

## **VII. COMMUNITY FACILITIES AND SERVICES**

Community facilities and services include infrastructure and services provided by the City of East Bethel, and in some cases other agencies, for the benefit of its residents. For purposes of the Comprehensive Plan, community services and facilities include:

- Public safety – police and fire protection
- Municipal services – water and sewer
- Schools and library services
- Technology
- Public works
- General governmental services

### **Current Facilities and Services**

The City of East Bethel provides services and operates a number of facilities for its residents. City Hall is adjacent to Booster Park on 221<sup>st</sup> Avenue NE at Palisade Street. Community facilities connected to City Hall include a community center and senior center. This facility is equipped with a speaker system to host meetings and also has a full kitchen, restroom facilities, and an office, and serves as the congregate dining site and activity site for area seniors and many other community organizations.

Construction of a new fire department facility has recently been completed immediately next to where the previous station had been located on Viking Boulevard at East Bethel Boulevard NE. Additional fire department facilities are located in the southeastern corner of the City on the east side of Coon Lake, and adjacent to the Public Works facility on 221<sup>st</sup> Avenue. This particular facility houses three pieces of equipment for rescue calls, pumping/tanker activities, and grass fire operations.

A 35-member volunteer fire department provides fire protection service to the City. This includes tanker trucks, pumpers, and two emergency response vans. East Bethel also has a mutual aid emergency response with all Anoka County municipal cities and serves communities in Washington and Chisago Counties.

The fire department's recent Insurance Service Office (ISO) rating improved significantly from its previous rating. The department is committed to continuing to improve its ISO rating, particularly given the opportunities municipal water services present.

The need for an upgraded Public Works facility was recognized in 2001 and City Council directed that plans be developed for a new facility. Land for the new facility was identified adjacent to Booster East Park, just east of City Hall. The new facility was completed in 2003 and provided for nearly 8,000 square feet of equipment storage and maintenance area. Pending regulations for salt storage required that a facility be provided for containment of salt necessary for winter road maintenance. This need was coupled with the need for a new cold storage facility as the former cold storage facility was converted into the new recycling center. The total capacity of the salt storage facility and cold storage facility is 4,000 square feet. These facilities will provide sufficient space for storage and maintenance for the next ten years.

Currently the City contracts with Anoka County for police service. The City will evaluate that service in the future to increase protection as needed and to evaluate when a department could be formed within the City proper.

A recycling drop-off center is also located at the Viking Boulevard Fire Hall site. The City also owns a building in Minard Lake Estates which has been used as a clothing redemption site, alternative learning center, and other various not-for-profit local charities.

Portions of the City of East Bethel fall within the boundaries of Independent School Districts 15 and 831. District 15 contains the majority of the City while District 831 incorporates the southeastern corner of the City. Students in District 15 attend junior high and high school in St. Francis; students in District 831 attend Forest Lake Area schools. The East Bethel Community and Cedar Creek Elementary School are the only schools currently within the City of East Bethel and are located on approximately 160 acres of land adjacent to Polk Street NE. The City is also home to five places of worship.

## **Planned and Proposed Facilities and Services**

The City currently occupies a City Hall/Community Center complex located at 2241 221<sup>st</sup> Avenue NE. The City Hall facility is approximately 4,200 square feet consisting of City Council Chambers, office space, mechanical space, conference room, and common areas.

In order to effectively and efficiently provide the services and support the growing demands on the community, East Bethel recently completed constructing a 1,700 square foot addition to expand its existing City Hall facility. With the moving of the Inspection Department to what used to be a conference room, and other new organizational changes in staffing, the need for a larger, more accommodating facility became clearly evident.

In January 2005, the East Bethel Space Assessment Committee received an evaluation of space needs projected over the next 5 to 20 years as it relates to City Hall facilities. This information was provided to determine staffing requirements based on population growth and that impact the City's ability to effectively provide the services and support the community demands. Those staffing needs and the corresponding space analysis were provided to City Council in March at which time more serious discussions began to identify alternatives and options for expansion.

Based on the current employee ratios, it is anticipated that staff would increase from the current 19 full-time equivalents (FTEs) or 1 per 700 in population, to 22 staff in 2010, 26 staff in 2015, and 32 staff in 2020. These projections do not assume additional water and sewer availability in the City which would significantly increase staffing needs.

With the addition of municipal services such as water and sewer initially in the TH65 service area (Highway 65 corridor from 181<sup>st</sup> to Klondike Drive,  $\frac{3}{4}$  of a mile either side of Highway 65), population figures increase significantly.

For example, the City of East Bethel could expect the following population totals:

<u>Population</u>	<u>Year</u>	<u>Additional Housing Units Over Current Rate</u>
12,000	2010	1,000
16,200	2015	1,200
18,400	2020	1,200

The staffing ratio used in this scenario is 1 per 700 in population which reflects the current staff ratio and includes all staff, maintenance, office, and administrative positions. If it is assumed that 60 percent of all staff are located within City Hall, the need for space would be based on current ratio and needs and staffing would be as follows.

<u>Year</u>	<u>Total Staff</u>	<u>Office</u>
2010	27	17
2015	35	21
2020	44	27

When comparing East Bethel's staffing size to similar communities with similar services, Andover, Shoreview, and Chanhassen are similar sized communities in the 25,000 to 30,000 population range. Each of these communities has ice arenas, contract for police services, and has volunteer fire departments. Andover and Chanhassen are growing suburbs while Shoreview is nearly fully developed.

The communities compared also have full water and sewer utilities with Andover and Chanhassen having several areas of private well and septic. Shoreview and Chanhassen have community centers with many amenities. While these communities are not identical to East Bethel, the comparisons provide a realistic preview of the potential staffing needs of the City.

It is prudent to assume that office staff and total staff should increase to meet future service demands at a rate that is near communities that offer similar services and are similarly sized. The community staffing/employee ratios for these communities were compared to further estimate potential future staffing needs in East Bethel. A revised employee count would be as follows:

<u>Year</u>	<u>Total Staff</u>	<u>Office</u>
2010	50	30
2015	65	40
2020	86	52

The City calculated average office space necessary for individual employees, common and storage areas, council chambers, and mechanical facility areas, etc. to determine an estimated total square footage amount needed for a future city hall facility. There is an assumption that the City will have added several activities during this time such as a full Park and Recreation Department, an increased water and sewer maintenance staff to maintain the City's infrastructure, added street and park maintenance staff, and additional support staff. It should

also be noted that additional staff will be requested as it becomes apparent that additional staffing in certain areas is necessary.

With increasing regulatory requirements as part of the public utilities operations, increasing human resource reporting, testing and record retention compliance, increased fiscal reporting requirements, etc., additional support staff will be required.

