

# PUBLIC SERVICES AND FACILITIES

## INTRODUCTION

This element discusses the public facilities and services within unincorporated Boone County and the Cities of Florence, Union, and Walton. Water distribution, sanitary sewage collection and treatment, gas and electric supply, municipal/public services, education, health care, and public communications are the services discussed. This element presents current data and provides insight into future expansion of these services. Several conclusions are also presented as to the various facility impacts on the future land use pattern.

## WATER DISTRIBUTION

Within the geographic areas of the three Cities and the unincorporated County, there are seven different public water distribution systems. These current systems are the Boone County, City of Florence, Boone-Florence, City of Walton, Bullock Pen, Gallatin County, and Northern Kentucky districts. The Boone-Florence District exists primarily to convey water from the City of Cincinnati District to Boone County and the City of Florence. The major service areas of all the systems are depicted on **Figure 10.1**. Public water service should be correlated between these districts to use common mains and avoid duplication of services. If it makes sense from an efficiency standpoint to serve areas across political boundaries then districts should be encouraged to do so. As shown on this map, broad areas of the east and northeastern parts of the county are currently served by public water. The remainder of the county is currently dependent on cisterns or occasional wells.

### Boone-Florence Water Commission

This Commission was formed in order to deliver a supply of water to the Boone District and the Florence District within Boone County. It has contracted with Cincinnati Water Works for a supply of 30 million gallons per day. During 2002 and 2003, major facilities were constructed, including a transmission main under the Ohio River and pumping station near Anderson Ferry, several large transmission mains in the eastern and northern portions of Boone County, and a 2 million gallon storage tank next to Ryle High School near Union. Other tanks include one on Dixie Highway in Richwood and one in the Hebron area. The Commission also maintains most of the water towers throughout the county. There is future potential for another storage facility in the U.S. 25 corridor, further south in the county. As a result of the formation of this Commission, the Boone County and Florence Districts no longer obtain their water from the Northern Kentucky Water District which now serves as a backup source of water.

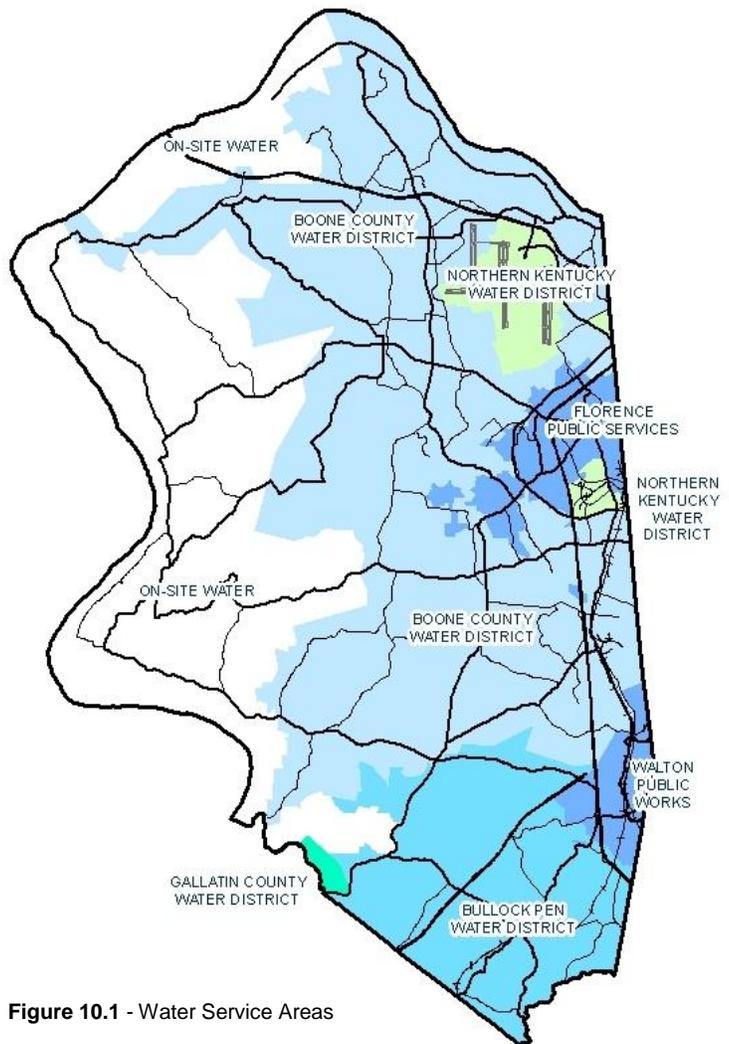


Figure 10.1 - Water Service Areas

### **Florence Water District**

The City of Florence provides treated water service to all areas within the corporate limits of Florence and some land areas adjacent to the city. The Boone-Florence Water Commission began to deliver water to the City of Florence in late 2003, thereby alleviating supply limitations that were becoming a problem with the amount of new development.

