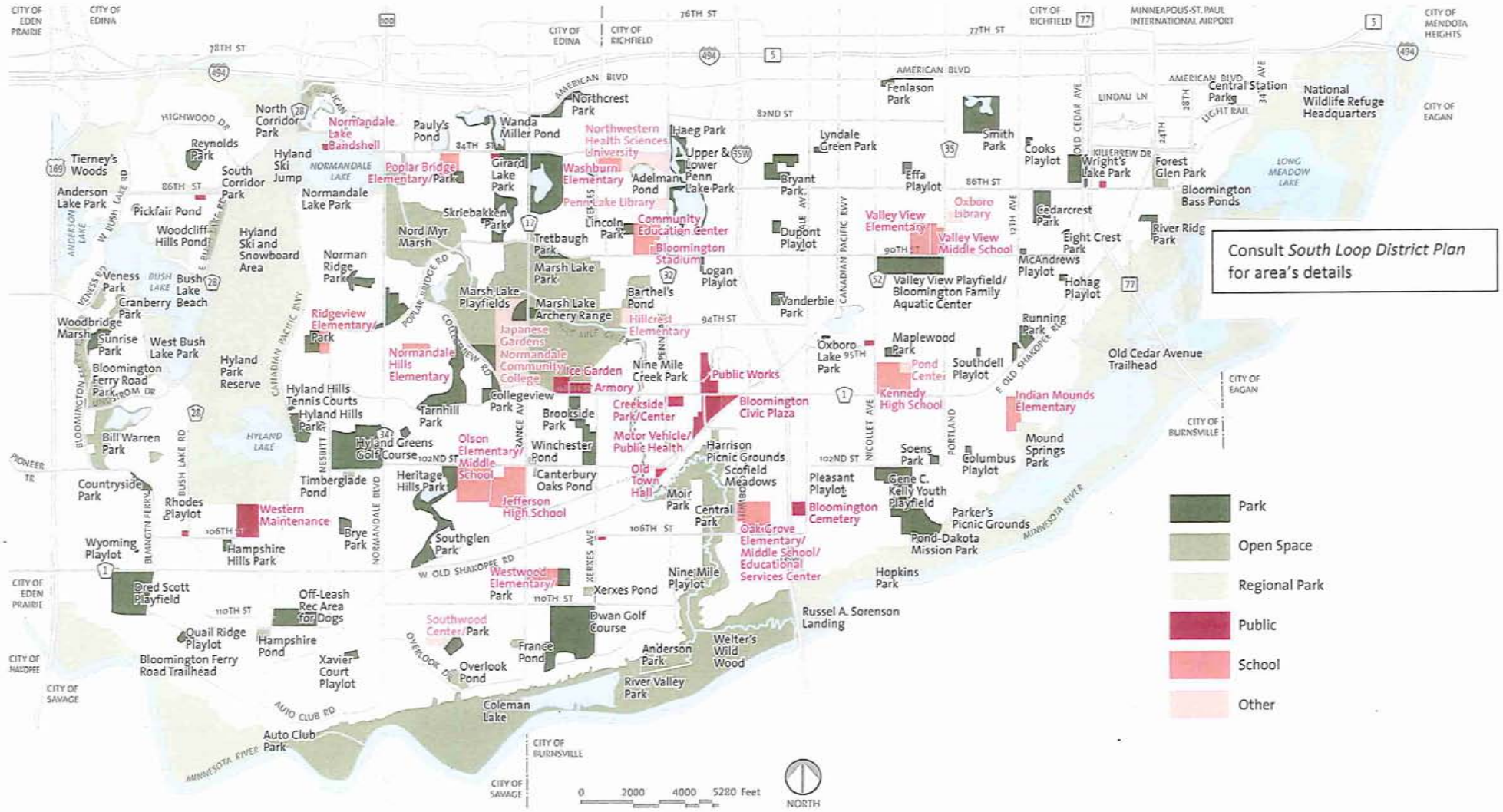
Figure 7.1 Parks, Arts and Recreation Facilities



Source: Bloomington Parks and Recreation Division.