### **Site Options**

The current facility, if expanded to its maximum potential without City water and sewer, would likely be limited to no more than double its current size, or 4,200 additional square feet. This would only provide adequate space for the City over the next five to seven years. With City water and sewer, the facility could be expanded to nearly 12,000 square feet and provide adequate space for the next ten years or through 2017-2018.

The City has several options for a new site. Specific analysis for each site will be performed when the need to expand/build presents itself.

## **Community Facilities Goal and Policies**

### **Goal:**

*Pursue and implement feasible, affordable, and effective means to provide City facilities and services that benefit members of the community as a first priority.*

### **Policies:**

1. To maintain quality public services at a reasonably affordable cost to citizens.
2. To reduce excess and unnecessary costs of public services.
3. To maintain a high quality education system.
4. To protect the quality of life of City residents.

## **Public Safety**

One of the significant themes of the 2005 Budget included an increased emphasis on public safety issues. This emphasis includes weather warning sirens and augmenting the City's ability to effectively provide warning signals throughout the community.

In November 2004, East Bethel residents voted in favor of a bond referendum that included the implementation of a state-of-the-art weather warning signal system. The public safety and awareness system known as the "2001 Siren" is a high power, rotating siren that provides maximum coverage at a minimum cost.

Installation of 15 warning sirens was completed during the summer of 2005 at locations strategically selected to ensure full coverage throughout the community. The new system is

connected directly to Anoka County's main emergency operations center, and upon notification of severe weather such as a tornado, the County activates the sirens with the push of a button. A reassuring feature of the sirens is that in the event of an electrical outage, the system continues to function using a battery backup for approximately 15 minutes. The siren sound will be audible for more than one and one-half miles from each siren at a db level of 65 to 70 depending on the terrain, foliage, and wind direction.



In addition, residents also voted as part of the referendum to construct a new fire station that replaced the City's original Fire Station #1 which had been in operation for more than 40 years and undergone numerous additions and modifications over time. Construction has been completed.

### **Sheriff Services**

The City of East Bethel currently contracts for police services with the Anoka County Sheriff's Office. Under the current contract, this

provides a "sub-station" for operations at the Public Works facility on 221<sup>st</sup> Avenue Northeast. This permits operations to begin and end in the City without having to report to the Andover sub-station. The Sheriff, under contract, provides police services and all necessary and required equipment to provide those services. Coverage is 32 hours of patrol per day. In addition, the City receives four hours of service with Community Services Officers (CSOs). These uniformed staff provide traffic control, assistance at accident scenes, some animal control activities, and other resident oriented services.

### **Public Safety Goal and Policies**

#### **Goal:**

*Continue to strive to maintain the highest quality public services and safety to residents of the community.*

#### **Policies:**

1. Review contracts on a semi-annual basis for public services including policing activities.
2. Support "Crime Watch," "National Night Out," and other community safety strategies.
3. Semi-annually review coverage and response time goals.
4. Pursue and consider a variety of opportunities to improve responsiveness of emergency vehicles.

## **Municipal Services**

The City of East Bethel is currently pursuing alternatives that would allow for the implementation of municipal water and sanitary sewer within portions of the community experiencing development pressures. More specifically, the areas along the TH65 corridor as well as Viking Boulevard (County Road 22) are becoming more and more desirable to land developers.

The City is currently working with the Metropolitan Council to assist in examining the most appropriate location(s), treatment systems, and potential costs to construct the necessary facilities to support existing and future development. The Metropolitan Council has contracted with a consulting firm to further assess these and other municipal service elements; an initial report was available February 2006. Work with the Environmental Services Division is ongoing regarding this project.

The following section provides an overview of the Metropolitan Council's role, policy, and guidance relative to municipal services. Subsequent sections of this chapter include summaries of studies that were completed by the City of East Bethel in 2005, as well as results from the Metropolitan Council's study mentioned above, to provide an initial look at the potential use, locations, and cost to construct water and sanitary sewer within specific areas of the City.

The Metropolitan Council amended its 2030 Development Framework in December 2006 to include language that it would consider "locating a new wastewater treatment facility in a rural growth center" if doing so would be more efficient and cost effective, and provide other regional benefits. Also amended was the designation of East Bethel as a Rural Growth Center with Diversified Rural geographic planning areas.

## **Regional Perspective**

The *2030 Regional Development Framework* and the regional system plans comprise the Council's Metropolitan Development Guide, which is the region's plan to ensure orderly, coordinated, and economical development of the region. Local comprehensive plans and plan amendments that have substantial impacts on—or contain substantial departures from—the metropolitan wastewater system plan affect how the Council constructs, operates, and maintains the Metropolitan Disposal System (MDS) and can result in system inefficiencies if the nonconforming plans are permitted to occur.

Substantial impact or departures may result either from over-utilization or under-utilization. Over-utilization is local development that will use more regional capacity than currently is available or planned. Under-utilization is low-density development that uses less than currently available or planned regional capacity, and is likely to require additional infrastructure elsewhere in the region to accommodate household growth that reasonably would have been expected to occur in the local governmental unit.

As permitted by Minnesota Statutes section 473.175, subdivision 1, the Council may require a local governmental unit to modify any comprehensive plan or part thereof that is inconsistent with the metropolitan system plan if the Council concludes that the local plan is more likely than not to have either a substantial impact on, or to contain a substantial departure from, the

Council's adopted policy plans and capital budgets for metropolitan wastewater service. Inconsistencies will provide the Council with grounds for requiring modifications to the local comprehensive plan.

A system impact to the Metropolitan Disposal System (MDS) may occur under various circumstances including, for example:

- When a local governmental unit proposes a land-use change to, and/or expansion of, its local sewer service area that results in projected flows in excess of the capacity within the existing MDS;
- When a community does not adequately address nonpoint source pollution control issues through its local surface water management plan; or
- When excessive inflow and infiltration reduces the regional system's capacity to convey and treat wastewater.

A substantial system impact occurs under various scenarios, including when:

- The MDS was not designed to provide wastewater service for the proposed sewer service area; or
- The projected flow from the sewer service area is greater than planned; or
- The timing for the proposed growth is prior to implementation of a planned improvement to the MDS and greater than what can be accommodated by the MDS; or
- The peak wet-weather flows from the local governmental unit exceeds its designed capacity within the MDS, and thus there is inadequate capacity to accommodate the planned growth for the local governmental unit or tributary local governmental units.

