CITY OF JOHNSON CITY, TENNESSEE

PUBLIC FACILITIES AND SERVICES PLAN

FREEDOM HALL

COMPREHENSIVE PLAN

INTRODUCTION

The Public Facilities and Services Plan forms the basis of any community, helping neighborhoods to function as a unit, and benefiting the city's economy, housing market, and transportation system. Public facilities include those lands, infrastructure, facilities, and services that are provided on a public or semi-public basis in the interest or benefit to the residents of the community. The importance of these facilities should not be under-estimated in that they are offered as a major contributor to the quality of life and safety within the urban environment. This plan strives to coordinate capital improvement planning with the city's anticipated future growth and development.

The Public Facilities and Service Plan identifies the existing and proposed location and type of water and sewer utilities, cultural facilities, libraries, police stations, and other related facilities to the surrounding area. The city of Johnson City provides a range of high quality public facilities and services, and the Comprehensive Plan seeks to sustain and enhance these services. Quality services are an important element of a mature residential community. The term "public facilities" includes buildings, land, interests in land (e.g., easements), and equipment of government services on behalf of the public. They may include facilities that are operated by public agencies as well as those that are owned and operated by private (for-profit or non-profit) enterprises for the benefit of the community.

In order to enhance the quality of life within Johnson City, it is fundamental that adequate public facilities are provided for its residents. The city has a history of planning for public improvements, a Community Facilities/Public Improvement Plan was prepared in June 1962 and updated in May 1974.

The Planning Commission's Comprehensive Plan Vision Statement, developed as part of the Comprehensive Plan and approved by the Johnson City Regional Planning Commission in 2002, states that as part of the broad-based continuous planning effort the city should " Develop a high-quality community that meets the ever-changing needs of all its citizens," "Provide high-quality public services with fiscal and technological efficiency," and "Create a quality-of-life that is unsurpassed in the region." The 2003 Citizen Survey conducted by the Planning Commission indicated that city services were adequate or better with no city service receiving a substandard rating. The survey showed that the public library, provision of fire/emergency protection, and garbage collection ranked as the top services in citizen satisfaction. In addition, a high level of satisfaction was given to police protection, utilities, public education, and senior citizen services. The public facilities in Johnson City are of high quality and not in need of significant improvement except to maintain the high level consistent with future growth.

PURPOSE OF THE PLAN

The purpose of the Public Facilities and Service Plans is to investigate and evaluate existing public facilities and to propose new or improved facilities to support the future land use patterns and to meet projected needs of the city and its residents. The Plan will also help establish levels of service necessary to meet the needs and requirements of the city and its residents. This will

better prepare the city to plan and make capital or operating improvements to the specified facilities in a timely, orderly, and cost-effective manner, including the optimal use of existing facilities as an alternative to expansion or new construction.

Schools, fire protection, and parks and recreational facilities are addressed separately in other elements of the Comprehensive Plan. Golf course facilities will be addressed in a revision to the Parks and Recreation Master Plan.

ASSUMPTIONS

The following assumptions identify conditions and trends in the formulation of recommendations and policies:

1. The city will implement a progressive annexation policy consistent with the Urban Service Area's policy of promoting a compact development pattern;

2. Population growth will continue at a moderate rate;

3. Utility extensions and improvements will be consistent with Land Use Plan recommendations, thereby avoiding costly extensions as a reaction to development;

4. There will be a continuing demand from city residents and businesses to maintain or improve levels of service;

5. There exists the ability for cooperation with surrounding cities, counties, and major institutions to provide various services to the residents;

6. The city will continue to improve and expand utility services to serve existing and projected growth ***within priority growth areas***;

7. The city will continue a planned program to provide an adequate water distribution system for domestic us and fire protection; and

8. The city will continue to require stormwater retention in future developments and will continue to improve the quality of storm water runoff in order to meet State and Federal Clean Water Regulations.

WATER AND SEWER FACILITIES

In urban areas, a dependable water supply and wastewater treatment provide the foundation for a high quality of life and orderly, well-planned growth. The provision of adequate water and sewer services are necessary for meeting basic health and safety needs and are considered a responsibility of local government. In order to meet the increasing demand for new homes and businesses in an increasingly urban Johnson City, the continued expansion and improvement of outdated and inadequate utilities are an essential requirement for the attainment of a healthy livable community.

Relationship to the Comprehensive Plan

The provision of an adequate level of utility services is vital to the continued growth and prosperity of the city. Planning the location and size of water and sewer lines is necessary for orderly and managed growth. The same holds true for regulating development in flood hazard areas and the management of the quantity and quality of stormwater runoff. As part of the growth management process proposed in the Comprehensive Plan, development should be coordinated with the provision of utilities and city services. The city's development policies should ensure that urban development is fully-served by utilities. Policies should be coordinated and evaluated to ensure that they encourage development that is contiguous to existing utilities and do not perpetuate urban sprawl.

Urban development requires the provision of an adequate level of water and sewer service in order to avoid health and safety related issues. Land use decisions are based on the availability and capacity of utility systems to accommodate future growth. The provision of adequate water service, for example, affects the city's Insurance Services Office (ISO) rating and the annual fire insurance premiums paid by city residents and businesses. The provision of public sanitary sewer service assists in avoiding health and environmental concerns associated with developments utilizing septic systems as a means of waste disposal.

WATER SERVICE

History of Water Service

Unicoi Water Treatment Plant

Water service was first introduced to the Johnson City area in 1850 by a private company which supplied water from Sinking Creek. In 1910, the system was acquired by the city. In 1912, due to an inadequate supply and unsatisfactory quality, a new supply was developed at Unicoi Springs which remained the city's sole source of water until 1946. At that point, a new 2 million gallon a day (MGD) filter plant was constructed adjacent to North Indian Creek near Unicoi Springs. Following years of growth and water supply problems, the Watauga River was selected as an additional source of water, and a filtration plant was constructed in 1968.

Since then, the city has continued to make improvements to its supply and distribution system including the purchase of the Consolidated Water District and the Sulphur Springs District. In 2005, the two sources of water, Unicoi Springs and the Watauga River provided a combined treatment capacity of 28 MGD. Service is provided to approximately 36,000 customers through a system of approximately 800 miles of pipe serving 300 square miles located primarily in Washington County with other service areas in Carter, Sullivan, and Unicoi counties.

Watauga River Water Treatment Plant

Standards for Public Water Systems

The Safe Drinking Water Act of 1977 requires all public water systems to meet standards for pollutants, suspended solids, and natural contaminants. The Tennessee Department of Health and Environment, Division of Water Supply, is responsible for enforcing the Act in the state. The Department has developed detailed standards which govern treatment methodology, water quality, and testing requirements. Public water systems are tested for chemical contaminant levels as well as standards for aesthetic quality.

In addition, the State also requires all public utility systems to meet health standards for bacterial contamination. E. coli (coliform), a common, easily identified bacteria is used as an indicator for other, more dangerous organisms. All utility systems are required to periodically test for the presence of bacteria to ensure safe drinking water as mandated by the 1977 Act.

Water Quantity

Determining the quantity of water available to customers involves the identification of the amount of raw water available and the capacity of the water treatment plants. East Tennessee is a water-rich region and the city can draw upon several resources for drinking water, irrigation, and industrial processes. However, these resources must support a variety of uses in addition to water supply. These uses include recreation, power production, fisheries, and in some cases a discharge source for wastewater treatment facilities.

Water treatment plants are expensive, complex facilities which are required to meet federal, state, and local standards. These plants have limited capacities and must be able to supply adequate quantities of water for a variety of needs. Failure to meet the increasing demand for water would have a negative impact on the city's ability to accommodate future growth.

Water demand has three components: average demand, peak demand, and emergency demand. Average demand is the normal, daily water use of the service area. Peak demand occurs when water usage is unusually high, generally during hot summer months or droughts when irrigation is high. Emergency demand involves the level of water supply necessary in order to provide

adequate fire flow for major fires. It is necessary in the planning and design of a water system that all these components of demand are taken into consideration.

Water Delivery System

The delivery of water from the water treatment plant includes a system of water mains, smaller distribution lines, pump stations, and storage tanks. Since the construction and maintenance of water systems is expensive, it is essential that certain principles be followed in facility design and construction. These are based on generally accepted planning and engineering criteria that require adherence to local, state, and federal regulations.

1. It is generally agreed that public water service should be flexible and reliable. Two patterns are typically used in the design of water systems - the "tree system" and the grid or loop system. The tree system is less flexible and subject to increased service interruption. The grid or loop system, while more expensive, is more flexible and reliable. A single blockage or break in the line can be bypassed and normal pipe maintenance and replacement can occur without interrupting service to nearly all customers. The grid or loop system also eliminates dead ends where stagnant water can collect.

2. In general, public water facilities should be sited in locations that minimize damage from natural forces and that reduce conflicts with other utilities. State regulations prohibit construction of facilities at locations prone to earthquakes, flooding, or other natural events.

3. New water mains should be designed to provide excess capacity to allow for future expansion of the system. Johnson City has adopted policies to encourage compact, contiguous, and infill development through adoption of the Urban Service Area. This pattern of development reduces the need for lengthy extensions and uses existing capacity more efficiently.