2012 Amendments

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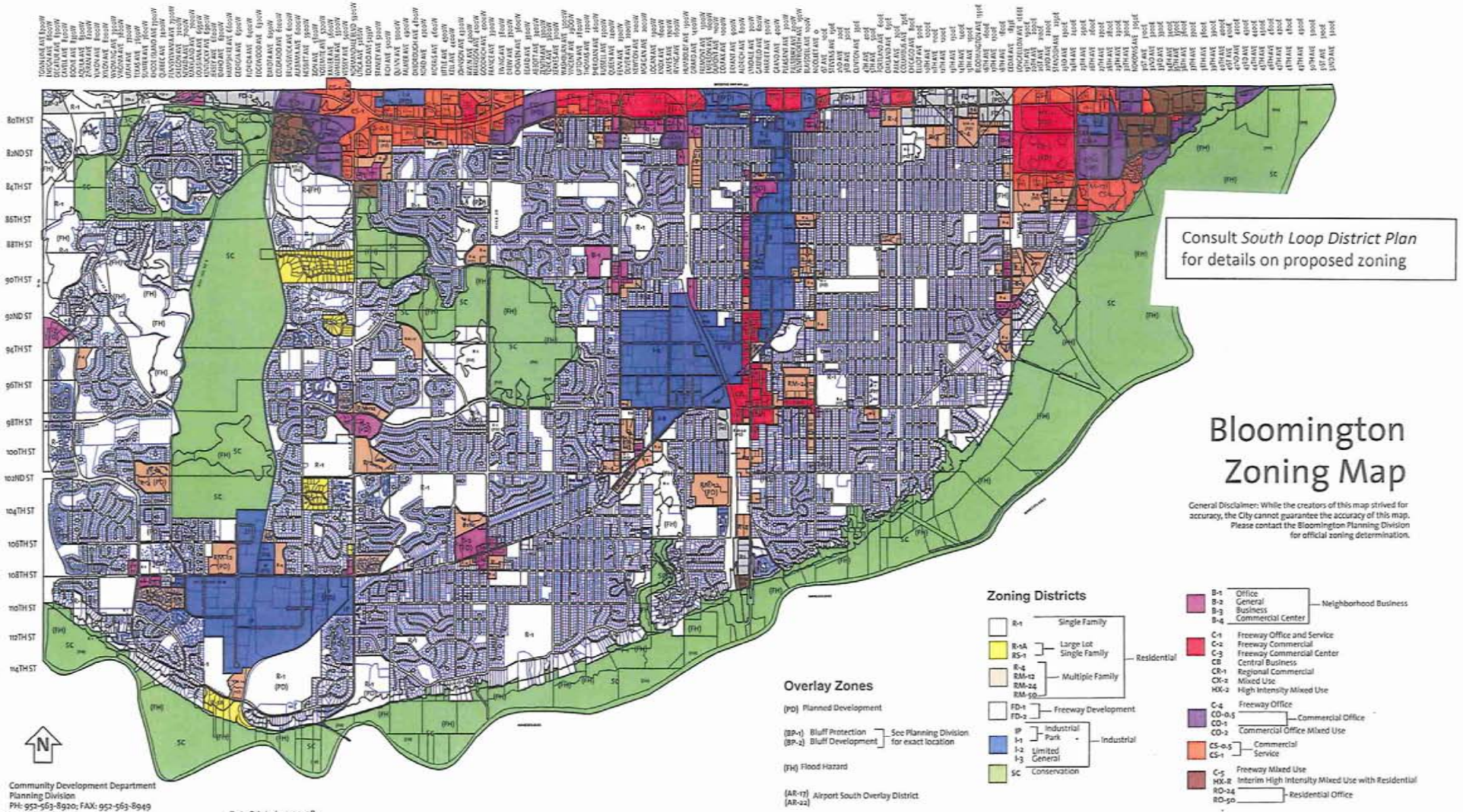
Figure 8.1 Bloomington Zoning Map



2012 Amendments

Water Distribution System

Bloomington's water distribution system is supplied from the City's wells and water treatment system as well as 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 West 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 located at 401 East 90th Street and the 3 million gallon Western Reservoir located at 9921 Rich Road. The High Zone includes the 1.5 million gallon Northwest Water Tower located at 7201 West 83rd Street. ***Figure 6.1**, page 6.3,* depicts Bloomington's water distribution system. Total storage capacity is roughly 30 million gallons, slightly over twice the average daily demand.

As a developed community, Bloomington's water distribution system is essentially complete. In 1998, Bloomington's *Water System Master Plan* recommended several areas in which the distribution system should be upgraded to address water pressure deficiencies.

Table 6.1 Historical and Projected Water Demand

Year	Average Day (MGD)	Maximum Day (MGD)	Maximum Hour (MGD)
2007	13.3	36.2	61.5
2008	13.4	36.4	61.9
2009	13.5	36.6	62.2
2010	13.6	36.8	62.6
2011	13.6	36.9	62.7
2012	13.6	37.0	62.9
2013	13.7	37.1	63.1
2014	13.7	37.2	63.2
2015	13.8	37.4	63.6
2020	13.9	37.6	63.9
2025	14.1	38.1	64.8
2030	14.3	38.6	65.6

Source: Bloomington Utilities Division (historical data), Black and Veatch (projections), and Bloomington's Water Emergency and Conservation Plan.

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**, left,* depicts recent water use rates as well as projected future demand. Construction of additional wells and expanded treatment capacity were completed in 2002 as recommended in Bloomington's Water System Master Plan 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.

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Table 6.1 Historical and Projected Water Demand

Year	Average Day (MGD)	Maximum Day (MGD)	Maximum Hour (MGD)
2007	13.2	33.1	60.7
2008	12.7	31.0	58.4
2009	12.6	33.2	58.0
2010	11.1	23.4	50.9
2011	11.7	25.7	53.7
2012	13.3	29.8	61.0
2013	13.5	30.3	62.0
2014	13.7	30.8	63.0
2015	13.9	31.3	64.0
2020	14.1	31.7	64.8
2025	14.7	33.1	67.6
2030	14.8	33.3	68.1

Source: Bloomington Utilities Division (historical data) and Black and Veatch 2010 Water System Master Plan

Wastewater and Comprehensive Sewer Plan element of Bloomington's Comprehensive Plan. The section includes updated future wastewater flow forecasts based upon revised population forecasts and a new Comprehensive Sanitary Sewer System Model developed in 2008 by the City's consultant Black and Veatch. (Note that the terms Sanitary Sewer and Wastewater are used interchangeably throughout).