A system departure occurs when: 1) a local governmental unit proposes forecasts for sewer development densities that are lower than Council forecasts or lower than density standards that are the basis for regional infrastructure planning purposes; or 2) when a local governmental unit proposes densities in rural areas that exceed Council policy (i.e. 1 unit per 10 acres in diversified rural areas and 1 unit per 40 acres in agricultural areas). This may result in an under-utilization of the available or planned regional wastewater system capacity.

A substantial departure also may occur under different circumstances including when:

- A local governmental unit's sewer household and employment forecasts, within the existing or planned service area of a metropolitan facility, are at least 20 percent lower than the Council's forecasts of growth for the community; or
- A local governmental unit is not achieving the Council's density standards for sewer development; or
- A local governmental unit is planning to allow development that proposes densities in rural areas (i.e. areas not currently served by public sewers) that exceed Council policy, such as development on 2 1/2-acre lots that would preclude future economical sewer development.

The Metropolitan Council currently provides wastewater collection and treatment services to 2.5 million people in 103 communities, which represents about 90 percent of the 7-county metropolitan area's population. The Council owns and operates the MDS. The MDS includes 8 wastewater treatment plants: Metropolitan, Empire, Rosemount, Blue Lake, Seneca, Eagles

Point, Hastings, and St. Croix Valley; it also includes approximately 600 miles of regional interceptors that connect flow from 5,000 miles of sewers owned by local communities. The system treats up to 300 million gallons per day of wastewater from homes, industries, and commercial businesses. The system is operated through the Metropolitan Council's Environmental Services Division (MCES).

Potential future wastewater treatment plants have been identified as part of the Metropolitan Council's Wastewater System Plan – a component of the 2030 Development Framework. Currently the Metropolitan Plant service area extends to Lino Lakes, Blaine, Andover, and Ramsey in Anoka County. The Rum River has been designated as an Outstanding Resource Value Water by the MPCA. Consequently, future wastewater treatment systems in northwest Anoka County will need to provide a high level of treatment followed by rapid infiltration to groundwater or a discharge mechanism that is not reliant on a surface water discharge permit. This method is used by Bethel and St. Francis and could be used to serve future sewered development beyond the service area of the Metropolitan Plant.

There are 16 municipal wastewater treatment plants in the metropolitan area that are not currently owned or operated by MCES. These treatment plants are owned and operated by the municipality where they are located: Belle Plaine, Bethel, Carver, Cologne, Elko-New Market, Hamburg, Hampton, Jordan, Loretto, Mayer, New Germany, Norwood-Young America, Rogers, St. Francis, Vermillion, and Watertown. The locally owned treatment plants are all required to treat to secondary treatment and rely on surface water discharge permits. East Bethel was added as a seventeenth municipality where an individual wastewater treatment plant is located in the metropolitan area.

The Council recognizes that some rural centers in the metropolitan area are under extreme pressure to add housing and employment to their communities and thus expand their municipally owned wastewater treatment plants, while others are not and do not want to take on large quantities of growth. If a rural center is willing to expand to accommodate the increased growth as forecasted by the Council, it may need MCES to become involved in the possible acquisition, operation, and betterment of the wastewater treatment plant located in that community, such being the case in East Bethel.

The Metropolitan Council has committed that East Bethel will be served by a new wastewater treatment plant and rapid infiltration basin (groundwater recharge) system. Wastewater treatment system capacity will be staged to accommodate growth. Long-term wastewater service capacity for East Bethel is being planned based on groundwater recharge capacity of suitable rapid infiltration basin sites in East Bethel. This long-term wastewater service capacity is estimated at 5,000,000 gallons per day, which is the amount of wastewater generated from approximately 25,000 households. This long-term wastewater service capacity closely matches the projected wastewater flow generated by the long-term wastewater service area delineated in this Comprehensive Plan.

## Regional Water Sources

The source of water by community in the seven-county metropolitan area is shown in Figure VII-1. The central cities and many first-ring suburbs are served by water drawn from the Mississippi River, while the rest of the suburbs are served by groundwater. Minneapolis and the suburbs it serves rely solely on water from the Mississippi River, whereas St. Paul and its suburban clients supplement Mississippi River water with tributary inflow to its Vadnais Lake reservoir system and with high-capacity groundwater wells.