4. The water distribution system should provide adequate capacity and pressure for firefighting purposes. Generally, fire hydrants require a minimum line size of six inches.

Existing Water System

The city of Johnson City's water system is operated as an Enterprise Fund with its operating costs and capital improvements funded by annual revenues received from its customers. The system is operated by the Johnson City Water and Sewer Department with the director reporting to the City Manager.

Water service is provided to residential and nonresidential uses by a system of mains, distribution lines, pump stations, and storage tanks. The city's Water and Sewer Department's system includes two water treatment plants and in 2005, approximately 855 miles of lines of varying sizes. Table 1, summarizes the age of the water distribution system.

Table 1: Age of Water Distribution System

Year Constructed	Miles	Percent of Total System
1890-1929	47	5.5
1930-1959	101	11.8
1960-1979	173	20.2
1980-1999	279	32.7
2000-2005	122	14.3
Undated	133	15.5
Total	**855**	**100**

Source: Johnson City Water and Sewer Department, 2006

The majority of these lines are made from cast or ductile iron. The life-span of these pipes varies greatly depending on the type of material, the manufacturer of the pipe, and the soil conditions.

As previously stated, the city receives its water from two sources and serves the area within the corporate limits and unincorporated portions of Washington, Carter, and Sullivan counties. The city also provides water service to a portion of Unicoi County. Table 2 summarizes the city's water treatment facilities.

Table 2: Water Treatment Supplies, 2005

Facility	Date Constructed	Year of Last Expansion	Capacity (MGD)	Average Daily Flow (MGD)
Watauga WTP	1968	2002	24	13
Unicoi WTP	1946	1996	4	3.5

Source: Johnson City Water and Sewer Department, 2006

Water Quality

Treatment of the water, prior to consumption, is in accordance with EPA regulations prescribed in the Safe Drinking Water Act of 1977. The Tennessee Department of Health and Environment is responsible for enforcing the Act in the State. Contaminants that may be present in the city's sources of water and that require treatment include the following:

- Microbial Contaminants – such as viruses and bacteria resulting from sewage treatment plants, septic systems, agricultural operations, and wildlife;
- Inorganic Contaminants – such as salts and metals generally the result of stormwater runoff, and other sources such as industrial discharge;
- Pesticides and Herbicides – resulting from a variety of sources such as agricultural operations, stormwater runoff, and residential uses;
- Organic Chemical Contaminants – which are by-products of industrial processes and can also originate from service stations and stormwater runoff; and

- Radioactive Contaminants – which can be naturally occurring or be the result of oil and gas production and mining activities.

The city's two water treatment plants treat water using filtration and disinfection to remove harmful contaminants in raw water sources. The plants have designed capacities and must be able to supply adequate quantities of water to meet a variety of expanding needs.

Storage Facilities

Treated water is stored in 11 elevated storage tanks located on the various ridges within the Urban Growth Boundary (UGB). There is also one elevated storage tank just outside the UGB, but serves portions of the UGB. There is also an abandoned water tank off North Roan Street that has not been removed.

Elevated storage tanks that serve the UGB have a combined capacity of 12,800,000 gallons. Elevated storage tanks are also located at the Veterans Administration (400,000 gallons) and East Tennessee State University (500,000 gallons). The location of the treatment facilities, storage facilities, and major water mains, 10-inches or greater, are illustrated on Map 1.

From these storage facilities, the water is distributed throughout the area in lines of varying sizes. Lines less than 6 inches in diameter, while capable of providing water for domestic use, are insufficient in size for fire protection and can not accommodate a fire hydrant. Water distribution is maintained under pressure and flows primarily by gravity throughout the service area with some pumping required to higher elevations. As a result, water lines do not follow topography as closely as do sewer lines nor do they function as significant contributors to the process of urban sprawl.

Table 3: Storage Tanks in the Urban Growth Boundary, 2005

	Facility	Location	Capacity (Gal.)
1	Eastman Water Tank	Lancaster Road	200,000
2	Gray Station Water Tank	Mohler Road	500,000
3	Masters Knob Water Tank	Sherri Hill Road	2,000,000
4	Indian Ridge Water Tank	Wind Tree Lane	2,000,000
5	Tannery Knob Water Tank	Chamber Drive	3,100,000
6	Liberty Bell Water Tank	Pactolas Road	300,000
7	West Hills Water Tank	North Barton Street	500,000
8	Carter Hill Water Tank	Southwest Avenue	3,000,000
9	College Heights Water Tank	Narrow Lane	100,000
10	Cherokee Water Tank	Seward Drive	300,000
11	Water Tank Hill Water Tank	Water Tank Hill Road	300,000
12	Industrial Part Water Tank	Industrial Park	500,000

Source: Johnson City Water and Sewer Department, 2006

SANITARY SEWER SERVICE

History of Sewer Service

Brush Creek

Prior to 1947, sanitary sewer service in Johnson City was provided by private septic tank systems and by a public system that pre-dated the 1900s. The system consisted of approximately 60 miles of lines varying in size from 6 to 30 inches in diameter. In 1947, the system served 90 percent of the city's residential dwelling units. The public system collected raw sewage and discharged it into Brush Creek and its tributaries. The sewage then emptied untreated into the Watauga River. In addition, there were several private sewer lines that also carried untreated industrial and domestic wastes that were emptied directly into Brush Creek.

The resulting environmental impacts and unsanitary health conditions were outlined in a joint report by the State of Tennessee and the Tennessee Valley Authority and presented to the Planning Commission in 1946. The report stated that Johnson City, along with other cities, were a source of the pollution of the South Fork Holston River. The report further stated that Johnson City was also partially responsible for pollution that was potentially hazardous to the city of Kingsport's water supply.

In 1947, a report by Frederic R. Harris Engineering Corporation and Greeley and Hansen Engineers proposed a system of intercepting sewers and the construction of the city's first wastewater treatment plant. Following several years of planning and further study, the Brush Creek Wastewater Treatment Plant was constructed in 1956.

Brush Creek Waste Water Treatment Plant

Standards for Wastewater Systems

Quantity

To ensure sufficient wastewater treatment capacity, it is necessary to project the quantity of wastewater expected to be produced. Methods used to project demand for wastewater services include:

1. Water usage – if water usage is known or can be projected, approximately 80 percent of water used will require wastewater treatment.

2. Land use – identification of specific land uses can be used to estimate wastewater. Different uses, i.e. hotels, retail, warehouses, and industrial produce different amounts of wastewater.

3. Per capita usage – the Environmental Protection Agency estimates that each person produces 100 gallons of wastewater per day. The Tennessee Department of Health and Environment requires the use of this method when actual waste production figures are not available.

In estimating the quantity of wastewater, infiltration and inflow are important considerations that should be factored into the totals. Infiltration is the result of natural groundwater and stormwater runoff entering the sewer system through cracks and breaks in the lines. Inflow is the result of illegal connections to the public sewer system. Infiltration and inflow can overload sewage treatment plants during storms resulting in the release of untreated, contaminated water into rivers and lakes.

Collection System

The city of Johnson City has detailed standards for the design and construction of the public wastewater system. These standards exceed the State of Tennessee standards and regulate pipe materials, pipe size, man holes, and other factors related to the construction of the collection system.

As with water systems, wastewater collection systems are most efficient when they serve a compact pattern of development. Conversely, urban sprawl results in a system that is not cost effective due to the expense in extending service to scattered piecemeal development. A compact development pattern can reduce capital expenditures for new mains and pump stations which also reduces maintenance costs. The city's adoption of the Urban Service Area encourages infill development, which uses existing utility lines, thereby reducing the need for costly extensions of service.

Treatment and Disposal

In general, three methods of wastewater treatment are utilized: primary, secondary, and tertiary. Primary treatment, not used in Johnson City, utilizes mechanical means to remove the coarser solids in the waste stream. Secondary treatment, used at the Brush Creek and Knob Creek wastewater treatment plants, adds more extensive filtering, settling basins, and chemical treatment. Tertiary treatment, used at the Regional Wastewater Treatment Plant employs activated charcoal and mechanical filters, advanced chemical treatment, and other methods directed at removing the majority of all biological wastes and organic chemicals.

Once treated, wastewater is discharged into rivers, streams, and lakes. Sewage treatment plants must have a National Pollution Discharge Elimination System Permit (NPDES), which is granted by the Tennessee Department of Health and Environment, Division of Water Pollution Control. The NPDES permit requires the utility to meet certain standards for biochemical oxygen demand, suspended solids, chemical contaminants, and fecal coliform bacteria. All municipal sewage treatment plants are required to complete periodic reports concerning discharges into the State's waters.

A by-product resulting from the sewage treatment process is a residue of semi-liquid "sludge". The Johnson City Water and Sewer Department utilizes land application and the Iris Glen Landfill to dispose of its sludge.

Land application is the process of spreading the sludge on open land or farmland. The sludge must not be toxic, and the land selected for land application must have soils which limit contamination of groundwater from sludge runoff. Sewage treatment plant sludge is valuable as a natural fertilizer for agricultural use. In 2005, the city disposed of 1,552 dry tons of sludge with 425 tons or 28 percent disposed of through land application. The Iris Glen Landfill received 1,127 tons or 72 percent of the total sludge produced in 2005.