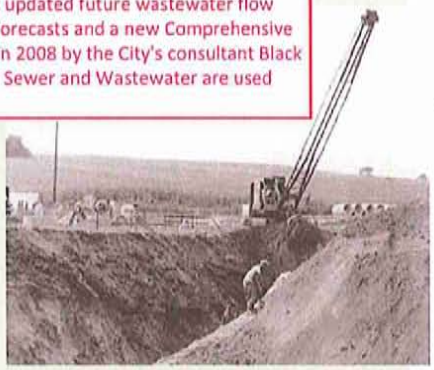
6.2 Sanitary Sewer System

This section summarizes the ~~City's *Sanitary Sewer Policy Plan*. This section also includes updated information based upon water consumption histories and a new Comprehensive Sanitary Sewer System Model developed by Black and Veatch in 2007.~~

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.

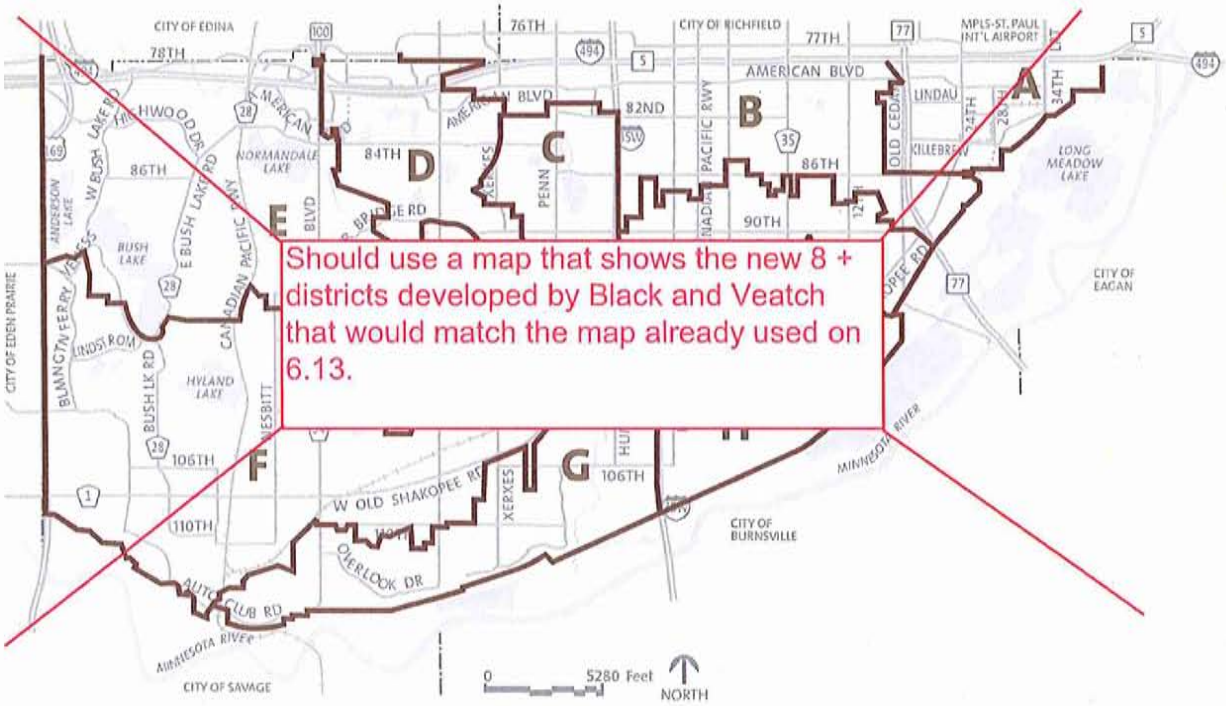
MCES owns and operates regional interceptor sewer lines and sewage treatment facilities while the City of Bloomington owns and maintains local sewer lines. The City maintains certain components of the regional interceptors as defined in a maintenance contract with MCES. Bloomington's sewage now flows southeast, under the Minnesota River near TH 77 to the Seneca Wastewater Treatment Plant in Eagan. The Seneca Plant, which also serves Burnsville, Eagan, Savage, and



Sewer pipe installation, 1960.

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).

Figure 6.3 Sanitary Sewer Districts



Should use a map that shows the new 8 + districts developed by Black and Veatch that would match the map already used on 6.13.

Source: Bloomington Utilities Division.