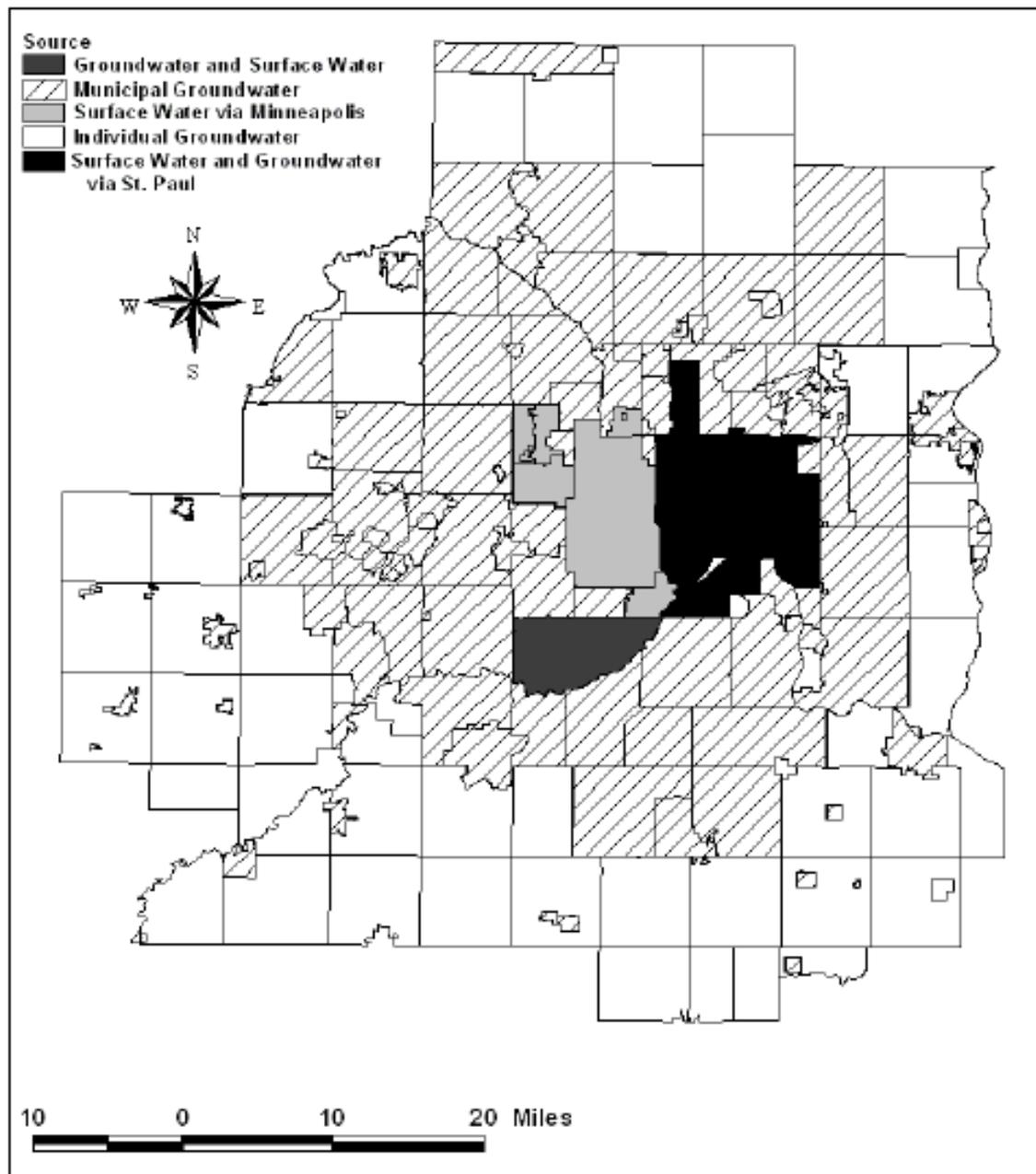


Figure VII-1. Twin Cities Metropolitan Area Water Sources

## Municipal Water Services

The City of East Bethel has one small public water supply and distribution system on the north end of the City. This system currently provides municipal water service to approximately 30 residents in the Whispering Aspen development. All other residential and non-residential properties are served by private wells.

A conceptual water supply/distribution plan is shown in Figure VII-1A. Possible well field locations are identified along Klondike Drive. A geological investigation will need to take place to determine the quality of aquifers in this area. The figure also shows the location of the proposed storage towers and trunk water mains. Table VII-1 below summarizes the estimated storage and water supply needs through 2030.

**Table VII-1. Well and Water Storage Needs**

<u>Description</u>	<u>Year 2006-2010</u>	<u>Year 2010-2015</u>	<u>Year 2015-2020</u>	<u>Year 2020-2030</u>
Required Fire Flow (gpm)	2,500	2,500	2,500	2,500
Fire flow Duration (hrs)	3	3	3	3
Total Fire Flow Demand (gals)	450,000	450,000	450,000	450,000
Peak Day Demand (mgd)	0.275	1.75	3.5	5.83
Peak Day Demand (gpm) <sup>1</sup>	229	1,458	2,917	4,584
3 hour Peak Day Demand (gals)	41,250	262,500	525,000	873,750
20% Reserve (gals) <sup>2</sup>	55,000	350,000	700,000	1,165,000
Total Water Required (gals) <sup>3</sup>	546,250	1,062,500	1,675,000	2,488,750
Number of Wells Total (900 gpm each)	2	2	3	6
Total Firm Pumping Rate (gpm) <sup>4</sup>	600	600	1,200	3,000
Total Firm Pumping 3 hour event (gals)	108,000	108,000	216,000	540,000
Total Storage Required <sup>5</sup>	438,250	954,500	1,459,000	1,948,750
Storage Tank Construction	1.0 MG	None	1.0 MG	None

<sup>1</sup>Peak day demand rate based on 20 hour day.

<sup>2</sup>Reserve is 20% of peak day demand volume.

<sup>3</sup>Total water required = total fire flow demand + 3 hour peak day demand + 20% reserve.

<sup>4</sup>Projected firm well capacity based on 4 wells with backup power, and 850 gpm capacity per well.

<sup>5</sup>Total storage required = total water required - total firm pumping 3 hour event.

**Insert Figure VII-1A. Water Supply System Layout**

## **Existing Water Systems**

### Existing Well

There are three community wells for potable water use within the City of East Bethel, one of which is Well Unique No. 00209223 which serves the Castle Towers Mobile Home area located in the north part of the City. This well has a capacity of 215 gallons per minute, was constructed 505 feet deep, and draws water from the Mt. Simion-Hinckley Aquifer. Additional wells are located at Village Green and a city-owned well serving Whispering Aspens which was previously discussed.

### Adjacent Community Wells

In researching wells in the adjacent communities (i.e. Andover, St. Francis, Blaine, and Isanti), it was found that the wells range from 330 feet to 500 feet deep and draw from either the Mt. Simion-Hinckley Aquifer or Franconia-Ironton-Galesville (FIG) Aquifer.

### Special Well Construction Area

The Minnesota Department of Health has designated a special well construction area within the City of East Bethel due to the contamination of groundwater due to the East Bethel Sanitary Landfill.

## **Water System Alternatives**

One of the first steps in the selection of a suitable water supply source is determining the demand that will be placed on it. Table VII-1 (previously presented) provides the estimated 2010, 2015, 2020, and 2030 water supply demand.

In general, one of the most important factors to be considered in the selection of a water source is the quality of the raw water. Raw water should be of high enough quality to meet drinking water standards with minimum treatment.

To determine if there is a groundwater source capable of producing the desired pumping requirements, test wells will be necessary. Water test wells are used for two primary reasons. One is to test the performance and efficiency of the well being pumped, called the pumping test. Another purpose is to provide the water quality characteristics of the aquifer, called an aquifer test. The experience of a licensed well driller familiar with the planning area is generally used in locating a groundwater source.

The Minnesota DNR does not allow community wells to draw from the Mt. Simion-Hinckley Aquifer. It is determined that the City's wells would draw from the Franconia-Ironton-Galesville (FIG) Aquifer.

## **Water Treatment**

The source of the raw water supply and the finished water quality objectives form the basis for selecting treatment process alternatives. Maximum contaminant levels (MCL) are primary

standards for drinking water and must be adhered to. The MCL limits are enforceable by the Minnesota Department of Health. Secondary standards represent recommended limits for aesthetics based on characteristics that render a drinking water less desirable for use.

In review of the secondary standards for aesthetics, three parameters exist in objectionable concentrations – namely total hardness, iron, and manganese. Hardness in water is caused by the presence of calcium and magnesium ions and is largely the result of geological formations of the water source. Hardness presents objectionable scale in heated water lines and vessels, and consumes excessive amounts of soap. Fixtures and dishes often are left with a spotty appearance.

Public acceptance of hardness varies from community to community, the consumer sensitivity being related to the degree to which he or she is accustomed. The American Water Works Quality Goals recommend a range of 80-100 mg/l as desirable both for aesthetics and corrosion control. Total hardness up to 150 mg/l may be acceptable.