Existing Sewer System

The operating costs and capital improvements related to the city's wastewater treatment facilities derive their funding from annual revenues received from its customers through an Enterprise Fund, similar to the water system. The sewer system is operated by the Johnson City Water and Sewer Department.

Individual household and business waste is collected throughout the area by a system consisting of sewer lines, mains, and pump stations. The city's Water and Sewer Department's total system includes three wastewater treatment plants and approximately 480 miles of lines. Table 4 summarizes the age of the wastewater collection system.

Table 4: Age of the Wastewater Collection System

Year Constructed	Miles	Percent of Total System
1900-1929	21	4.4
1930-1959	33	6.8
1960-1979	171	35.6
1980-1999	197	41.1
2000-2005	23	4.8
Undated	35	7.3
Total	**480**	**100**

Source: Johnson City Water and Sewer Department, 2006

The majority of these lines are made from clay, concrete, or polyvinyl chloride (PVC). The life-span of these pipes varies significantly depending on the type of material, the manufacturer, and the type and volume of waste.

The majority of Johnson City's wastewater system consists of gravity lines. Gravity sewers utilize the force of gravity to ensure a steady flow of sewage through the collection system. Gravity lines also reduce the need for expensive pump stations and their operating and maintenance costs. Most gravity sewer systems operate within geographic drainage basins where the topography allows wastewater to collect at specific points. Pump stations then pump the collected wastes across drainage basins into mains that lead to one of three wastewater treatment plants.

Once collected, raw sewage must be treated to reduce its impact on the environment. Table 5 provides a summary of the three wastewater treatment plants that serve the city's Urban Growth Boundary.

Table 5: Summary of Wastewater Treatment Plants

Name of Facility	Year Built	Year of Latest Expansion	Capacity (MGD)	Water Outfall
Brush Creek WWTP	1956	1985	16	Watauga River
Knob Creek WWTP	1971	1984	4	Boone Lake
Regional WWTP	1978	-	2.25	Holston River

Source: Johnson City Water and Sewer Department, 2006

The Regional WWTP is reaching capacity due to the growth experienced in its service area. The plant, constructed in 1976, has not been expanded and the city is presently planning an expansion to accommodate existing and projected growth.

The projects identified in the Community Investment Program address specific needs within a five-year time frame. The following recommendations provide guidance to continuing projects to the year 2020.

Water

- Federal and state mandates will continue to require additional investment in the water treatment and distribution system.
- Future investment will be required in transmission lines to accommodate future growth.
- As growth occurs, additional storage tanks will be needed to accommodate growth and provide for emergency needs.

Sewer

- Federal and state mandates will continue to require additional investment in the wastewater treatment system.
- Continue the replacement/rehabilitation of the sanitary sewer system to reduce infiltration and inflow.
- Future growth will require larger lines to accommodate growth.
- Future growth and age of the Knob Creek Wastewater Treatment Plant will require renovation/expansion of the facility.

Table 6, summarizes projects in the Water and Sewer Department's Capital Investment Program.

TABLE 6: COMMUNITY INVESTMENT PROGRAM

	SEWER PROJECTS	PROJECT DESCRIPTION	SCHEDULED COMPLETION
1.	**Regional Wastewater Treatment Plant Expansion**	To increase the treatment capabilities of the Regional WWTP due to growth in the Regional Sanitary Sewer Drainage Basins. The plant capacity will be increased from the existing average daily flow of 2.25mgd to 6mgd. This will be the first expansion since the plant was constructed in 1978.	2008
2.	**Regional Sewer Capacity Improvements**	This project involves an in-depth review of the Regional Collection System and recommendation will be made as to the upgrade of several major sewer lifts stations. Recommendations will also be made for future sewers in undeveloped areas based upon current growth patterns.	2008
3.	**Brush Creek Treatment Plant Biosolids Phase 2**	Design and installation of process equipment to move towards Class "A" biosolids. The overall environmental compliance of the wastewater treatment facilities depends on the ability to handle and manage the biosolids.	2009

4.	**Brush Creek Interceptor Replacement**	This project will replace a portion of the Brush Creek Sewer Interceptor between I-26 and Broadway Road. This project will help eliminate flow restrictions in the Downtown area.	2007
5.	**Brush Creek Interceptor Cleaning & Inspection**	This project will increase the hydraulic carrying capacity of the Brush Creek line and reduce the number of back-ups and overflows.	2007
6.	**S.R. 36 & S.R. 75 Road Improvement Projects**	Utility relocation for Phase 1 & 2 of the Kingsport Hwy (S.R. 36) Road improvement projects. This project begins at S.R. 381 and continues north to the Sullivan County line. Utility relocations for the S.R. 75 road improvement project. This project begins at S.R. 36/S.R. 75 intersections and continues along S.R. 75 to the Tri-City Airport.	2010
7.	**Sewer Line Rehab / Replacement**	To provide an annual replacement or rehabilitation of the sewer system. This project would allow a goal of 1% of the system to be rehabilitated or replaced.	On-going
8.	**Knob Creek & Brush Creek Collection System**	This project will determine if the Knob Creek & Brush Creek WWTP should be expanded to meet the treatment criteria.	2007
9.	**Wastewater SCADA System Phases 1, 2 & 3**	Develop and installation of a wastewater SCADA System for remote operation and monitoring of the sewer lift and pumping stations.	2008
10.	**Wastewater Treatment Plant Equipment Replacement**	Annual amount to replace equipment at the Brush Creek and Knob Creek WWTP such as blowers, motors, and electrical control components.	On-going
11.	**Sewer Line Cleaning and Inspection**	Develop and implement a plan to annually clean collection system lines to improve the hydraulic carrying capacity of the lines as well as to identify sections for replacement. This will also reduce the number of back-ups and overflows.	On-going
	WATER PROJECTS	PROJECT DESCRIPTION	
12.	**S.R. 36 & S.R. 75 Road Improvement Projects**	Utility relocation for Phase 1 & 2 of the Kingsport Hwy (S.R. 36) Road improvement projects. This project begins at S.R. 381 and continues north to the Sullivan County line. Utility relocations for the S.R. 75 road improvement project utility relocations for the S.R. 75 road improvement project. This project begins at S.R. 36/S.R. 75 intersections and continues along S.R. 75 to the Tri-City Airport.	2010

13.	**Water Tank Improvements**	Inspection and repairs to several water tanks in the distribution system as well as any demolition of old structures no longer required.	2009
14.	**Water Master Plan Update**	Providing and updating the hydraulic model for the water system. This project will lay the groundwork for future water system improvements. The last plan update was completed in 1992 and was used for the Capital Improvement Plan approved in the late 1990s.	2007
15.	**Redundant Line for Cherokee & College Heights Water Tanks**	This project will provide an alternate feed to water tanks for peak demand and emergency back-up for the Cherokee Road area including ETSU.	2006
16.	**City Water Main Rehabilitation**	Clean and line water mains inside the corporate limits sizes 6" and larger to restore the hydraulic integrity and improve water quality especially in the Downtown area.	2007 then On-going
17.	**Galvanized Water Line Replacement**	To provide an annual replacement or rehabilitation of the water system. This project would allow a goal of 1% of the system to be rehabilitated or replaced.	On-going
	MISC. PROJECTS	PROJECT DESCRIPTION	
18.	**Annexation Services**	Annual amount required to provide water and sewer services to newly annexed areas without delays.	On-going
19.	**Utility Relocations for City Road Projects**	Estimated amount required to relocate existing water & sewer lines for city road improvement projects.	On-going
20.	**Treatment Plant Disinfection Modifications**	Chlorine gas is currently being used at all wastewater treatment plants as the sole method of disinfections. With all of life safety issues dealing with chlorine gas, this project will look at all available options for improving disinfections safety at all wastewater treatment plants.	2007

Source: Johnson City Water and Sewer Department

STORMWATER MANAGEMENT

In August 2003, Johnson City experienced severe flooding around the city causing considerable damage. All of the five major drainage basins, especially the Brush Creek and King Creek basins that flow through downtown experienced flooding. This flooding was primarily due to record rainfalls but was also due to the continued development of the overall stormwater drainage basins and the continued encroachment of development into the floodplains. Developing and filling of the floodplain takes away valuable storage capacity for stormwater

runoff. As development within the overall drainage basins continues, stormwater runoff will increase. The increased stormwater volumes flow down to increasingly restricted floodplains, leaving no place for the water to go except out of its banks.

In an effort to reduce runoff, the city in 2000 revised its stormwater regulations to require a developer to detain the runoff for a 25-year storm event. Previously, the requirement was to detain only for a 10-year event. In the fall of 2003, the city revised its regulations again to require the detention for a 100-year event to further reduce stormwater runoff.

National Pollutant Discharge Elimination System

In December of 2000, the U.S. Environmental Protection Agency (EPA) established a Program that requires certain small municipalities to participate in the National Pollutant Discharge Elimination System Permit Program (NPDES) and obtain a stormwater permit. The NPDES permit program was established to control water pollution by regulating point sources that discharge pollutants into surface waters. Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal sewer system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

The NPDES Phase II Program requires cities with populations over 10,000 to submit a five-year Stormwater Management Plan. The Tennessee Department of Environment and Conservation (TDEC) is the NPDES permitting authority for the State. The plan must address the following control measures:

1. Public education and outreach on stormwater impacts;

2. Public involvement and participation;
3. Illicit discharge detention and elimination;
4. Construction site stormwater runoff control;
5. Post-construction stormwater management in new development and redevelopment; and
6. Pollution prevention/good housekeeping for municipal operations.