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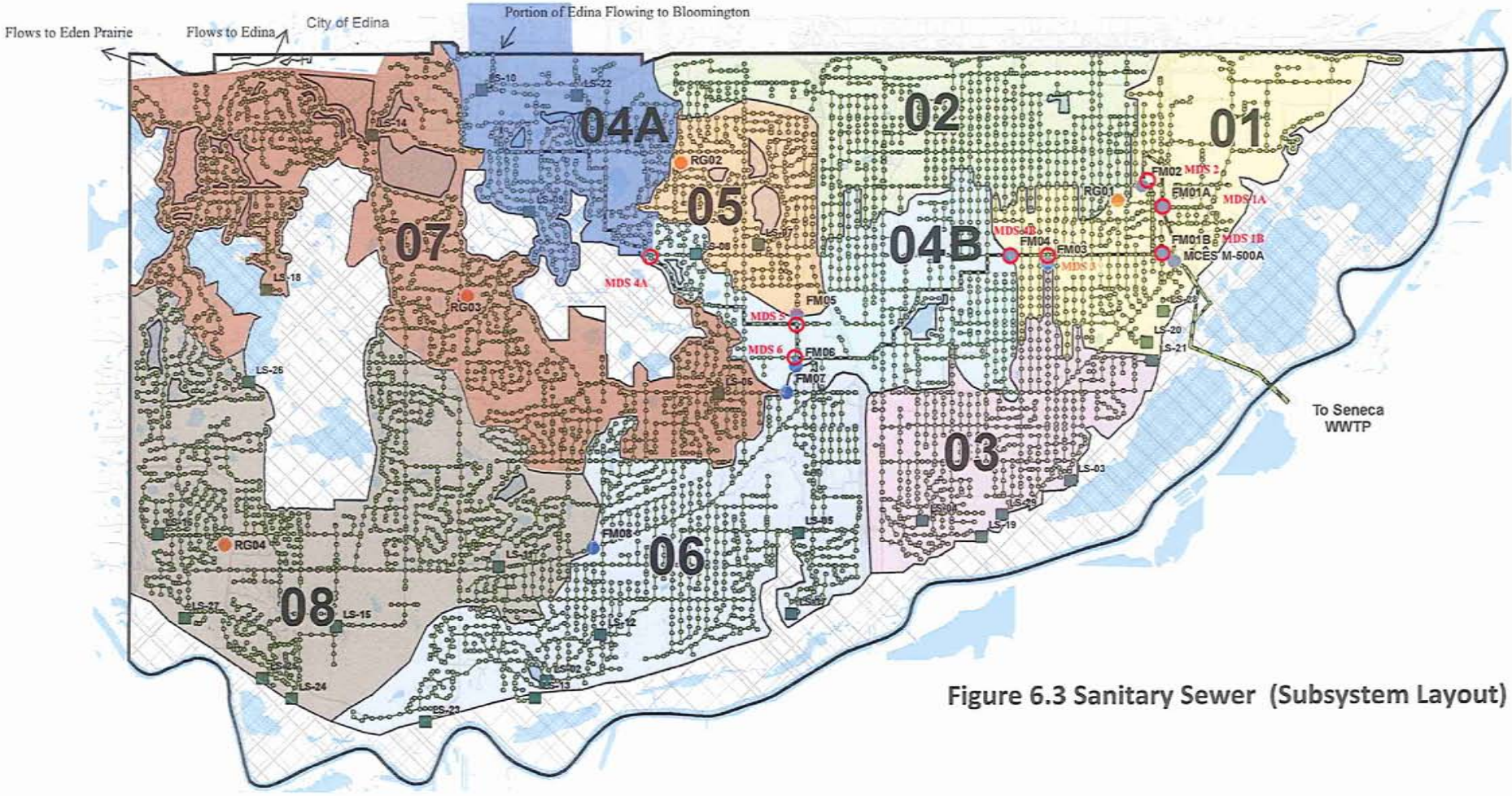


Figure 6.3 Sanitary Sewer (Subsystem Layout)

small portions of Apple Valley and Lakeville, was built in 1972, then expanded and upgraded in 1992 to a capacity of 39 million gallons per day. The original interceptor and sewage lift station that directed flow north have now been abandoned.

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 sixty inches. ***Figure 6.3**, page 6.7*, depicts the ~~location of the~~ sanitary sewer ~~service districts~~, while ***Figure 6.4**, page 6.9*, depicts sanitary sewer infrastructure.

Subsystem Layout

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.

Sewer lines serving a regional purpose are owned and operated by Metropolitan Council Environmental Services. As discussed in its *Water Resources Management Policy Plan*, the Metropolitan Council proposes requiring cities to acquire, through reconveyance, MCES interceptor lines which it feels no longer have a regional role. This proposal includes one MCES interceptor 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 intersection of I-494/TH 100 to the intersection of East 90th Street and 18th Avenue. This interceptor currently meets the criteria for serving 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). Current flows in the upstream reaches of the 3-BN-499 regional interceptor, along with MCES lift station L-55 are reaching system capacity. The Cities of Bloomington and Edina are in the process of working with MCES in an attempt to resolve the capacity concerns.