Treatment processes that provide softening may be accomplished either by chemical precipitation or by ion exchange. Chemical precipitation involves additions of lime soda ash and results in sludge precipitate that requires storage, dewatering, handling and disposal facilities. Ion exchange is most often completed through a pressure filter and takes up minimal space.

High concentrations of iron and manganese are considered objectionable in drinking water because they affect color and taste of edibles, and stain plumbing fixtures and laundry. Treatment for iron and manganese should be implemented to reduce the combined concentration to meet Secondary Drinking Water Standards.

Based on water quality of neighboring communities, a treatment facility appears to be necessary and would provide for the removal of iron and manganese and provide chemical addition for fluoridation, disinfection (typically chlorination), and water softening. Treatment processes that will be required include filtration for softening and removal of iron and manganese.

Under the EPA's Safe Drinking Water Act, other contaminants have recently become regulated and/or will be regulated in the near future. These contaminants include arsenic, copper, radon, radium, etc. Treatment options will be determined after the well test to reduce the presence of these and other contaminants if necessary.

## **Water Storage**

An important element in a water distribution system is water storage. Storage of water enables the system to equalize demands on supply sources and treatment facilities. System flows and pressures are improved and stabilized to better meet variable demands. Additionally, reserve supplies are provided in the distribution system for emergencies such as fire fighting and power outages. Two common storage methods include elevated storage and hydro-pneumatic pressure tanks.

1. Elevated Storage Facility – Elevated storage facilities provide the best suited and versatile operation. Properly sized, elevated storage maintains system pressure throughout the distribution system and reliably provides dedicated fire storage. Operating by gravity, fire flow demands and pressures can be maintained during power outages.
2. Mechanical Pressure Systems – Mechanical pressure systems are the most practical storage units for domestic and commercial needs. Compressed air in the tank provides the required pressure for the system. Mechanical systems such as hydro-pneumatic tanks are subject to power failures and mechanical breakdowns. Typically, when water needs are sufficiently large, elevated storage provides the best, most reliable, and most useful form of storage, particularly for fire suppression. Only when calculated storage requirements are much less than 100,000 gallons should separate, mechanical pressure systems be considered. Therefore, this option will be given no further consideration.

Storage facilities should have sufficient capacity to meet domestic and fire flow demands. Table VII-1 presented the storage requirements.

## **Water Distribution**

A distribution system will be designed so that a sufficient supply of quality water is available to the consumer for potable water usage and fire protection at all times and at a minimum of cost. In addition, sufficient planning should be considered in the design so that the system may be readily extended.

The main distribution system would consist of the trunk water mains needed to convey water from the wells to the water treatment facility (raw water lines) and from the water treatment facility to the storage tank and the consumer distribution system.

## **Sites for Water System Components**

### Water Supply

A central location within the municipal service area. The conceptual plan shows the well field along Klondike Drive. This area is undeveloped and free of wetlands. The test well program will determine the spacing of the wells.

### Treatment Facility

The logical location for this facility would be next to the wells.

### Water Storage

The water towers do not need to be placed next to wells or a treatment facility. However, a centrally located position within the plan area does help with distributing fire flow protection. Three water storage sites are shown on the conceptual plan.

## **Cost Estimates**

The estimated capital improvement costs for the water system are presented in Chapter IX, Table IX-1.

## **Conclusion**

East Bethel's goal will be to provide a reliable and economical public water system to its residents. A draft water supply/distribution plan has been developed and will be further refined as public sewer treatment and distribution is developed in East Bethel and public water facilities begin to be constructed. Therefore, East Bethel's policies for public water facilities are summarized below:

1. East Bethel will further evaluate options to provide public water facilities as part of the total infrastructure.
2. When East Bethel begins to develop a public water system, the objectives listed below will be taken into consideration:
  - East Bethel will use the Water Supply/Distribution Plan as a guide for the construction and development of the City's public water facilities.
  - East Bethel will provide a reliable and sufficient supply of water for the health and safety of its citizens.
  - East Bethel's water will meet the Federal Clean Water Act (CWA) and the Minnesota Department of Health standards.
  - East Bethel will provide water to its citizens at a fair and affordable rate based on operation, maintenance, and replacement costs.
  - East Bethel will promote water conservation to reduce water demand and improve the efficiency of its water system.
  - East Bethel will sustain ISO fire protection ratings.
  - East Bethel will expand the water supply in accordance with staged land use growth.
  - East Bethel's Water Supply Plan provides Emergency Preparedness procedures for responding to supply a reliable water source for both domestic use and fire protection.

## **Municipal Sanitary Sewer Services**

The City of East Bethel has two community wastewater treatment facilities, Village Green and Castle Towers; the majority of wastewater disposal in the proposed municipal service area is by individual on-site systems. The concentration of homes results in a concern for the condition of the individual septic tank/disposal systems in the area with regards to location to the lakes, individual wells, and property lines.

The existing sanitary sewer systems consist of septic tanks, dry wells and drain fields, and other on-site treatment systems, the exact combination of which is not summarized.

The school district has a Class D wastewater facility that services Cedar Creek Community School and East Bethel Community School. Its treatment consists of a trench system with monitoring wells. This plant is permitted for 15,000 gallons of water per day.

The Village Green Wastewater Treatment Facility is a privately owned Class C facility. The facility treats wastewater from a mobile home community. Its treatment consists of an aeration tank, final clarifier, and a chlorine contact tank. The disposal is a subsurface disposal through a rapid infiltration basin. This plant is permitted for 30,000 gallons per day.

The Castle Towers Wastewater Treatment Facility is a Class B facility which was recently acquired by the City. This facility treats wastewater from the Castle Tower mobile home community and from the Whispering Aspen plat, which consists of single family residents. Its treatment consists of a mechanical component, sand filters, a polishing pond, and sludge drying beds. The disposal is a surface water disposal into Minard Lake. This plant is permitted for 120,000 gallons per day.

Many of the ISTS systems in the proposed municipal service area are old and previous reports indicate a number of systems are both failing and/or are non-conforming systems. Specifically, the southern portion of the City currently includes areas that have both higher ground water elevations and poorer soils, making construction of new systems both difficult and expensive. Some existing businesses pump septic tanks on a daily basis as a way of maintaining their current systems.

The Coon Lake Area is a heavily developed lakeshore area with older homes and smaller platted lots. Reconstruction of existing systems is limited based on the availability of adequate lands, high water table, and general terrain of the area.

The need for a wastewater treatment and collection system is based on one or more of the following criteria: health and safety concerns, environmental concerns, or growth. The general concern of both the South TH65 area and the Coon Lake area is both a health and safety concern and, with limited data available on the condition of existing wastewater disposal systems, an environmental concern may also exist.