In February 2003, the city filed a Phase II Storm Water Permit Notice of Intent outlining how it would meet each of these requirements. It includes the following:

1. Public education and outreach on stormwater impacts

The city will continue to promote its annual Household Hazardous Waste Collection Day. In addition, the city will develop and distribute pollution prevention brochures, provide educational programs for school children and stencil "No Dumping" warnings on storm drains. Instead of stenciling the catch basins which would fade out and require repainting every few years, the city decided to require that all new inlets and manhole covers have the environmental message cast into the metal.

2. Public involvement and participation

There is currently adequate notice and opportunity for the public to participate. All city ordinances require three readings with a public hearing held at the second reading. Public notice of the readings and public hearing is given with the posting of the City Commission agenda on the Government Channel on the local cable television service. The city also provides a news release to all the major media providers notifying them of each reading of the city ordinances.

3. Illicit discharge detention and elimination

The city agreed to undertake three major "Best Management Practices" (BMP) which include:

a. Adopting an illicit discharge ordinance to provide regulatory guidelines and enforcement tools. This ordinance was adopted in December 2004.
b. Mapping the stormwater sewer system. Identify the discharge points of all of the culverts dumping into streams and conduct annual inspections for illegal dumping. Currently, the city's stormwater mapping is limited. Therefore, the cost of mapping could be significant ($150,000- $250,000). The funding source for this project is anticipated to be from the proposed Stormwater Utility Fee discussed later in this section.

c. Provide for a complaint receipt and tracking system so that the public may provide input.

4. Construction site stormwater runoff control

To meet this requirement, the city proposed two major initiatives. First, the city would update the Sediment and Erosion Control Regulation, completed in December of 2004. Second, the city would be more aggressive in its enforcement of these regulations, which could require the equivalent of at least one new full-time inspector. If the Stormwater Utility Fee is approved, the city proposes to hire a Stormwater Manager and maintenance crew to perform inspections and make repairs.

5. Post-construction stormwater management in new development and redevelopment

The city proposes to adopt a Post-Construction Stormwater Runoff ordinance to improve stormwater quality. This could drastically change development techniques in the city, or at a minimum provide the economic incentives to do so. The structural design requirements of retention/detention basins and sediment control methods may be amended to require greater open space areas to filter the runoff in order to improve water quality discharge. Other non-structural methods will be analyzed which include concepts such as cluster housing and other open space developments. Attempts to reduce impervious surface and increase open space could also result in amendments to the Zoning Ordinance and Subdivision Regulations. AMEC Consultants, an environmental engineering firm has been contracted by the city to develop a draft ordinance, which is anticipated to be competed in the spring of 2007.

6. Pollution prevention/good housekeeping for municipal operations

All municipal operations would develop practices consistent with those of private practice as well as ensuring that litter clean-up and street sweeping activities are maintained.

Stormwater Task Force

In September 2003, the City Commission established a Stormwater Task Force to address the recent flooding and NPDES permit program. The Task Force was charged with the responsibility to: identify stormwater quality and quantity issues affecting the city; suggest stormwater management program alternatives; and present methods for funding the stormwater management program.

In December 2004, the Stormwater Task Force presented its findings and recommendations to the City Commission. These are described as follows:

Johnson City has an urgent need to upgrade its stormwater management in order to address flooding issues and to meet water quality mandates;

- NEEDED STORMWATER IMPROVEMENTS SHOULD BE FUNDED WITH THE CURRENT LEVELS OF FUNDING FROM THE GENERAL FUND AND FROM A PROPOSED STORMWATER UTILITY FEE;

- CURRENTLY, THE CITY BUDGET ALLOCATES APPROXIMATELY $700,000/YEAR TO STORMWATER MANAGEMENT. NO USER FEES SHOULD BE ADOPTED UNLESS THE CITY COMMISSION AGREES TO CONTINUE TO FUND STORMWATER MANAGEMENT AT THE CURRENT LEVEL, I.E., THAT THE DOLLARS COLLECTED FROM THE USER FEES NOT BE USED TO SUPPLANT CURRENT FUNDING FOR STORMWATER MANAGEMENT;

- The funds raised through the user fees should be placed in a separate enterprise account in the city budget;

- Any proposed user fee for stormwater management should be capped at $5.00/month per Equivalent Residential Unit (ERU). An ERU is the average amount of impervious surface of a single-family residence. Credits would be given to those who have or who create stormwater management systems that exceed regulatory requirements. Also, consideration should be given to reduce fees based on inability to pay (low income residents); and

- THE TASK FORCE DESCRIBED 5 LEVELS OF SERVICE ALTERNATIVES LISTED IN TABLE 7. EACH LEVEL WAS MORE EXPENSIVE THAN THE PREVIOUS ONE.

Table 7: Stormwater Management Program – 5 Service Level Alternatives

Services	Level 1	Level 2	Level 3	Level 4	Level 5
Base Operation	$766,820				$216,560
Stormwater Phase 2	$57,460				
Mapping ($450K)	$18,750	$93,750			
Stormwater Inspection		$49,650	$28,550		
Maintenance Operations		$203,125	$277,500		
Planning/Design		$175,000			
Capital Projects					$410,000
Addressing Complaints	$40,000	$150,000			
Bridge Replacement			$150,000		
CBD			$200,000		
Cobb Creek				$250,000	
Sinking Creek				$150,000	
Sinkhole Remediation				$250,000	
Street Sweeping					$85,470
Litter Collection					$121,475
	$883,030	$671,525	$656,050	$650,000	$933,505

Source: Public Work Department, 2005

In February of 2006, the City Commission voted to investigate the funding of a stormwater management program at a possible Level 4. Camp, Dresser, & McKee Consultants (CDM) were contracted to develop the stormwater management program. CDM will calculate the impervious surface of all commercial, industrial, and institutional uses in the city. In addition, the consultants would sample 200 single-family residential properties to calculate the average residential impervious surface or "equivalent residential unit" (ERU) which will be used as a basis for calculating the fees for non-residential uses.

SOLID WASTE MANAGEMENT

The Solid Waste Division is a regional solid waste service providing solid waste collection services to a 320 square-mile area, including Johnson City and to any customer in Washington County wishing to subscribe to the service regardless of location in the county. The Division has 46 employees, operating 26 routes that cover over 558,000 linear miles per year. In addition, the Division provides two recycling convenience centers in Johnson City.

In July 2001, the city switched to a one-man automated residential collection vehicle which greatly improved efficiency. Under the previous manual collection system, the city could collect approximately 325 households per man on a daily basis. Under the new automated system, the city can collect approximately 900 households per man on a daily basis.

In addition to improved efficiency, the switch has significantly improved overall safety of the sanitation workers. The year prior to switching to automation, the city had 31 workers compensation claims associated with manual solid waste collection. Since implementation, the city has not had any claims. Worker retention has also greatly improved. During the two-year period prior to conversion, the city had a 100 percent job turnover in residential collection. Beginning with initial automated implementation in 2001, the city has not had any residential collectors resign their position.

Automated collection vehicles

Overall, the city's solid waste services have been very efficient and effective and are viewed favorably by the public. In the recent 2003 Citizen Survey, opinions regarding solid waste pick-ups were very positive. On a scale of 1 to 5, solid waste received a score of 4.13.

The Solid Waste Division provides a number of services including:

Collection Services

- Residential Collection for Johnson City Customers
- Residential Collection for Washington County Customers
- Convenience Centers
- Yard Trimming Collection
- Brush Collection
- Grass Clipping Collection
- Leaf Collection
- Commercial Dumpster Collection

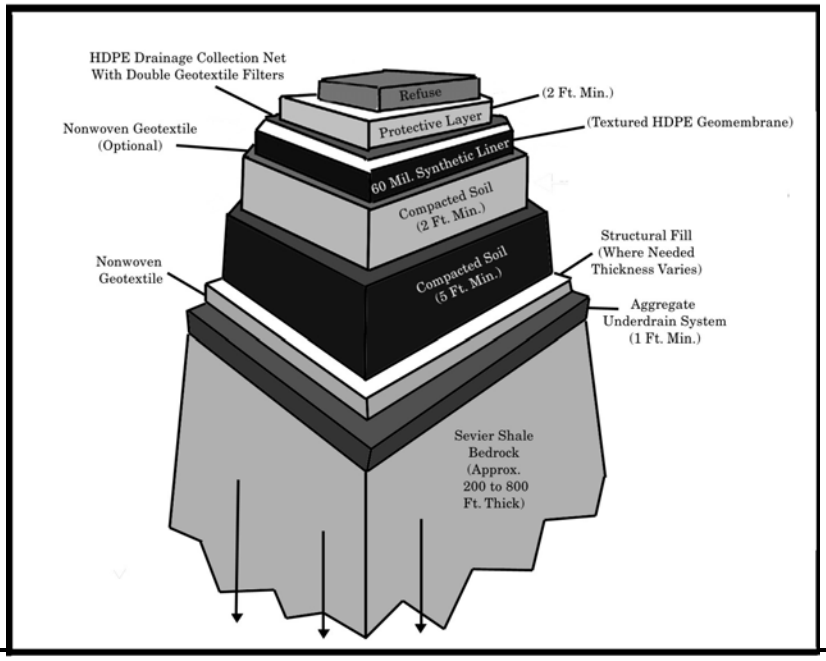
- Commercial Compactors & Receiver Boxes