Inflow and Infiltration

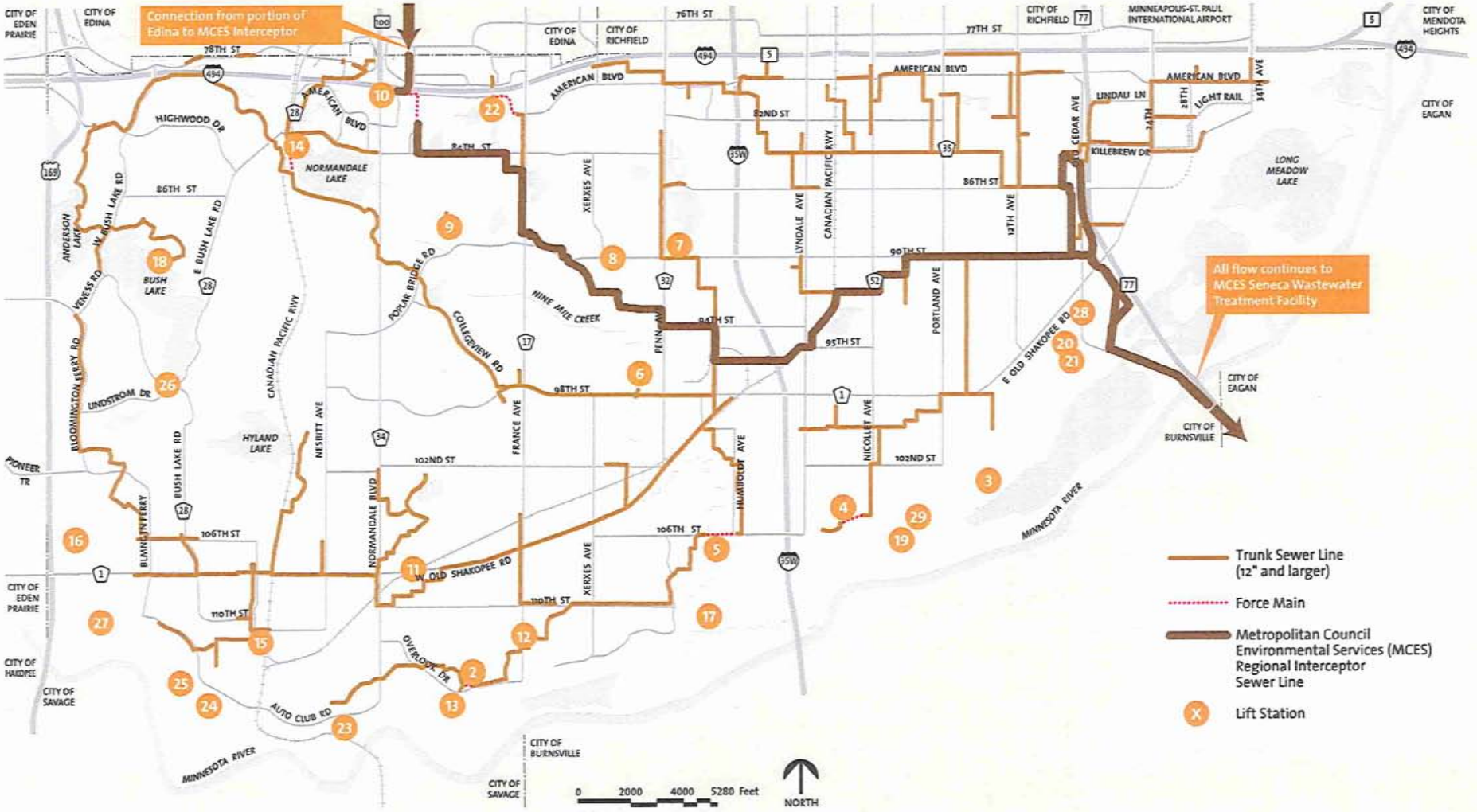
Of concern for any sanitary sewer system are infiltration, inflow, and blockage. Infiltration is the seepage of groundwater into sewer pipes through cracks or joints. Inflow is the entrance of clear water into the system from a single point such as a sump pump, foundation drain, or sewer access covers. Blockage occurs when pipes are clogged or obstructed by solids or tree roots. Infiltration and inflow increase the volume of sewage, thereby increasing treatment costs and potentially requiring premature infrastructure improvements. Blockage must clearly be avoided for the system to work effectively.

While the percentage of Bloomington's sewer flow attributable to inflow and infiltration has historically been very low, Bloomington remains committed to further reductions. To reduce inflow, Bloomington prohibits the discharge of storm water, ground water, roof runoff, surface water, unpolluted drainage, unpolluted industrial cooling water or unpolluted industrial process water to any public sanitary sewer (*City Code Section 11.31(b)(3)*).

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.
- Installation of cured-in-place liners.
- Requiring manhole chimney seals on all new and reconstructed manholes.
- Service line repairs.
- Lift station maintenance and upgrades.
- Changing castings.
- Covers on manholes.
- Eliminating sump pump connections.

Figure 6.4 Sanitary Sewer System



Source: Bloomington Utilities Division, 2008.

Future Demand and Recommended Improvements

Bloomington currently generates sewage at an average level of just under 9 mgd (million gallons per day). Commercial/industrial users generate approximately 40% of that flow while residential users generate 60%.