Current storage capacity in the Florence system is 3.5 million gallons with three existing water towers. Average daily water usage within the system is approximately 3 million gallons. Since 1995, the city has concentrated on creating loops in water service areas to improve pressure and service. Several annexations by residential developers in the U.S. 42 corridor, west of Florence, have extended water service in that area but have not yet required major main extensions.

### **Boone County Water District**

The Boone County Water District provides water service to areas contiguous to the City of Florence, the Hebron and Bullittsville area, the Burlington area, the City of Union and surroundings, and the area southward from Florence to Richwood. This District also currently obtains all of its water from the Boone-Florence Water District, which in turn contracts with Cincinnati Water Works via a transmission main under the Ohio River. This main went into service in late 2003 and eliminated supply problems in dry months.

Current storage capacity within the county system is 8.5 million gallons in water towers and tanks owned by the Boone-Florence Water District and located at Graves Road, the Ryle campus, and U.S. 25. The old water towers in Hebron and at Frogtown Road have been removed. An average daily use of approximately 7.1 million gallons is currently supplied by the District.

The Boone County Water District primarily serves the east-central portion of the county. This coincides with the more populated and growing areas of the county. Since development usually occurs more rapidly where new water lines are placed, good planning and growth management policy would be to not encourage water line extension in environmentally sensitive areas or areas planned for farmland preservation. Land owners in an Agricultural District receive a deferred assessment of fees for water service line extensions until the land is removed from the District and sold for non-agricultural uses. Public water districts have a responsibility to provide cost-effective water service. When there is existing demand in rural areas, the placement of water lines has historically not been a realistic growth management tool. It is difficult to argue that residents should not receive the health and safety benefits of public water supply in the name of growth management.

The Boone County Fiscal Court has been implementing the rural water expansion plans for most of Boone County. Initiated in 1999, this program was based on the fact that Boone County has less water service area for its residents than many other Kentucky counties. As a result, many rural areas of the county are now able to connect to the public water supply. Although the initial intention of this project was to provide water to existing residents, it may have significant potential impacts on growth in Boone County, particularly the western Boone County area. The rural water program indicates 65-70 miles of water main construction along the primary roadway corridors of western Boone County. Future side extensions would be based on assessments. The program is funded by general obligation Revenue Bonds.

The Fiscal Court has constructed water lines in the Rt. 20/Idlewild Road area and the Big Bone Road/Rice Pike/KY 338 corridors (Phase I). Phase II included water line construction on KY 20, East Bend Road and Big Bone Church Road. The rural water program was transferred from Boone County Fiscal Court to the Boone County Water District in June, 2010. The Land Use Element considers the possibilities of this water line construction and how land use regulation should be designed in its creation.

One common phenomenon of water line construction in rural areas is the change in habits of the residents. Households that are served by a cistern or well often exhibit a conservative use of water. When these households receive a continuing, inexpensive supply of water from a public system, water use habits often change. The increased use of water has an impact on existing septic systems by aggravating soil saturation problems. A common solution to this problem is often the public outcry for public sanitary sewer service to the

area. The impact of sanitary sewer facilities on county growth patterns is well known and is described later in this element. In this way, the community needs to begin to realize that, although water lines do not always directly affect growth, they can trigger a series of changes that lead to growth. Likewise, the construction of a water line, by itself, does not entitle an area of the county to develop.

During development of the Land Use Element, and in planning efforts after the adoption of this 2010 Comprehensive Plan, Boone County, as a community, needs to carefully create incentives and regulations to properly guide development in the areas affected by new water line construction. Creative ways of structuring future property assessments and blending them with planning efforts could provide a development pattern for Western Boone County that is different from typical suburban sprawl.