Recycling
- Curbside Recycling for Johnson City Residents
- Commercial Recycling

Iris Glen Environmental Center

The Iris Glen Environmental Center is a 50-acre, state of the art, Subtitle "D" landfill. A Subtitle "D" is a landfill, which meets or exceeds the latest federal guidelines that were established in 1994. Iris Glen was the first Subtitle "D" facility in the region. This facility is located at 1705 East Main Street in Johnson City on the site of a former shale quarry. The Iris Glen Environmental Center opened on October 14, 1994 and is operated under contract by Waste Management, Inc. This facility is different than older landfills such as the Bowser Ridge Landfill which at best has no more than a two-foot compacted clay liner. The cell construction at Iris Glen includes a two-foot layer of sand, which filters any leachates that may leak down from the refuse. These leachates are then collected by a subsurface drainage network and transferred into a centrally located sump area at the lower end of the cell. The sump area is equipped with a pump that removes the leachate from the cell and sends it to a collection tank, which is monitored, then released into the city's sanitary sewer system. Below the drainage system is a 60-millimeter high-density polyethylene liner. This is a very dense, impermeable liner that helps the leachate collect and drain into the collection system. Below this is seven feet of highly compacted clay. There is also an aggregate underdrain system, which consists of one-foot of gravel. If any leachate was to filter to this point it would drain to a surface point, which is monitored. Below the drainage system, there is 200 to 800 feet of bedrock that further protects the groundwater. To monitor conditions, 25 monitoring stations have been established around the perimeter of the landfill. These stations monitor surface water, groundwater, and air quality.

Figure 1. Iris Glen Liner System



Methane Gas

Recently, the city entered into a contract with Energy Systems Group (ESG) to develop an innovative landfill methane recovery plant at the Iris Glen Environmental Center. The project will provide a new source of revenue for the city, provide an alternative energy supply for several Johnson City businesses, and also reduce air emissions in the area.

Under a 25-year agreement, ESG agreed to purchase methane gas from the Iris Glen landfill, providing an estimated $500,000 in revenue per year to the city. ESG will develop, implement, and manage the infrastructure to deliver the methane gas to the local Veterans Administration medical facility and the Johnson City Medical Center. The plant is scheduled to become operational in the fall of 2006. Applying an innovative membrane filtration system, ESG will be able to process enough gas energy to fuel more than 5,000 homes. This facility also significantly improves the local community's air quality by reducing the carbon dioxide emissions by the equivalent of more than 3,700 vehicles.

Needed Improvements

The Iris Glen Environmental Center has been operating for approximately 12 years. Currently, it collects 330,000 tons of refuse per year. This facility is approximately 50 percent full and is estimated to reach its capacity in 14 years. The Department of Environment and Conservation Solid Waste Division requires that when the city is within 10 years of closing a facility, it must begin to investigate alternative landfill sites and submit yearly reports detailing what steps the city is taking to secure a new site. Due to the length of time involved in locating, designing, and receiving the necessary approvals, it is recommended that the city begin its search for a new landfill site within the next year.

JOHNSON CITY POLICE DEPARTMENT

The headquarters for the Johnson City Police Department (JCPD) are located within the Municipal and Safety Building at 601 East Main Street. The JCPD operates satellite substations at Tyler Apartments, Westgate Apartments, Carver, Keystone, Fairview, and Clarks Manor. The Department also has a mobile substation available to use in neighborhoods to help deter criminal activities.

The Department with 148 police officers and 33 civilian personnel is divided into two divisions, Operations and Administration. Each division is under the direction of a Major who reports directly to the Chief of Police. There are four platoons, which provide the basic patrol function including call response, order maintenance, and community policing. The chain of command within each platoon includes: a watch commander (Captain), an assistant watch commander (Lieutenant), and approximately 17 police officers divided into two squads each supervised by a Sergeant.

Overall, the JCPD is viewed very favorably by the public. In the 2003 Citizen Survey, the JCPD ranked high among the other city services. On a scale of 1 to 5, the Department received a score of 3.98.

The JCPD was re-accredited in 2004 by the Commission on Accreditation for Law Enforcement Agencies (CALEA). This is the third time the Department has received this accreditation. The Department successfully achieved and maintained compliance with 380 professional law enforcement standards. The Department is only one of 26 Tennessee law enforcement agencies and 600 law enforcement agencies nationwide to receive this prestigious designation.

Crime Statistics[1]

The 2004 crime statistics depicted a decrease from the previous year in several crime index categories. Crime rates are broken down into two categories; violent crimes and property crimes. The city's overall violent crime rate decreased by 15.2 percent, while the overall property crime rate increased by 2.3 percent.

Of the four violent crime categories, three decreased; rape (36.3 percent), robbery (30 percent), and aggravated assault (11.3 percent). The only category to increase was murder, which increased 300 percent. There were four murders recorded in 2004 as opposed to only one in 2003. Due to the infrequent number reported, fluctuations may be significant from year to year. The average number of murders over the past five years is 2.6.

Overall, property crimes increased in three categories over 2003, specifically, larceny (1.9 percent), burglary (7.1 percent), and arson (91 percent). Only motor vehicle theft rates decreased with an 8 percent reduction.

Manpower Levels

In 2005, the city had a sworn officer to thousand population ratio of 2.66[2] which is higher than the national average of 2.3, but is only slightly higher than the overall average for southern states (2.6 officers per 1,000)[3] and is slightly lower than Tennessee's average of 2.71 officers per 1,000.[4]

It is important to note that police staffing levels are not the only factor that affects crime levels. Proximity to larger cities or major highways are significant factors as well as the community's population size and density, jobless rate, income level, and even seasonal climate.

[1] Johnson City Police Department 2004 Annual Report
[2] Johnson City Police Department, Workload Assessment 2005
[3] Federal Bureau of Investigation, Crime in the United States, 2004 Edition
[4] University of Tennessee, Municipal Technical Advisory Services, 2005 Municipal Police Department Staffing Levels

Vehicle Maintenance

The JCPD maintains a wide-range of vehicles which include a mobile police station, a bomb squad van, several motorcycles, several vans and trucks, and over 150 pursuit vehicles. Due to the high mileage and increased maintenance cost, pursuit vehicles are fully depreciated after eight years of service. After this period, the JCPD considers these vehicles unsafe for pursuit and replacement is recommended. At this time, approximately one-third of its pursuit vehicles are eight years or older. In order to maintain efficiency and safety these vehicles should be replaced on a scheduled basis.

Until recently, the JCPD has been purchasing Ford Crown Victorias as its pursuit vehicle. However, as these vehicles age, the Department has began replacing them with the smaller Chevrolet Impalas. These vehicles are less expensive and with the smaller six-cylinder engine are more fuel efficient. With the rising cost of fuel, this should result in a significant reduction in fuel cost.

Table 8: Age of Pursuit Vehicles

Year Purchased	Age Years	Number of vehicles
1996	10	9
1997	9	16
1998	8	28
1999	7	26
2000	6	11
2001	5	2
2002	4	33
2003	3	2
2004	2	8
2005	1	14

Source: Johnson City Police Department

Personal Digital Assistants

In an attempt to improve efficiency, the Department recently issued personal digital assistants (PDAs) to its officers. A PDA is a handheld device that combines computing, telephone, Internet, and networking features. A typical PDA can function as a cellular phone, fax sender, web browser, and personal organizer. In addition, the use of new technology, allows the officers to rapidly check license tags, driver licenses, vehicle identifications, and other records. A routine traffic stop that would have taken ten minutes without the PDA now only takes about five minutes, substantially reducing an officer's reporting time allowing him more time for other law enforcement activities. In addition to saving time, it is estimated that PDAs will save

approximately 12,000 sheets of paper per month, which will substantially reduce printing cost of the various forms.

Detention Facility

The Police Department has a contract with the State of Tennessee to house approximately 100 women prisoners at the city's detention facility. The State pays a rate of $36.75 per prisoner per day. This generates approximately $1,300,000 per year. The estimated overhead to feed and house these prisoners is approximately $500,000 annually leaving approximately $800,000 which is used to help pay for other services or is returned into the city's General Fund. In addition, the women prisoners perform various tasks around the city from clerical work to maintaining city property. This labor source also represents a significant savings for the city. It is estimated that it would cost approximately $1,000,000 annually to replace these prisoners with paid workers earning minimum wage salaries.

Needed Improvements

The Police Department's expenses are personnel intensive and include few major capital improvements. With over 150 pursuit vehicles, vehicle replacement represents the most significant capital improvement for the Department. As previously stated, it is recommended that pursuit vehicles be replaced every eight years. In order to maintain the eight-year replacement cycle, the Department would have to replace 19 vehicles (12.5 percent) each year.