***Table 6.2**, below,* depicts current and projected future sanitary sewer flows using two methodologies. The first method uses recent average flow rates times updated population and employment forecasts prepared by Bloomington Planning staff. ~~The second method uses generation rates of 75 gallons per day per future resident and 25 gped (gallons per~~ ~~(gallons per capita per day) in 2010 to 10 gped in 2030. These reductions were developed by the MCES and presented to the City of Bloomington~~ ~~via correspondence in January of 2008.~~ The first method projects a ~~27%~~ 10% increase in total flows between 2005 and 2030. The second method projects a ~~20%~~ 14% increase in total flows for the same time period. ~~Note that these figures represent updated values that modify the values found in Bloomington's 1998 Sanitary Sewer Policy Plan.~~ ***Figure 6.5**, page 13,* depicts forecasted flows ~~by year~~ in ten year increments at various entry points to the MCES interceptor.

The second method uses generation rates (recommended in the MCES 2030 Water Resources Management Policy Plan), of 75 gallons per day per future resident and 25 gallons per day per future employee, times the Met Council's officially revised population and employment forecasts developed in 2008.

~~The 1998 Sanitary Sewer Policy Plan also included hydraulic modeling analysis of about 10% of the sewer infrastructure at the subdistrict level. This was completed to identify improvements needed to accommodate anticipated growth and redevelopment. Based on that analysis, the plan made eleven recommendations to maintain the capacity and integrity of the existing system to the year 2020. To date, eight of the items have been completed, while work on the remaining three items (including installation of new pipe) was started in the spring of 2008.~~

Table 6.2
Current and Projected Average Daily Sanitary Sewer Flow

Year	Residential (MGD) [1]	Commercial/ Industrial (MGD) [1]	Total Average Daily (MGD) [1]	Total Average Daily (MGD) [2]
2005	5.51	3.55	9.06	9.06
2010	~~5.82~~ 4.90	~~4.23~~ 3.38	~~10.05~~ 8.28	~~10.02~~ 8.28
2015	~~5.95~~ 5.17	~~4.55~~ 3.94	~~10.50~~ 9.11	~~10.24~~ 9.17
2020	~~6.08~~ 5.29	~~4.88~~ 4.27	~~10.95~~ 9.56	~~10.46~~ 9.91
2025	~~6.14~~ 5.35	~~5.08~~ 4.43	~~11.22~~ 9.78	~~10.53~~ 10.11
2030	~~6.21~~ 5.42	~~5.29~~ 4.58	~~11.49~~ 10.00	~~10.61~~ 10.32

Source: Bloomington Utilities Division. [1] *Bloomington methodology ~~(no declining base flow,~~ future rates at recent averages: ~~67.1~~ 60.9 gpcd for residential and ~~39.1~~ 40.5 gped for commercial/industrial).* [2] *MCES methodology (see discussion above).*

In 2008 the City received a Comprehensive Sanitary Sewer System Model from its consultant Black and Veatch. The Modeling project included system analysis to identify

~~In 2006 the City contracted with Black and Veatch to build a Comprehensive Sanitary Sewer System Model and update the~~ recommended improvements needed to accommodate anticipated growth and redevelopment up to the year 2030. ~~The new model gives City staff the ability to examine modeled flow conditions of any~~

City Staff has used this computerized model (along with current planning forecasts) to identify twenty-one recommended CIP pipe improvement areas, and seven lift stations with minimal capacities. Upgrades to four of the lift stations along with five and a half of the pipe project areas has already been completed. Seven pipe project areas will be monitored for excessive flows and could possibly be removed from the list (if I/I reduction efforts successfully reduce excessive peak flows in the pipes). Eight and a half of the pipe project areas will be scheduled as development stresses the existing pipe capacities.

~~completed. Construction in two of the project areas will begin in May of 2008.~~ ~~Five~~ Three of the project areas and one of the lift stations involve MCES interceptor 3-BN-499, and as previously mentioned, the City is working with MCES on capacity upgrades to that interceptor.

DRAFT

Subsurface Sewage Treatment Systems (SSTS)

As of ~~2008, 50~~ Bloomington properties continue to utilize on site subsurface sewage treatment systems (SSTS). ***Figure 6.6**, below,* depicts the locations of active SSTS. 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. Since 2000, the City has connected ~~33~~ Bloomington properties to the public sewer system. The City regulates the operation of SSTS in accordance with Minnesota Pollution Control Agency regulations. The Bloomington Environmental Health Division is responsible for coordination and enforcement of SSTS ordinances.