A prime example of the effects of water main construction on the development patterns of an area is the 12 inch main along North Bend Road. Since its construction in 1987-88, major developments have been approved in the Hebron-North River area. Sanitary sewer service for this area has resulted partly from public expenditure and partly from private construction. The effect has been that the overall momentum of development in this area has been increased. Now, with the addition of Northpointe Elementary school and road improvement designs for North Bend Road, this has become a prime example of how other infrastructure must be developed when a new water main is extended to a lightly developed area.

#### **Walton District**

The City of Walton currently provides water service to areas within the incorporated limits of the city and adjoining areas to the north of the city along Dixie Highway (U.S. 25), Old Lexington Pike, and west to the Bullock Pen Water District. Previously the city treated its own water for their supply. However, during the early 1980's the city contracted with the Northern Kentucky Water District for their water supply. By this agreement, the city is limited to a maximum daily supply of 1.5 million gallons of water. Currently, the system is not at capacity with average daily usage of 476,722 gallons and a storage capacity within the two water towers that total 500,000 gallons.

Since the Walton Water District has contracted for a large supply and uses relatively little of it, there is great potential for expansion. Although some of Walton's water supply is transported from the city by private water-haulers, the immediate Walton area will experience moderate population growth. This increases the supply available for industrial development.

#### **Bullock Pen District**

The Bullock Pen Water District currently serves an area around Verona and southward to Grant County and Gallatin County. The Bullock Pen Lake provides the water source for this system. Any further extension of these water lines in a northwest direction would encounter rougher topography in the Mud Lick Creek area, some of which has limited suitability for development. This area of the county is not expected to experience dramatic growth, but will see some residential construction in the general Verona interchange area. However, the Bullock Pen Water District does have some opportunity for expansion toward Walton. Any further expansion of this system can have the same land use impacts as discussed earlier under the Boone County Water District. The effects on water usage habits within the Bullock Pen District area could be significant because there is no public sanitary sewer system present. To compound this situation, the Environment Element shows that the soils present in this area have severe limitations regarding leach fields for private septic systems.

#### **Gallatin County Water District**

This District serves a small area along South Fork Church Road where U.S. 42 intersects the county line.

#### **Northern Kentucky Water District**

The Northern Kentucky Water District, formed from a merger of the Kenton County Water District and the Campbell County Water District in 1997, provides water service to portions of Boone, Kenton, and Campbell Counties. In Boone County they currently provide water service to the Cincinnati/Northern Kentucky International Airport, the Northern Kentucky Industrial Park, and some adjacent areas. The Northern Kentucky Water District maintains three water treatment plants along the Licking and Ohio Rivers with a net capacity of 64 million gallons per day (mgd). Expansion of the District within Boone County is not expected considering the current system has

excess capacity remaining and will be able to meet future needs. The Northern Kentucky Water District serves as a backup to the Boone-Florence Water Commission.

## **SANITARY SEWAGE COLLECTION AND TREATMENT**

Sanitary sewage collection and treatment in Boone County includes three public systems: City of Florence, City of Walton, and Sanitation District Number 1 (SD1). Sanitary sewage collection and treatment also includes private package treatment plants and individual on-site septic systems. The public sewer systems usually serve large areas or clusters of developments, and private treatment plants usually serve one development.

Private, on-site systems, including leach fields, generally discharge into the soil for natural decomposition. In general, Boone County's soils are poor at accepting these discharges, and stream pollution often results. These systems also require larger lot sizes, often resulting in inefficient use of land. In recent years, regulatory agencies, such as the Northern Kentucky Health District, have required new home sites in on-site system areas to provide for two leach areas – an initial system that is designed to last for some years, and a future leach area that could be constructed at such time as the initial system fails.

Public Sewer Systems, though historically necessary for proper county growth, are expensive to install, operate, and maintain. Even more than water supply lines, sewer systems greatly influence where development occurs. Sewers must be considered for their environmental impacts, not merely for treatment plant discharges but also for their influence on future development. Sewers should be extended only to areas that can support substantial development so that most efficient use of the services is made. Development of collective sewer systems for the low density uses outside urban areas is usually not economically feasible. Individual package treatment systems have historically accommodated development in these areas, but are now generally discouraged because of their environmental impacts. This is especially true where rough terrain or other major building limitations are present.

The last decade and a half have seen a significant transformation in sewage treatment in Boone County. The following passages describe the public sanitary sewage treatment systems.