Based on the need for public sanitary sewer, the City initiated a study to determine the feasibility of providing public sanitary sewer collection and treatment. The report "Public Sanitary Sewer Study" dated October 22, 2004 and prepared by RLK, is included in Appendix C of this document. The report identifies trunk facilities, treatment options, and capital improvement and operational costs.

## **Infiltration /Inflow (I/I) Criteria**

### **New Facilities**

The design and construction of new sewers and the connection of new buildings to the sewer system in East Bethel will meet the industry standards for tightness and minimize the entry of I/I into the collection system.

The City of East Bethel standards will meet the State of Minnesota requirements. All new sewers will be designed and installed so leakage into the sewer is less than 100 gallons per day per inch-diameter per mile of sewer. To ensure compliance with this standard, the City of East Bethel will require on-site construction observation during construction and verification testing

prior to acceptance of the public improvements. Certification by a professional engineer that new facilities are installed in accordance with all specifications will also be required. Records of these certifications will be maintained by the City.

To ensure that all municipal utilities are properly constructed and will meet all state, federal, and local requirements, the City of East Bethel has prepared an Engineering Manual that addresses the material and workmanship that will be required for all municipal improvements. The Engineering Manual was adopted by City Council on March 2, 2005. The Engineering Manual requires that all sanitary sewer facilities and water work be designed to conform to the “10 State Standards” and be constructed in accordance with City Engineers Association of Minnesota Standard Specification except as modified by specific City of East Bethel requirements.

The connection of building laterals to the local sewer system will be permitted by the building department. A licensed plumber shall certify that the connection was made in accordance with the building code.

### **Ordinances**

East Bethel will adopt an ordinance that prohibits the connection of roof leaders, foundation drain tile, and sump pumps from new construction to the sanitary sewer system. The ordinances will also require the disconnection of any roof leaders, foundation drain tile, or sump pumps currently connected to the sanitary sewer system.

The ordinance will require that all foundation drains and clear water sump pumps be properly installed prior to issuance of a Certificate of Occupancy.

### **Maintenance Program**

East Bethel will develop an ongoing sewer cleaning and inspection program as part of the routine maintenance of the collection system. I/I sources are often identified during inspection and include open and leaking sewer joints, cracked pipes, missing joint gaskets, pick holes in manhole covers, and offset manhole frames.

The City will develop a procedures manual to ensure that I/I sources identified during the inspection program are corrected in a timely manner.

### **Further Study**

The City of East Bethel has continued to research, refine, and analyze the information provided in the study listed above. Figure VII-2 identifies the proposed location of the wastewater treatment plant (WWTP). Figure VII-2 also illustrates the Ultimate Service Area of WWTP.

The City of East Bethel is also currently working with MCES to study the options and feasibility of providing an MCES-owned and operated waste water treatment facility in the City of East Bethel. The MCES has completed an initial study to identify areas suitable for disposal of waste water effluent through rapid infiltration. The City will continue to work with MCES on this issue.

**Insert Figure VII-2.**

**Proposed Waste Water Treatment Plant Ultimate Service Area**

Based on proposed land uses, the City developed an incremental “phasing” plan where municipal services will be implemented. The Phasing Plan is depicted on Figure VII-3. Figure VII-4 and Figure VII-5 identify the location of the proposed sanitary sewer facilities and phasing zones. Figure VII-6 reflects Metropolitan Council’s Proposed Regional Wastewater System Long-Term Service Areas.

The phasing plan presented in Figure V11-3 is the City’s current vision on how municipal services will progress within the Ultimate Service Boundary. The phasing plan will be used only as a guide for the progression of services. The phasing plan will remain dynamic and flexible. Figure V11-7 presents the City’s proposed 2030 residential sewer areas. These areas include all areas within the Ultimate Sewer Boundary that are undeveloped or under developed. In general, under developed was defined as parcels that were contiguous to undeveloped land and had maximum densities of 1 unit per 10 acres. If the City and MCES finalize an agreement for a MCES owned and operated plant, the City will request that the location of service areas remain flexible within the proposed Ultimate Sewer Boundary. The City understands that annual reporting to the MCES will be required to document service areas and residential land use densities.

Figure VII-7 also identifies three existing developed areas within the 2030 sewer area. These areas are the Village Green mobile home community, the Castle Towers mobile home community, Whispering Aspen, and the area adjacent to Coon Lake. Given the age of the Village Green and Castle Towers treatment facilities and the environmental concerns related to the existing ISTS systems around Coon Lake, it is anticipated that these areas will be connected to municipal services before the year 2030.

The tables below provide growth and flow projections for the City of East Bethel based on current proposed land uses relative to the implementation of municipal services.

**Table VII-2. Growth Projections (2010 – 2030)**

	<u>Actual</u> <u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>
Population	10,941	12,600	18,400	23,500
Households	3,607	4,500	6,800	9,000
Employment	1,211	2,000	3,300	4,500

*Source: City of East Bethel – assumes implementation of municipal services*

**Table VII-3. Sewered Growth Projections (2010 – 2030)**

	<u>2010</u>	<u>2020</u>	<u>2030</u>
Population	0	7,800	13,300
Households	0	2,900	5,100
Employment	0	1,800	3,000

**Table VII-4. Summary of Wastewater Flows per Land Use (5-year increments)**

<u>Year</u>	<b>LAND USE</b>				<b>Total Flow (MGD)</b>
	<b>Residential Flow (MGD)</b>	<b>Commercial/ MUD Flow (MGD)</b>	<b>Industrial Flow (MGD)</b>	<b>Public/ School Flow (MGD)</b>	
2010-2015	0.37	0.33	0.00	0.00	0.70
2015-2020	0.35	0.19	0.10	0.06	0.70
2020-2025	0.30	0.02	0.19	0.00	0.51
2025-2030	0.25	0.02	0.15	0.00	0.42
<b>Totals</b>	<b>1.27</b>	<b>0.56</b>	<b>0.44</b>	<b>0.06</b>	<b>2.33</b>

A detailed breakdown of the flows shown in Table VII-4 is presented in Table VII-5. Goals and policy statements are currently under development as the City continues to work with the Metropolitan Council.