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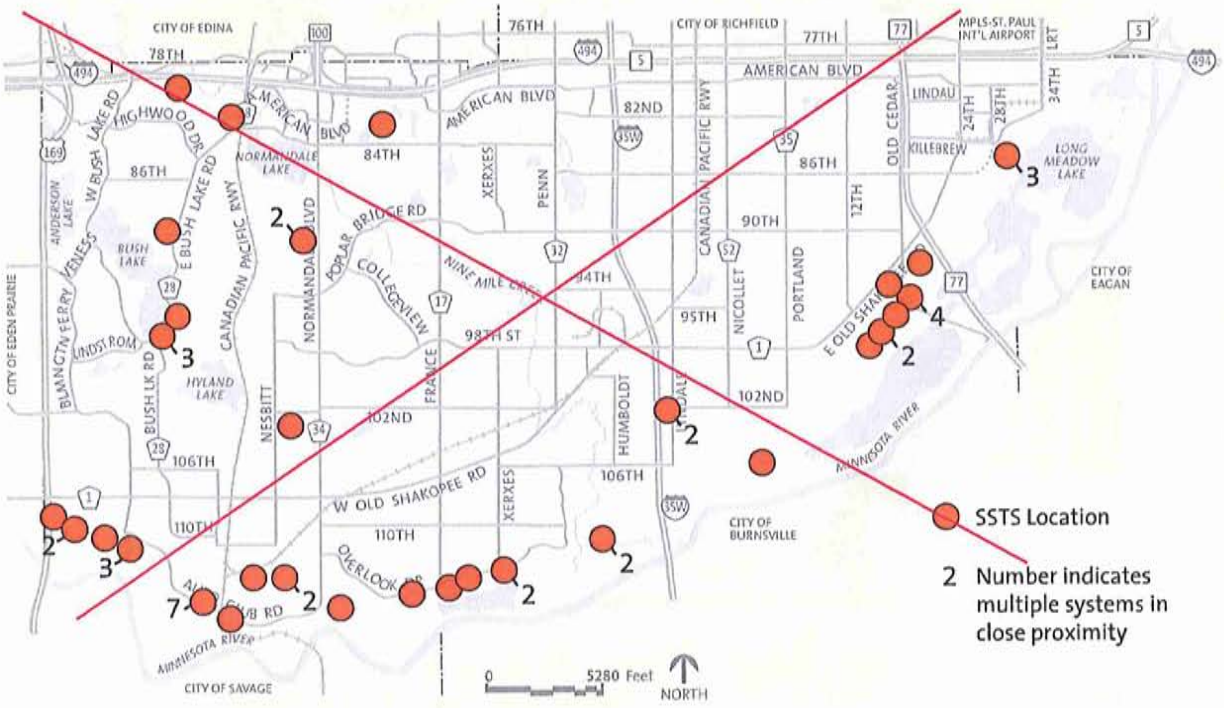
more than 30

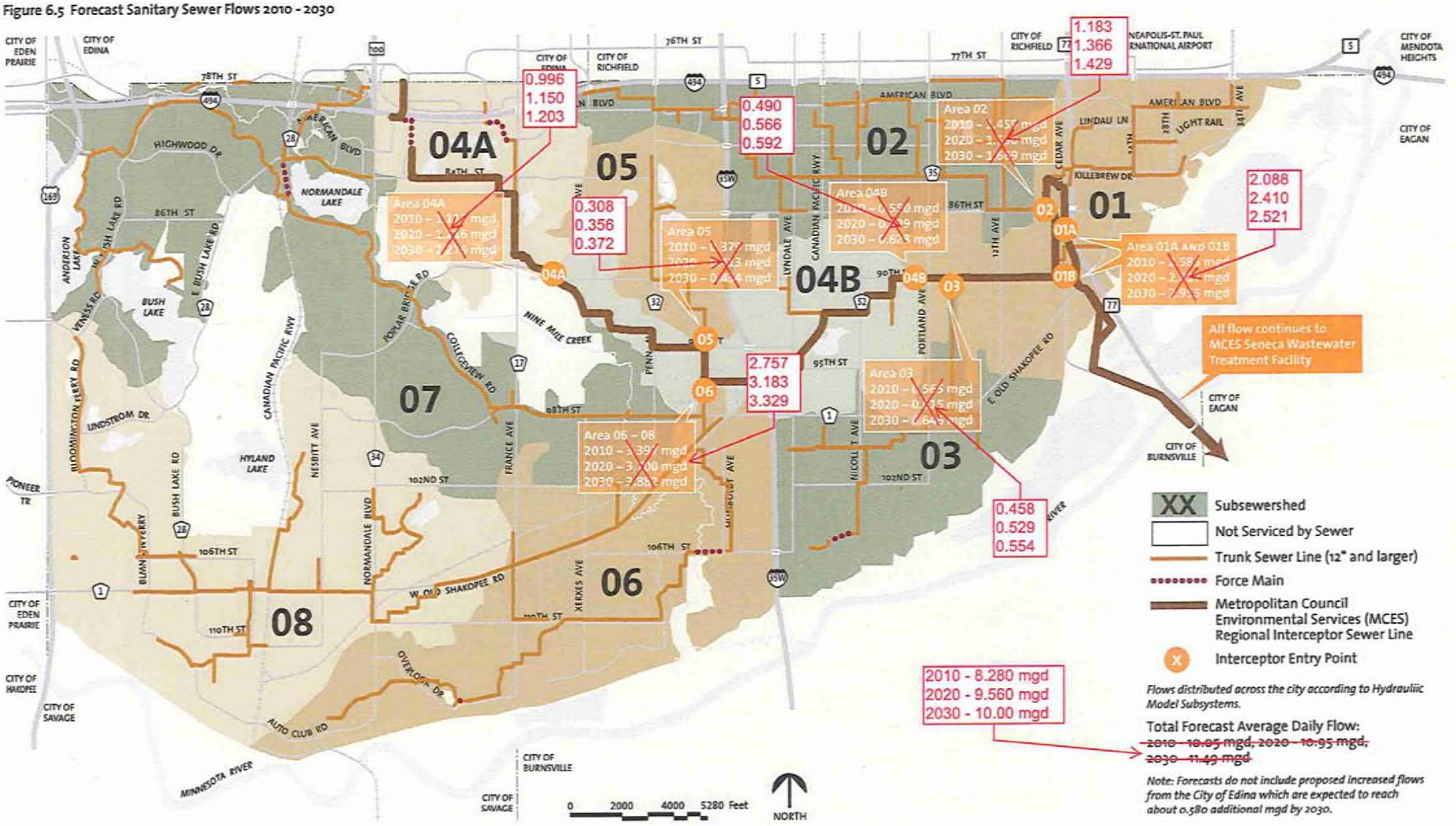
In accordance with *Minnesota Rules Chapters 7080, 7081, 7082 and 7083* the City will continue to implement a comprehensive SSTS management program. SSTS owners are required to have their systems inspected and pumped at least every three years under a City permit and repair or replace failing systems within five years. The program includes a computerized notification and tracking database along with enforcement procedures. The database is able to identify the dates of new system installations, the date of pumping/inspection, the generalized condition of the SSTS, the volume of contents pumped and whether the system was failing. The management program also requires upgrade or replacement of systems that pose an imminent threat to public health and safety within ten months.