FREEDOM HALL CIVIC CENTER

Freedom Hall Civic Center is a multi-purpose facility constructed in 1974, located on the Science Hill Campus providing services to the Johnson City School System and the community-at-large. During the school year, 85 percent of Freedom Hall's use is related to public school activity such as the physical education department, cafeteria services, sports, cultural events, and school assemblies. Freedom Hall has a maximum fixed seating capacity of 5,600 and a maximum reserved seating capacity of 8,500 and an average yearly attendance estimated between 150,000 and 175,000.

Freedom Hall is staffed with a Director, two full-time box office employees, and three maintenance personnel. Additionally, there are numerous part-time event employees that work on an as need basis as concession stand operators, ushers, parking attendants, security, and other assignments.

Needed Improvements

Recent renovations to the facility include a new chiller in 1994 and a new roof in 2005. However, due to the age of the Freedom Hall complex, a number of major renovations have been identified as necessary for the facility to remain a viable community facility and a competitive entertainment venue. These include, but are not limited to:

- Replacing the exterior deck surface ($800,000);
- Replacing the existing cooling tower ($175,000);
- Replacing another section of telescopic seating ($230,000);
- Safety projects and equipment ($212,000);
- Replacing arena house sound equipment ($200,000);
- Parking lot repair and resurfacing ($250,000);
- Restroom renovation ($250,000);
- Permanent seating replacement ($500,000); and
- Press box and handicap accessible bleachers ($210,000).

Making these improvements would represent a significant investment in this facility. Before the city makes this type of investment, it should take a long-term look at the future use of this facility. As this 32 year-old facility continues to age, the city must decide whether this facility can continue to be competitive in the ever-changing entertainment market or continue to serve other community functions. If it cannot compete as it currently exists, the city must decide whether it should expand the facility, construct a new facility, or get out of the business all together. Following is a discussion of some of the alternatives:

- **Public Partnerships –** East Tennessee State University's Master Plan includes a proposal to construct a new basketball arena and a performing arts center. By partnering with the University, the city could share the cost and construct a first-class multi-use facility.

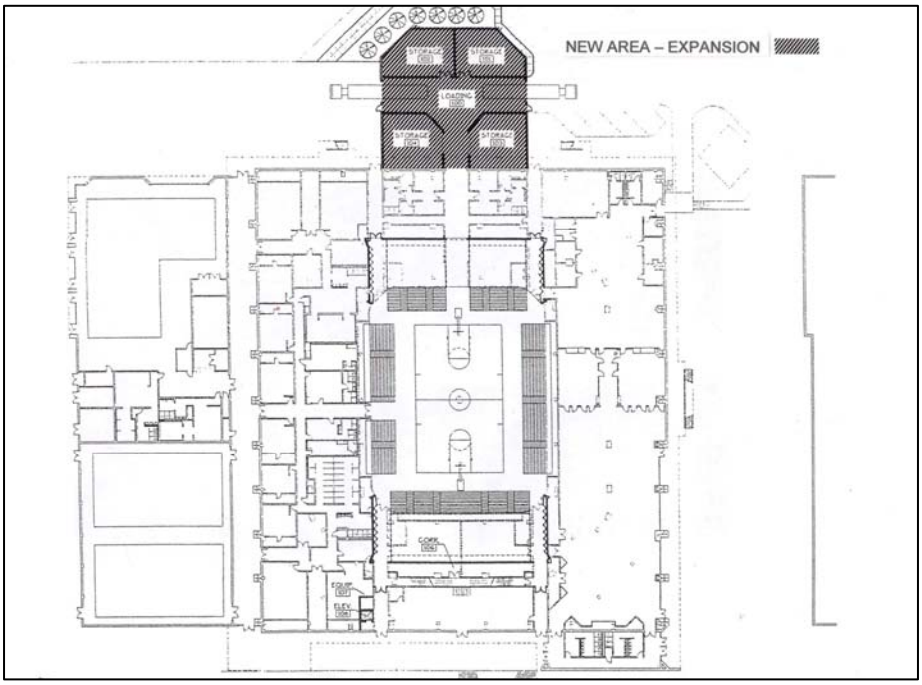
- **Regional Facility –** Develop a regional partnership with Kingsport, Bristol, Washington and Sullivan counties to construct a multi-use facility which would be centrally located between the cities and could draw from the entire region. Viking Hall in Bristol is similar to Freedom Hall in that it is an older facility too small to attract larger entertainment events and Kingsport has no comparable facilities.

- **Build New Facility -** If the city can not work out an arrangement with the University, the city will have to decide whether to build a new facility with city funds. Also, whether it wishes to continue to share the facility with the schools or whether to just turn over Freedom Hall to the schools.

- **Expand Existing Facility –** Expanding the existing facility would be considerably less expensive than building a new facility. Three of the major drawbacks to the existing facility are the size of arena floor, number of saleable seats in front of the stage, and the lack of adequate storage space. Lack of floor space has been a significant deterrent to many larger name entertainment events coming to Freedom Hall. A plan to expand the building was prepared in 2000 calling for a 5,100 square-foot expansion, which would have increased the total arena floor area, provided additional seating in front of the stage, and provided approximately 4,000 square feet of new storage space. In addition, it would provide two truck loading bays making it easier to load and unload equipment. This expansion would make Freedom Hall more flexible and marketable. (See Figure 2.)

- **Get out of the entertainment business all together –** Although fewer major concert promoters have been willing to come to smaller venues such as Freedom Hall, the economic impact of Freedom Hall on the city and the region is significant. If the cost to maintain the facility outweighs the economic benefits created by the facility or if the entertainment business changes and the Johnson City area is no longer marketable for their venues, the city may wish to get out of the entertainment business all together.

Figure 2: Freedom Hall Expansion



These are all complicated issues which would have a major economic impact on the community. Before the city invests heavily in Freedom Hall, it is recommended that the city contracts with a consultant to investigate these and other possible alternatives.

MILLENNIUM CENTRE

The Millennium Centre opened in 1999. Over the past several years, the Centre has evolved from a continuing education center to a high tech conferencing and meeting facility. The Millennium Centre is located in the Centre at Millennium Park, the southern anchor of the Med Tech Corridor.

Millennium Centre

The Centre features wireless internet capabilities, the latest presentation technologies, and a first class food service department. The facility features over 23,000 square feet of meeting space encompassing 16 meeting rooms and a large ballroom which can service up to 500 guests. Other rooms include tiered meeting areas, a private balcony, and video conferencing capabilities. The Centre is serviced by a five-story, 540-space parking garage physically connected to the facility. With the close proximity to East Tennessee State University (ETSU), the city's original concept was to have a facility that would work in conjunction with ETSU.

Millennium Centre Parking Deck

The Johnson City Public Building Authority (PBA) was created in 1997 to oversee the design and construction of this center, as well as develop the surrounding Millennium Park. The PBA is comprised of nine board members appointed by the Board of Commissioners to six-year terms.

The impact of the Millennium Centre on the community is significant. ETSU recently completed an economic impact study of the Millennium Centre that concluded that the Centre contributes a net amount of $3.3 million to the Johnson City economy. Key to this impact is the 50,000+ customers that annually use the Centre. Of that, the 7,850 out of town customers generated an estimated $1.6 million of revenue to the local economy.

Needed Improvements

The PBA has developed a capital improvement plan to meet the future needs of the facility. In 2005, the PBA placed $250,000 into an account for maintenance. All future lot sales will also be placed into this account. By 2019, the Centre will need a new roof and new carpet. Total cost to replace both items is estimated to be $540,000 (current dollars). Other items such as kitchen equipment and other building needs are also included. The PBA estimates capital replacement costs to include all building and parking garage items to be approximately $67,000 per year.

JUVENILE COURT

The Johnson City Juvenile Court is located at 102 East Myrtle Avenue. Issues addressed by juvenile court include: child abuse/neglect, unruly children, juvenile delinquency, counseling with probation officers, child support enforcement, parentage (paternity/legitimating) and certain cases involving adults. The court is staffed by one Juvenile Court Judge, a Director of Court Services, five Probation Officers, one Child Support Enforcement Official, and three support staff members.

Juvenile Court Building

The 4,900 square-foot court facility was constructed in 1969 and no longer meets the needs of the court. Renovations are needed in the courtroom and additional storage areas are needed for the increase in case files. However, expansion is a problem since Asbury Place, Frontier Health, and two vacant service stations surround this facility.

Needed Improvements

Asbury Place, a regional nursing home facility would like to expand its complex and has made an offer to purchase the Juvenile Court Building. If the building is sold, Juvenile Court could be relocated into the former Sun Trust Bank Building located nearby at 102 West Myrtle Avenue. It has been estimated that it would cost approximately $75,000 to renovate this building to temporarily relocate the Juvenile Court at this location. However, this is a short-term solution, if this becomes the court's permanent location, major renovations would be needed at an estimated cost of $500,000. Before the city makes this investment, it should explore other alternative locations such as the Downtown Court House, which could become available if Washington County relocates its services.

JOHNSON CITY PUBLIC LIBRARY

The Johnson City Public Library (JCPL) is located at 100 West Millard Street. The city constructed the 42,635 square-foot facility in 1999 to provide the library additional room and the opportunity to house up-to-date computer technologies. The JCPL is staffed by a Director and 35 full and part-time employees. The Library currently operates with a budget of $ 1.5 million and is open to the public 67 hours a week fall through spring and 62 hours a week in the summer.