**Table VII-5. Projected Wastewater Flows**

<u>Year</u>	<u>Total Population</u>	<b>RESIDENTIAL</b>		<b>COMMERCIAL / MUD</b>		<b>INDUSTRIAL</b>		<b>PUBLIC / SCHOOL</b>	
		<u>Total Households</u>	<u>Total Flow @ 250 GUD (MGD)</u>	<u>Total (Acres)</u>	<u>Total Flow @ 1,000 GAD (MGD)</u>	<u>Total (Acres)</u>	<u>Total Flow @ 750 GAD (MGD)</u>	<u>Total (Acres)</u>	<u>Total Flow @ 400 GAD (MGD)</u>
2010-2015	4,125	1,500	0.37	330	0.33	0	0	0	0
2015-2020	3,675	1,400	0.35	190	0.19	127.3	0.10	149.3	0.06
2020-2025	3,000	1,200	0.30	20	0.02	250.0	0.19	0	0
2025-2030	<u>2,500</u>	<u>1,000</u>	<u>0.25</u>	<u>15</u>	<u>0.02</u>	<u>204.8</u>	<u>0.15</u>	<u>0</u>	<u>0</u>
<b>Totals</b>	<b>13,300</b>	<b>5,100</b>	<b>1.27</b>	<b>555</b>	<b>0.56</b>	<b>582.1</b>	<b>0.44</b>	<b>149.3</b>	<b>0.06</b>

**Insert Figure VII-3. Proposed Sanitary Sewer Phasing Plan**

**Insert Figure VII-4. Proposed Trunk Sanitary Sewer**

**Insert Figure VII-5. Proposed Corridor Waste Water Flowage**

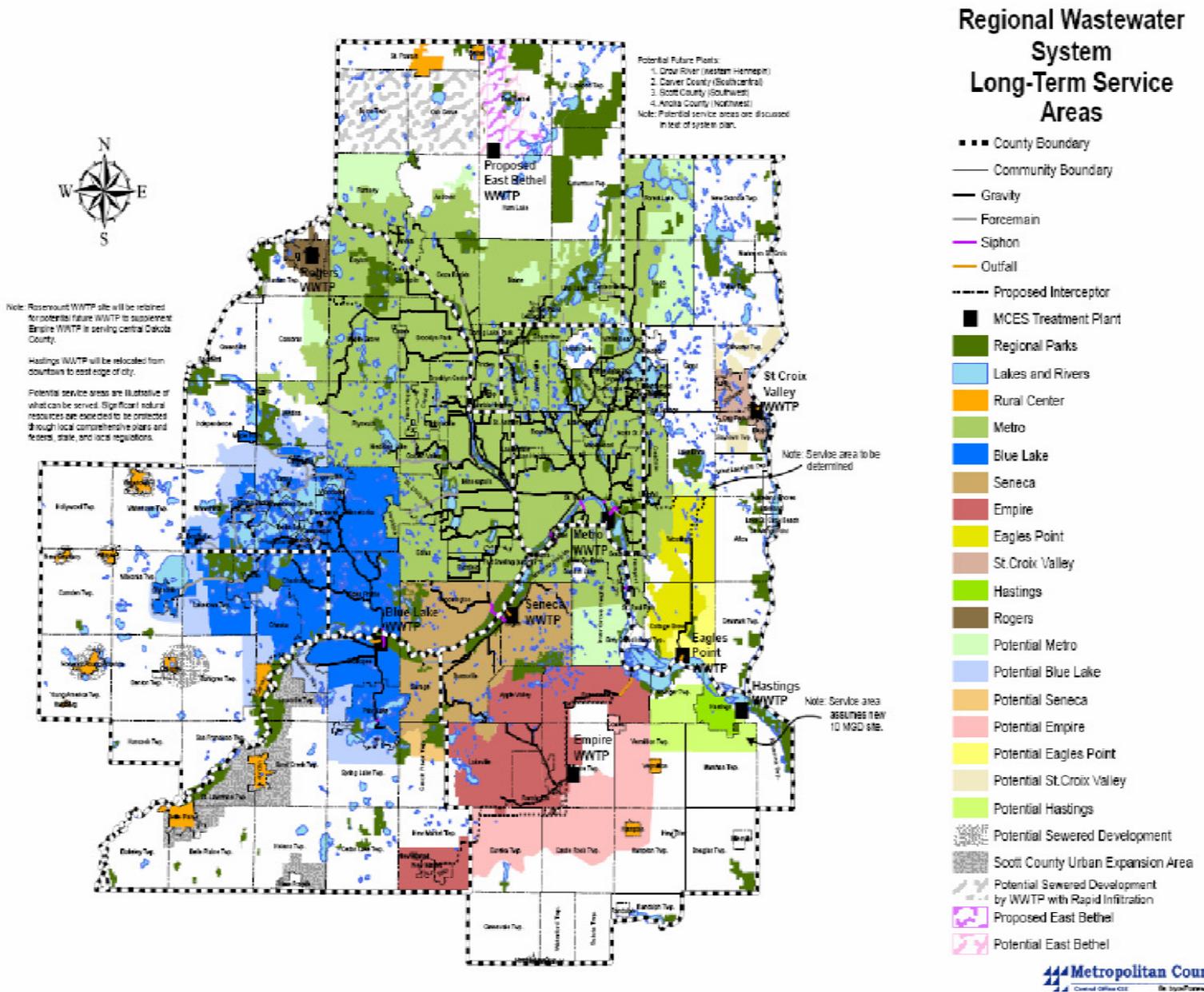


Figure VII-6. Regional Wastewater System Long-Term Service Areas

**Insert Figure VII-7.** *Figure VII-7 also identifies three existing developed areas within the 2030 sewer area. These areas are the Village Green mobile home community, the Castle Towers mobile home community, Whispering Aspen, and the area adjacent to Coon Lake*

The City has estimated the net residential density within the pre-2030 sewer area for all developed and under developed property. The calculation is summarized in Table VII-6. The estimate net residential density is 3.5 units per acre. The City has also estimated the net residential density assuming the existing three developed areas previously discussed are also connected to municipal services. The calculation is summarized in Table VII-7 and represented in Figure VII-7. The net residential density is 3.12 units per acre.

Table VII-3 projects that 5,100 households will be sewer by the year 2030. The 5,100 households were based on a consensus reached by the City and the Metropolitan Council, which was based on historic growth rates in other similar communities. The net density Table VII-7 shows a total of 7,873 units, which are or will be within the 2030 sewer area. Table VII-7 assumes full build out of all 2030 sewer areas and connection of the three developed areas proposed for sewer as previously discussed. The calculation in Table 5 and 6 present the maximum household potential within the 2030 sewer areas, and not the projected household numbers.

The City understands that if a MCES owned and operated plant is constructed, the design will be based on the projected 5,100 households. The City also understands that they will need to provide MCES adequate time to upgrade the sewer treatment capacity if trends indicate that the 5,100 units will be exceeded by 2030.