### **Florence**

During the early 1980's, the City of Florence improved their sewer system by connecting into the Sanitation District Number 1 of Campbell and Kenton Counties. By connecting the Florence system, the Commission eliminated its treatment plant, and could expand and improve its system and services. Before committing to these improvements, the Florence system was at its capacity for treatment of 2.1 million gallons per day and involved the use of eighteen lift stations throughout the city. This system required much operating maintenance and repair. Subsequent improvements included the removal of most of the stations. Ultimately, the system connects to the Sanitation District's system and the Dry Creek Sewage Treatment Plant. **Figure 10.2** shows the sewer service areas throughout the county. The Fowler's Creek pump station is planned to be removed as part of major improvements being made in the area by SD1 (discussed below). Sewage will ultimately flow by gravity to the proposed Western Regional Water Reclamation Facility upon its completion.

### **Sanitation District No. 1 (SD1)**

Since 1995, a dramatic change has been that the SD1 has taken over the former Boone County Sewer District. The Boone County District system had been operating under the 1989 Boone County Water and Sewer Master Plan Report. The focus during the 1980's was to obtain public ownership for as many of the private package treatment plants as possible to enable eventual consolidation and elimination of them. The report recommended a coordinated strategy to acquire and consolidate the numerous individual package wastewater treatment plants, expansion of the wastewater collection lines network, and the treatment of collected wastewater. The report proposed two wastewater treatment plants, located in the North Bend Area and Gunpowder Creek Area, to provide wastewater treatment for service areas. After the adoption of the report, Boone County Fiscal Court entered into an agreement with SD1 to treat Boone County wastewater at the Dry Creek Wastewater Treatment Plant. The capacity of the Dry Creek Treatment Plant is 46.5 million gallons per day with the effluent being discharged into the Ohio River at Anderson's Ferry. The average flow at this plant is 35 million gallons per day.

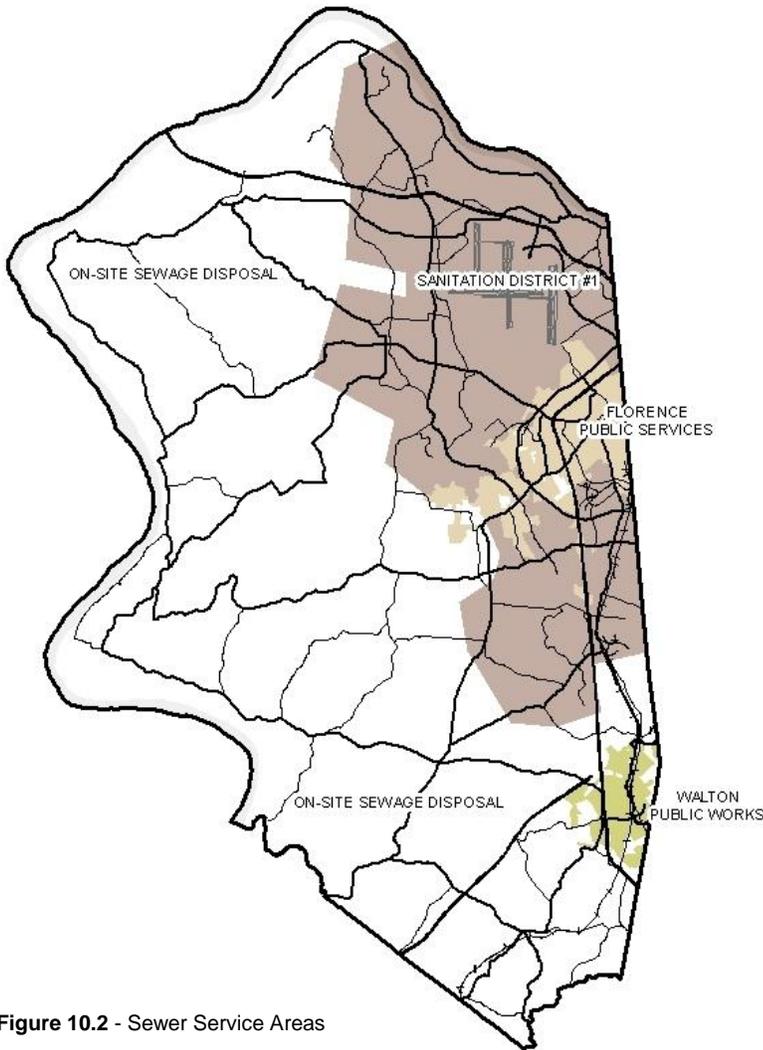


Figure 10.2 - Sewer Service Areas

The Fiscal Court's actions eliminated the need for the two proposed treatment plants in Boone County. Later agreements resulted in the Sanitation District constructing the major sewage transmission lines, while the Boone County District was responsible for the maintenance of the existing system. Finally, the agreement was reached for SD1 to serve Boone County. Since many of the individual collection systems that have been removed were in poor operating condition, the consolidation of these systems into the regional system benefitted Boone County's environment and public health.