The JCPL is governed by an independent Board of Directors appointed to three-year terms by the City Commission. This seven-member board is responsible for overseeing the establishment, management, and maintenance of the JCPL. The Board also appoints the Director, who administers and coordinates the operation of the library within the basic goals, objectives, policies, and principles approved by the Library Board.

The JCPL offers a wide-range of services. It provides meeting rooms for local community meetings and public forums that can be combined to allow a seating capacity of 150 people. The Library also has a computer training lab that offers an ideal facility to provide hands-on computer training and individualized attention. The lab includes seven training workstations. The Library also offers a wide-range of youth activities including; summer reading programs, summer movies, crafts, and fitness programs. The program serves children from preschool age through high school.

The Library contains over 140,000 items, including both printed and non-printed materials. The Library houses a large popular materials collection in formats that include books, magazines,

talking books, videos, DVDs, and compact discs, and provides a reference center with the latest electronic resources and databases.

In addition, the JCPL has a book/resource loaning arrangement with the other libraries of the Northeast Tennessee Library Network (East Tennessee State University, Northeast State Technical Community College, Kingsport, Bristol, Washington, Unicoi, Sullivan, and Johnson counties). The entire collection of the Network is available for searching online. Books that the Johnson City Public Library does not own, but that are available at other libraries in the Network can be requested through a courier service.

Overall, the JCPL is viewed very favorably by the community. In the 2003 Citizen Survey, the Library ranked the highest among city services. On a scale of 1 to 5, the Library received a score of 4.18. The Library also conducted its own survey beginning in April of 2006 and received more than 550 responses. In the survey, 95 percent of those who responded rated their overall satisfaction of library services as good or excellent. In addition, improvements mentioned by citizens include: expanding the book collection, more audio-visual materials, and for the library to expand its hours of operation.

Concerning their choices for the future focus of JCPL, Library users indicated that the Library should concentrate on the following:

- Current topics/popular titles
- Local history and genealogy
- General Information
- Support for educational achievement
- Personal growth opportunities
- Community information and involvement

Needed Improvements

Because the facility was built only seven years ago, no major capital improvements are anticipated in the immediate future. It has been estimated that the air conditioner chiller will need to be replaced within the next five to eight years[5].

In *JCPL 2025 Community Spaces, Creative Spaces*, the Library Board outlined a list of long-term improvements and needs the library will need to address. These include:

- Collection Space
    - The Fiction Collection on the first floor needs to be larger;
    - The Tennessee Room (Genealogy and Local History) also needs more space; and
    - Additional space for Local Government information such as video tapes of

[5] Public Facilities Coordinator, Public Works Department

Commission meetings, etc. is desirable.

- Information Desk on the first floor needs to be removed.
- The Place for Teens on the first floor needs to be enlarged,
- Additional staff work space is needed; especially for the Adult Services staff on the second floor.
- Additional meeting/program space is desirable.
- The outside book return needs to be relocated because of safety and convenience.
- Computer space
    - There is a need for additional computers; and
    - The Computer Training Lab on the second floor needs to be enlarged and re-designed.
- The existing entrance is not easily accessible, especially for the handicapped.
- There are issues with non-library use of the parking area, and the parking area needs to be sealed or resurfaced in the near future.

Long-term, as Johnson City's population continues to grow and the corporate limits continue to spread to the north, the city may want to investigate the establishment of branch libraries in these areas to better serve the public. One possibility the city should explore is the feasibility of sharing the existing Washington County Library facility located along Suncrest Drive in Gray.

MUNICIPAL AND SAFETY BUILDING

Municipal and Safety Building

The Municipal and Safety Building located at 601 East Main Street houses several key city offices including; City Administration, Finance, Public Works (Administration, Engineering, and Code Enforcement), Planning, Information Technology, Risk Management, Community Relations, Human Resources, Legal, Water and Sewer Department (Director's office), and the Police Department. Also included in the facility is the municipal court room and City Commission chambers which can be combined for large meetings. The city originally constructed the Municipal Building in 1971 and constructed a 14,200 square-foot addition in 2000.

Needed Improvements

In 2000, the chiller was replaced when the city built the new addition. The city recently replaced the boiler and roof and no major improvements are anticipated in the foreseeable future.

KEYSTONE COMMUNITY CENTER

The Keystone Community Center building served as an elementary school from the mid-1930s until 1995 when the students were moved into the newly constructed Mountain View Elementary School. Since then, this 19,350 square-foot facility has been renovated and is currently being leased to a number of non-profit tenants. These include:

- Adult Day Care (4,712 sq. ft.)
- ETSU-Families First (5,621 sq. ft.)
- Safe Passage (2,119 sq. ft.)
- Johnson City Community Development (2,071 sq. ft.)
- Dental Care (800 sq. ft.)
- KARE (Johnson City Schools) (2,683 sq. ft.)
- Vacant (1,344 sq. ft.)

Keystone Community Center

Needed Improvements

The building was completely renovated in 1996 and included a new roof and HVAC system. Because of these recent improvements, no new major improvements are anticipated in the near future.

SENIOR CITIZENS CENTER

Recognized as **Tennessee's first national accredited Senior Center**, the Johnson City Senior Citizens Center provides activities and services to adults ages 55 and over. The Senior Center located at 607 East Myrtle Avenue provides programs of interest which allow for personal growth while enriching the quality of life and offering support to the needs of others. Mature adults are able to enhance their independence while broadening their community involvement. Programs include: arts and crafts, health and education, sports, and social programs.

Johnson City Senior Citizen Center

Activities and programs are offered at the main facility on Myrtle Street and at 11 branch sites which include churches, senior housing, and non-profit organizations. There are over 480 programs and services that are offered at the branch sites. Transportation is provided to all individuals who reside within the corporate limits and reside one or more blocks away from the city's transit routes.

The Center is staffed with a Director, an Operations Manager, a Program Development Supervisor, seven Coordinators of different programs, and eight support personnel, both full and part-time.

Johnson City has long been recognized as a great place to live and retire. In 2004, the city was voted the #1 place in North America to retire as measured by the average cost-of-living, crime rate, climate, and health care by Places Rated Almanac. It is because of this quality of life that Johnson City has experienced a significant influx of retirees into the city. The existing 7,050 square-foot facility constructed in 1973 no longer meets the needs of the community. There is insufficient space for the

broad range of activities provided at the center and parking is limited. The Center does have a shared parking agreement with the adjoining church; however, during major events even this is not sufficient. The site is built out and in order to expand the existing building, it would have to acquire adjoining properties.

Needed Improvements

The age group of 55 and older is the fastest growing segment of the city's population. Because of this, there is an increased demand for senior citizen services. In order to meet this growing need, the Board of Commissioners voted to commit $7 million dollars to construct a new Senior Center on the Metro-Kiwanis Park property near the intersection of Guaranda Drive and Liberty Bell Boulevard. The proposed site is located along a bus route and more centrally-located than the existing facility.

WASHINGTON COUNTY/JOHNSON CITY ANIMAL CONTROL CENTER

Wash. Co./J.C. Animal Control Center

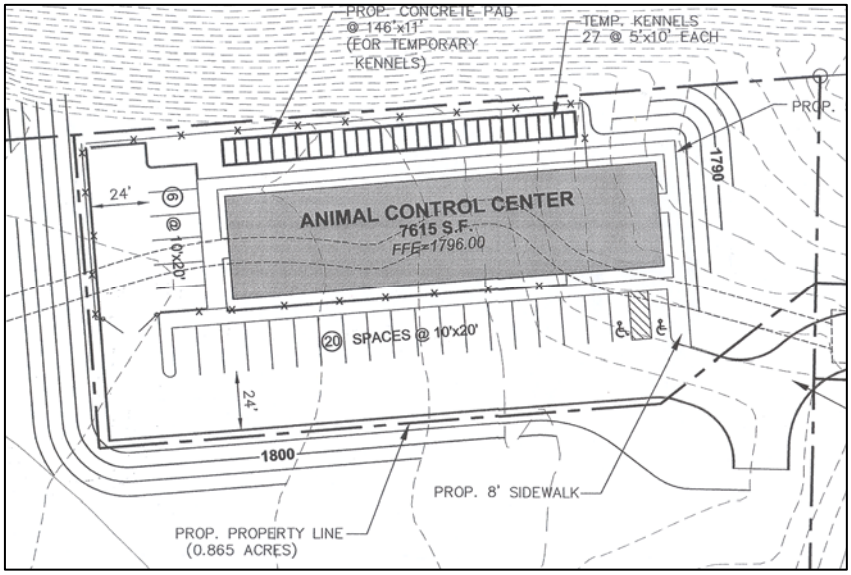
The Washington County/Johnson City Animal Control Center is located adjacent to Optimist Park at 525 Sells Avenue. The Shelter was created as a joint venture between Johnson City and Washington County to enforce the animal control laws of the city and state. However, the existing 3,659 square-foot facility no longer meets the needs of the community. It lacks adequate office space and only has room for 20 indoor kennels. In addition, there is only room for 5 visitor parking spaces. To address the need for more space, the Animal Control Board of Directors are raising funds (over $155,000) to either upgrade existing facilities or to relocate to a larger site. Since the location criteria for this use are not restricted to the present site, relocation to a new site with adequate access but which is somewhat removed from residences and other intensive uses would not be a problem. The Animal Control Board has indicated that it would prefer to be located in the west or northwest part of the city in order to adequately serve the entire county. The Board estimates that it would require between 1.5 to 2 acres of land to construct a proposed new 7,600 square-foot facility. The cost to construct this facility was estimated to be approximately $440,000 (2003 estimate) excluding the land and any site preparation. Obviously, relocating to another site would depend on the availability of funding to acquire land and construct new facilities. In the interim, 58 outside covered portable kennels were installed, four portable buildings purchased or donated, and the roof was replaced. These new kennels can be disassembled and reassembled once a new site is selected.