**Table VII-6. Net Residential Density for Pre-2030 Developed and Under Developed Areas**

Land Use	Single Family # of Units	Multi Family # of Units	Acres Gross Resid.	Acres Wetland & Water-bodies	Acres Public Parks & Open Space	Acres Arterial Roads ROW <sup>1</sup>	Acres Other Undeveloped Land <sup>2</sup>	Net Residential Acres	Net Density Units/Acre
	A	B	C	D	E	F	G	H=C-D-E-F-G	(A+B)/H
Low/Medium Density Residential <sup>1</sup>	3,504		1,644	462	0	14	0	1,168	3.0
Medium Density Residential		2,244	744	158	0	25	0	561	4.0
Mixed Use Development <sup>2</sup>		995	354	26	0	33	96	199	5.0
<b>TOTAL</b>	<b>3,504</b>	<b>3,239</b>	<b>2,742</b>	<b>646</b>	<b>0</b>	<b>72</b>	<b>96</b>	<b>1,928</b>	<b>3.5</b>

<sup>1</sup> Areas of Arterial Right-of way includes TH65 and Viking Boulevard.

<sup>2</sup> The other undeveloped land in Mixed Use Development will be commercial.

**Table VII-7. Net Residential Density for Pre-2030 Developed and Under Developed Areas and Existing Developed Areas within the 2030 Sewer Area**

Land Use	Single Family # of Units	Multi Family # of Units	Acres Gross Resid.	Acres Wetland & Water-bodies	Acres Public Parks & Open Space	Acres Arterial Roads ROW	Acres Other Undeveloped Land	Net Residential Acres	Net Density Units/Acre
	A	B	C	D	E	F	G	H=C-D-E-F-G	(A+B)/H
<b>A. Undeveloped and Under Developed Areas</b>									
Low/Medium Density Res.	3,504		1,644	462	0	14	0	1,168	3.0
Medium Density Residential		2,244	744	158	0	25	0	561	4.0
Mixed Uses Development <sup>2</sup>		995	354	26	0	33	96	199	5.0
<b>Subtotal</b>	<b>3,504</b>	<b>3,239</b>	<b>2,742</b>	<b>646</b>	<b>0</b>	<b>72</b>	<b>96</b>	<b>1,928</b>	<b>3.50</b>
<b>B. Existing Development Areas</b>									
Coon Lake Area	613		602	164	0	0	0	438	1.4
Village Green	167		40	2	0	0	0	38	4.4
Castle Towers/Whispering Aspen	350		129	15	0	0	0	114	3.1
<b>Subtotal</b>	<b>1,130</b>		<b>771</b>	<b>181</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>590</b>	<b>1.92</b>
<b>Total</b>	<b>4,634</b>	<b>3,239</b>	<b>3,513</b>	<b>827</b>	<b>0</b>	<b>72</b>	<b>96</b>	<b>2,518</b>	<b>3.12</b>

## Technology

Technological advances often result in changes to development patterns, transportation systems, and growth management policies of a community. One of the greatest challenges, particularly for growing rural communities, is the opportunities technology presents in the way of communications.

The City of East Bethel is committed to pursuing traditional as well as creative opportunities to implement technological infrastructure and improvements that will enhance the City's ability to share information, coordinate with other public and private organizations, and provide cost-effective services whenever possible.

### Goal:

*Identify and implement state-of-the art infrastructure and services that support the changing needs and challenges of today and tomorrow's market.*

### Policies:

1. Improve communications to provide accessibility to City Hall and community related information through the use of technology.
2. Pursue opportunities to broaden access to higher technology and expand on existing services whenever possible.
3. Provide technology in areas necessary to support commercial and business related activities.
4. Accommodate the reasonable use of public rights-of-way for communications while providing for all required public services.
5. Upgrade cable service to include digital service, high-speed internet access, and expanded community access to system.
6. Work with Anoka County and other resources to utilize and expand Geographic Information System (GIS) mapping capabilities; complete bi-annual and/or annual updates to City's parcel data based on rates of development and growth needs.
7. Expand telecommunications to include fiber-optic technology, options related to internet access, and other state-of-the art equipment.

Using minimum densities, Table VII-8 summarizes a theoretical land demand using Metropolitan Council's density calculations for the City.

**Table VII-8. Projected Development by Land Use and Estimated Land Demand**

<b>Land Use</b>	<b>Households</b>	<b>Acres</b>	<b>Net Residential Density and Total Employment</b>
<b>2010-2015</b>			
Low/Medium Residential	890	297	3 units per acre
Medium Residential	160	40	4 units per acre
Mixed Use Residential	400	80	5 units per acre
<b>Subtotal</b>	<b>1450</b>	<b>417</b>	<b>Average 3.5 units per acre</b>
<b>Est. Employees/Acre</b>			
Commercial	5	122	610
Light Industrial	5	0	0
Mixed Use Commercial	6	156	936
Public/Institutional	2	12	24
Park/Open Space	0	21	0
<b>Subtotal</b>		<b>311</b>	<b>1570</b>
<b>2015-2020</b>			
Low/Medium Residential	645	215	3 units per acre
Medium Residential	480	120	4 units per acre
Mixed Use Residential	325	65	5 units per acre
<b>Subtotal</b>	<b>1450</b>	<b>400</b>	<b>Average 3.6 units per acre</b>
<b>Est. Employees/Acre</b>			
Commercial	5	140	700
Light Industrial	5	73	365
Mixed Use Commercial	6	18	108
Public/Institutional	2	12	24
Park/Open Space	0	20	0
<b>Subtotal</b>		<b>263</b>	<b>1197</b>
<b>2020-2025</b>			
Low/Medium Residential	505	168	3 units per acre
Medium Residential	400	100	4 units per acre
Mixed Use Residential	195	39	5 units per acre
<b>Subtotal</b>	<b>1100</b>	<b>307</b>	<b>Average 3.6 units per acre</b>
<b>Est. Employees/Acre</b>			
Commercial	5	24	120
Light Industrial	5	128	640
Mixed Use Commercial	6	32	192
Public/Institutional	2	9	18
Park/Open Space	0	15	0
<b>Subtotal</b>		<b>208</b>	<b>970</b>
<b>2025-2030</b>			
Low/Medium Residential	721	240	3 units per acre
Medium Residential	304	76	4 units per acre
Mixed Use Residential	75	15	5 units per acre
<b>Subtotal</b>	<b>1100</b>	<b>331</b>	<b>Average 3.3 units per acre</b>
<b>Est. Employees/Acre</b>			
Commercial	5	24	120
Light Industrial	5	128	640
Mixed Use Commercial	6	0	0
Public/Institutional	2	10	20
Park/Open Space	0	17	0
<b>Subtotal</b>		<b>179</b>	<b>780</b>