In 1995, SD1 commissioned the preparation of a 20-year Regional Facility Plan, completed in 2000. A portion of the plan addresses efforts to improve existing sewer systems. The most significant improvement recommended by this plan, to affect Boone County, is the construction of an entirely new sewage treatment plant on the Ohio River. During 1998 and 1999, there was much discussion about the location of such a plant. Several sites were considered, and finally the District selected a site north of Belleview on the river. As of 2011, the Western Regional Water Reclamation Facility is nearing completion. The collection system is being constructed concurrently with the Reclamation Facility and includes a gravity flow tunnel and new gravity mains. The major sewage collection point for most of the Boone County service area and about fifteen percent of Kenton County is the new tunnel

portal adjacent to the YMCA facility on Camp Ernst Road. The Conveyance Tunnel bore was completed in late 2010, one year ahead of schedule. The tunnel is over six miles long, approximately twelve feet in diameter, and up to 300 feet below surface. During 2011, the planned sewer pipe is to be installed within the tunnel, will measure 8.5 feet in diameter, and is projected to carry ten million gallons per day at startup. The Reclamation Facility is anticipated to be operational in 2012, and is anticipated to reduce sanitary sewer overflow volumes by 60 million gallons annually. Upstream of the tunnel, existing sewer mains in the Gunpowder Creek valley have been upgraded in size. Kelly Elementary School has been discussed for possible sewer service via a direct line to the Western Regional Water Reclamation Facility, and there is a possibility that with some private improvements the town of Belleview could be served as well. However, in general the Western Regional Water Reclamation Facility is not intended to spur new development in western Boone County.

The Sanitation District has stated that the 1995 Boone County Comprehensive Plan was used to develop the Regional Facility Plan, and that a slightly increased capacity over the 2020 Future Land Use Plan was designed. Although this represents some progress in agencies working together, the proposed improvements in the District's final plan would create growth impacts greater than the 1989 Boone County Water and Sewer Master Plan Report or an expansion to the Dry Creek Treatment Plant. The Future Land Use Element of this plan should contain creative ways of utilizing the future availability of sewer to develop a town and rural land use pattern instead of extending eastern Boone County style of development into Western Boone County.

Some additional capacity has been designed into the system to safeguard public investment; however, the District has not intended to serve all of Boone County with this planned system. Sewer transmission facilities are being designed to accommodate a 20-50 year planning horizon. The District has recognized that the major growth corridor in Boone County is toward the south. Even so, most of the Verona and I-71 areas of the county are not shown as being served in SD1's 20-year plan. Outlying areas in the I-71 corridor and the western parts of Boone County could be served in the future, but are not shown in the 2000 Regional Facility Plan. Gravity trunk mains could be built in major creek valleys if significant future development is allowed to occur in these outlying areas. The Sanitation District has adopted a policy that encourages gravity sewer lines as opposed to a series of pump stations to serve new development. This may become an important issue as development proceeds further west into the major creek valleys of the county. Developers must pay for the facilities to become part of the system if less than 40 homes are served by a proposed pump station. SD1's 20-year plan must be updated in the future if certain changes occur in the community.

Boone County, as a community, needs to be careful that sewer service areas are developed in an efficient manner, and that all sewer service areas are not over-developed. For Boone County to develop properly in the future Land Use Planning and Infrastructure Planning must continue to be closely intertwined. As the Environment and Agriculture Elements show, the sewer pump stations that have been constructed are promoting future development in broad new areas. Construction of future sewer facilities should reflect community and Planning Commission involvement because of the inherent relationship between Infrastructure and Land Use. Government agencies should continue to work together to define future growth areas as well as to encourage and fund significant infrastructure in those regions.