Figure 6.6 Location of Active Subsurface Sewage Treatment Systems



Source: Bloomington Utilities Division.

Figure 6.5 Forecast Sanitary Sewer Flows 2010 - 2030



Source: Bloomington Utilities Division, 2008.

6.5 Goals, Strategies, Actions

Goal 1 Dependably and affordably provide a high quality, sustainable public water supply.

Strategy 1.1

Protect the quality and quantity of the groundwater supply.

- 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 while retaining local control over water supply issues..
- Continue implementation of ongoing wellhead protection efforts.
- Construct new public water supply wells, if necessary, to meet Minnesota Department of Health wellhead protection requirements.
- Continue active enforcement of the State Well Code through the City's Environmental Health 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.
- Implement economically feasible water system recommendations of the *Asset Management Plan* via existing staff allocation approved by the City Council.

Strategy 1.2

Maintain a secondary water supply to meet peak period demands, improve system reliability and flexibility and protect underground supplies.

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

Strategy 1.3

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

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

Strategy 1.4

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

- Continue implementation of the water distribution system improvements recommended in the *Water System Master Plan*. As of 2008, 85% of these improvements have been completed.

Strategy 1.5

Reduce per capita water demand.

- 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.
- Promote alternative landscaping types that require less water to maintain.

Goal 2 Dependably and affordably convey sanitary sewage into the regional treatment system.

Strategy 2.1

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

- ~~Finalize implementation of the three remaining recommendations from the *1998 Sanitary Sewer Policy Plan.*~~
- ~~As warranted and in a cost effective manner, continue the implementation of improvements to the sanitary sewer collection system that are recommended in the *2006 Comprehensive Sanitary Sewer System Modeling Project.*~~

As warranted and in a cost effective manner, complete pipe and lift station construction projects to address system capacity concerns in locations that have been identified through the use of the City's current computerized sanitary sewer system model and documented in the Wastewater and Comprehensive Sewer Plan.

Strategy 2.2

Maintain an efficient and effective sanitary sewer collection system.

- Continue a phased sewer infrastructure replacement/rehabilitation program.
- Continue the sanitary sewer preventative maintenance program.
- ~~Implement economically feasible sanitary sewer system recommendations of the *Asset Management Plan* via existing staff allocation approved by the City Council.~~

Continue to refine the City's Asset Management Plan so that the required sanitary sewer system improvements that have been identified can be prioritized and completed in the most economically feasible manner.

Reduce per capita and per employee sanitary sewer generation rates through reduction of infiltration and inflow, and water conservation measures.

Strategy 2.3

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

- 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.

Strategy 2.4

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

- Enforce City ordinances requiring connection to the public sanitary sewer system within two years of availability.
- Prevent the establishment of new on-site disposal systems unless other solutions are cost prohibitive..
- Continue implementation of the City's comprehensive management program for on-site disposal systems.

Strategy 2.5

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

- Periodically review and evaluate sewer collection network capacity and treatment capacity in conjunction with MCES to ensure long-term viability of the system and accommodate future flows.
- Encourage proactive regional capital improvements planning to schedule long-term expansions to treatment facilities and sewer interceptors, as necessary to support regional land use goals to accommodate an increasing percentage of the region's growth in fully developed areas.
- 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 its list of sewer lines to be reconveyed to local government.

Goal 3 Ensure that the public and private surface water management system is constructed to economically meet community needs as development occurs.

Strategy 3.1

Design a surface water system that reduces impacts on the built environment to 100+ year events.

- Hold new development runoff to pre-development runoff rates.
- Utilize existing natural ponding areas for the impoundment and treatment of surface water runoff as outlined in the *Comprehensive Surface Water Management Plan.*