Needed Improvements

Construction plans have been prepared to construct a 7,615 square-foot facility which would meet the Shelter's need for the foreseeable future. A number of possible sites were investigated for the Shelter's relocation.

One possible site is located along the north edge of Optimist Park with access from Clinchfield Street. The advantage of this site is that the land is already owned by the city, it is close to the existing facility, the topography is suitable for the shape of the proposed building, and it provides a safer access to State of Franklin Road than what presently exists. In 2003, the Animal Control Board endorsed this site. The cost to construct the facility was estimated to be approximately $730,000 including the building, site preparation, and relocation expenses (See Figure 4).

Figure 3: Proposed Animal Control Center



Source: Washington County/Johnson City Animal Control Shelter

If the Shelter is not relocated, the existing facility will need to be expanded to accommodate the growing demand. Needed improvements include: additional storage space, an on-site animal surgery room, and a larger fenced area for dogs.

GOAL

TO PROVIDE THE MOST EFFECTIVE AND EFFICIENT FACILITIES AND SERVICES TO THE CITIZENS OF JOHNSON CITY AND THE REGION AND TO STRIVE TO PROVIDE FIRST-RATE SERVICES THAT MAINTAIN THE PUBLIC HEALTH, SAFETY, AND WELFARE OF THE COMMUNITY.

To achieve this goal the city will pursue the following objectives:

OBJECTIVES

- Ensure the provision and maintenance of facilities and services necessary to meet the needs and interests of the community.
- Plan and provide public facilities and services in a coordinated and cost effective manner that is consistent with the nature of development and possible pending problems within the community.
- Minimize costs and undue further investment for public facilities and services by encouraging regional cooperation and full utilization of existing and available service system elements.
- Ensure the provision of public utilities that safeguard the natural environment.
- Provide high quality water supply and wastewater treatment which is consistent with the city's Land Use Plan and which results in an efficient and timely provision of services.
- Maintain and replace water and sewer lines as a basic requirement of a healthy, livable community.
- Ensure adequate distribution and provide for safe, easy access to all facilities and services within the community.
- Provide fully accessible public facilities to all residents and visitors.

To achieve these objectives the city will pursue the following policies and actions:

GENERAL POLICIES

Policy 6.4.1: It is the policy of the city to ensure that public facilities and services shall be located and centralized so as to offer ease of access and minimal travel time.

Policy 6.4.2: It is the policy of the city to ensure that all public facilities shall be developed, improved, and maintained according to the highest adopted standards of design and performance measures.

Policy 6.4.3: It is the policy of the city to support efforts to make Johnson City a regional center for social, cultural, and quality entertainment programs.

Actions

- Employ a consultant to investigate the marketability of Freedom Hall or a regional facility to serve as an entertainment venue in the region and what actions are necessary to remain competitive with other areas.
- Continue to support the Millennium Centre as a first-class, high-tech conference and training center.
- Foster cooperative arrangements with ETSU to host and promote artistic and cultural programs and events.
- Explore the opportunity to partner with ETSU to construct a joint multi-use performing arts facility.
- Identify creative funding sources and assist in the determination of the most appropriate location for, and plan the construction of, a first-rate performing arts center, ideally in or close to the downtown, if a feasibility study shows that a performing arts center is needed.

SOLID WASTE

Policy 6.4.4: It is the policy of the city to establish and maintain an innovative, sustainable solid waste collection, recycling, and disposal delivery system for present and future generations.

Actions

- Continue to seek new, cost effective methods of solid waste collection and disposal.
- Continue to promote the curbside recycling program to divert residential refuse from the landfills.
- Continue to monitor air, ground, and water quality around the Iris Glen Environmental Center to ensure all environmental quality standards are met.
- Begin investigating new sites or alternative locations to meet the city's solid waste needs once the current facility is closed.

WATER & SEWER FACILITIES

Policy 6.4.5: It is the policy of the city to provide high quality water supply and wastewater treatment which is consistent with the city's Land Use Plan and which results in an efficient and timely provision of services.

Actions:

- Coordinate the extension and improvements to the water and sewer systems in a manner that is consistent with the Land Use Plan and policies of the Urban Service Area.
- Review and revise the current rate structure for water and sewer services in order to adequately fund needed improvements and to provide more cost effective systems.
- Cooperative water and sewer arrangements with neighboring governmental units are encouraged in order to promote economic development and to protect the health of residents.

- Develop and maintain capacity for the treatment and distribution of water sufficient to support present and future water demand.
- Continue to construct new and rehabilitate existing water mains to meet distribution needs through programming projects for inclusion in the Community Investment Program.
- Continue to rehabilitate the wastewater collection system by repairing, cleaning and replacing mains, and monitoring problem areas.
- Continue to encourage the connection of on-site systems (well and septic) to the public utility systems.

Policy 6.4.8: It is the policy of the city to establish priorities for the extension/ improvement of water and sewer services considering the following criteria:

1. Will the project improve public health and safety?

2. Will it encourage greater residential densities along major thoroughfares and accommodate land use objectives?

3. Will it contribute to redirected growth patterns that are consistent with city objectives?

Policy 6.4.9: It is the policy of the city to coordinate the installation and/or upgrading of utility lines with street improvements.

Policy 6.4.10: It is the policy of the city to give priority to new developments that can be served by public utilities already in place.

Policy 6.4.11: It is the policy of the city to give primary consideration to the availability of utilities in the zoning and public review process.

Policy 6.4.12: It is the policy of the city to provide an adequate system of water service delivery to increase the level of service necessary for fire protection.

Policy 6.4.13: It is the policy of the city to develop and maintain an accurate and comprehensive mapping program of city water and sewer utilities.

STORMWATER MANAGEMENT

Policy 6.4.14: It is the policy of the city to protect the health, safety, and welfare of the public from the impacts of flooding.

Actions:

- Promote sound floodplain and stormwater management practices.
- Develop and maintain a cost effective and efficient citywide drainage system in an environmentally sound manner.

- Meet new state stormwater standards (NPDES Phase II Program).
- Identify the city's drainage system management needs and improvements.
- Improve inadequate or undersized drainage facilities to solve both small neighborhood and large regional drainage and flood control problems.
- Where possible, prevent development in floodplain and flood prone areas.
- Use floodplain areas for open space, trails, and recreational facilities provided the natural drainage properties of the basin are retained.
- Consider a variety of drainage solutions for different portions of the community, such as mixed-use areas, higher intensity areas, and areas of different topography.
- Flood protect buildings and limit walls in areas subject to sheet flow.

POLICE DEPARTMENT

Policy 6.4.15: It is the policy of the city to provide a safe environment for all citizens, visitors, and private interests by alleviating physical risks that may be encountered in the normal operation and development of the community.

Actions:

- Replace pursuit vehicles on an eight-year cycle.
- Identify and properly manage hazardous materials to minimize their potential harm to people and the environment.
- Provide the best possible police service to all parts of the city.
- Encourage the use of crime prevention strategies in the design and redevelopment of all areas of the city.
- Support and comply with all regional and national laws, regulations, and programs, (such as the National Flood Insurance Program, National Weather Service, and National Pollutant Discharge Elimination System) designed to protect the public from potential natural and man-made hazards and disasters.

Policy 6.4.16: It is the policy of the city to maintain adequate staffing levels in the Police Department.

Policy 6.4.17: It is the policy of the city to continue enhanced police service through the use of new technology that will make the Police Department more efficient.

Policy 6.4.18: It is the policy of the city to establish and maintain standards that represent current professional law enforcement practices.

Policy 6.4.19: It is the policy of the city to increase effectiveness and efficiency in the delivery of law enforcement services.

Policy 6.4.20: It is the policy of the city to establish standards that address and reduce liability for the agency and its members.

Policy 6.4.21: It is the policy of the city to establish standards that make an agency and its personnel accountable to the people they serve.

Policy 6.4.22: It is the policy of the city to establish standards that do not conflict with the Communications Assistance for Law Enforcement Act (CALEA)

PUBLIC LIBRARY

Policy 6.4.23: It is the policy if the city to maintain the Johnson City Public Library as one of the premier libraries in the region.

Actions:

- Utilize the space and functional potential of the entire library building to its fullest capacity.
- Incorporate and make full use of new technologies in library services, including Internet access, computerized circulation and acquisition functions, and additional applications as they evolve.
- Explore development of branch libraries in the northern area of the city or cooperating with Washington County to operate a shared facility.
- Adapt to the changing needs of the community with advanced service methods i.e., on-line renewal or checkout, information retrieval, etc.
- Focus on youth as future users of library services through special recreational and educational programs.
- Continue to network the city's library services with other libraries and sources of information outside of the city.
- Use libraries as community resources for education and public meetings.