It is important to put the relationship of the sanitary sewer system and Boone County's growth into perspective. The rapid growth in the unincorporated areas of the county had occurred until the mid 1990's without a coordinated sewer system. Now that such a system is available, future growth rates are difficult to estimate. The sewer pump stations constructed in the early 1990's were designed to serve watershed areas. Therefore, future development can access them through private investment and construction of sewer lines that may include additional pump stations. The Sanitation District has passed a resolution that the improvements in the Regional Wastewater Treatment Plan are not intended to encourage additional development beyond what has been planned for the area. Although public expenditure for sanitary sewer systems can be viewed as a positive and efficient way of getting out in front of future development, it is important to realize that the need for other new services, such as police, schools, and planning will be accelerated. As a result, it can be inferred that the quicker Boone County develops, the quicker the cost of providing public facilities and services increases.

### **Walton**

The City of Walton provides wastewater treatment at its plant for users within the corporate limits. The current capacity of the Walton facility is 850,000 gallons per day. The average daily flow into the plant is around 300,000 gallons into Mud Lick Creek. The City of Walton also has a 50,000 gallon per day plant serving the Walton Industrial Park, and the current flow is around 8,000 gallons per day.

### **Union**

The City of Union transferred their sanitary sewer collection system to SD1 in the mid-1990's. All of Union's sanitary waste water goes to the Dry Creek Treatment Plant.

### **Private Sewage Treatment**

Package plants generally serve only one user, usually a business, industry, or school. Others serve a residential subdivision or mobile home park. Many are privately owned and operated, and are inspected by the State of Kentucky, Department of Environmental Protection, and the Division of Waste Management regarding maintenance and effluent discharge. There are now fewer private package treatment plants in Boone County that serve individual users and developments than there were in 1990.

Individual septic systems are historically the prevalent method of wastewater treatment in developing areas like Boone County. Other than the above mentioned areas of public or private collection systems, all of the remaining areas of Boone County continue to rely on the use of a septic tank or similar individual systems. Even though the

Burlington, Hebron, and Union areas contain many such systems, they should experience little additional septic tank construction in the future with the expansion of sewer service in the area and the limited capability of some of the soils to accept septic tank discharge. Septic tanks will likely remain prevalent for low density residential uses in rural areas of the county; however, there are biological treatment alternatives available.

### Recent Ideas Surrounding Sanitary Sewage Treatment

Marsh systems and greenhouse or living aquatic systems can provide localized wastewater treatment in parts of Boone County, with necessary permits. These systems can provide effective treatment, but require more land area than conventional treatment plants. These systems may be considered for concentrated outlying development in Western Boone County but should be designed to be maintained by a responsive agency.

## STORM WATER MANAGEMENT

The rapid development of Boone County has resulted in a large increase in pavement and roof coverage of land area. These impervious surfaces have the effect of increasing both the amount and rate of storm water runoff over the pre-development conditions. Often, existing storm water pipes and stream channels are unable to handle this increased storm water flow, resulting in property damage, loss in water quality, and potential injury.

Since there are so many different types of development impacting each drainage system, public storm water management systems represent the most effective and consistent method of establishing a coordinated approach to handling storm water runoff problems. The service areas of the different agencies handling storm water in Boone County are shown in **Figure 10.3**. The City of Florence has conducted extensive study in this area and produced a Storm Water Management Plan during the late 1980's. In 1992, the city created a Storm Water Management Division under the Florence Water and Sewer Commission, and instituted a storm water assessment that applies to all businesses and residences within the city limits. The Public Services Department is responsible for storm water management in the City of Florence. The Boone County Public Works Department has historically provided storm water management for Boone County Fiscal Court, as well as for Walton through an inter-local government agreement. The City of Union has taken on its own storm water management since the last comprehensive plan update. A Storm Water Management Plan for the Upper Gunpowder Creek Watershed was completed during the 1990's. This plan is a logical extension of the City of Florence efforts into a highly impacted area of the unincorporated county. Some of the recommended improvements have been completed, and currently the watershed is being studied by the Boone County Conservation District through a 319(h) Nonpoint Source Implementation Grant.

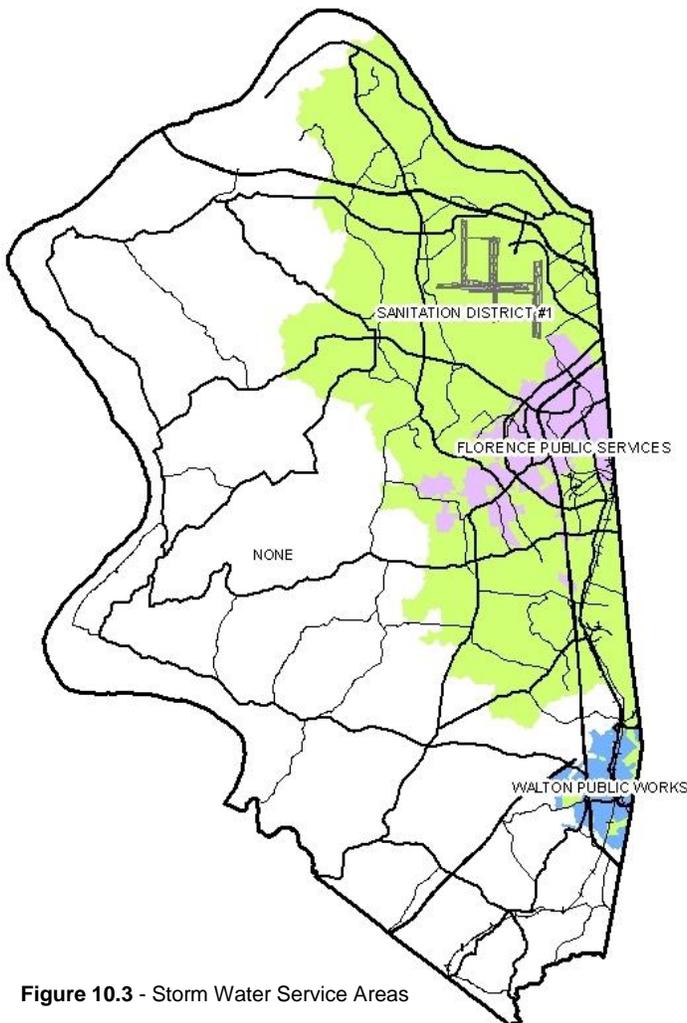


Figure 10.3 - Storm Water Service Areas

In 1999, the United States Environmental Protection Agency (EPA) developed National Pollutant Discharge Elimination System (NPDES) Phase II rules to address small municipal separate storm sewer systems (MS4s), which serve communities of less than 100,000 people in urbanized areas. The EPA has delegated responsibility for the MS4 program to the Kentucky Energy and Environment Cabinet, with specific Phase II regulation oversight provided by the Kentucky Division of Water (KDOW). The purpose of these regulations targets the control of storm water runoff, with the ultimate goal of improving the quality of surface waters that are currently impacted by this runoff. Under this rule, each individual community is required to submit an application for a National Pollutant Discharge Elimination System (NPDES) permit to the State.

In response to requests from Northern Kentucky communities, and in an effort to comply with these requirements in a cost effective and efficient manner, SD1 entered into interlocal agreements with local governments in Northern Kentucky, accepting responsibility to undertake permitting requirements and to implement a regional storm water management program to comply with EPA regulations. SD1's regional storm water management area resembles the sanitary sewer service area for Northern Kentucky, affecting approximately 40 percent of unincorporated Boone County, and excludes the cities of Florence and Walton. The boundaries of the service area have been delineated by the KDOW, and are eligible for re-evaluation at the end of each five year permit cycle based on factors such as growth and impacts on water quality. The SD1 storm water drainage system consists of the facilities (detention ponds) and/or infrastructure (previously owned and maintained by individual cities or counties) that convey storm water from the paved surface of public streets and roadways, beginning below the elevation of the street grate or storm water inlet. Cities and counties maintain ownership and maintenance responsibilities for culverts and ditches along public streets, as well as the associated street curbs, gutters, curb inlets, and street grates. SD1 reached a similar transfer agreement with Boone County Fiscal Court in late 2010 to accept ownership, operation, maintenance, and capital improvements of storm systems in the SD1 service area.

Additionally, and in order to fund the storm water management program, SD1 initiated a storm water surcharge for properties in the service area. In order to encourage the use of best management practices, SD1 has established a credit policy for non-residential (i.e. commercial and industrial) properties. Also, within the overall SD1 service area, SD1 has completed a storm sewer inventory, created a single set of storm water rules and regulations, developed a land disturbance permit process for activities greater than one acre in the service area, begun detection and elimination of illicit discharges and initiated a public education program.

In April 2007, a Consent Decree negotiated between SD1 and the U.S. Environmental Protection Agency (USEPA), the Kentucky Energy and Environment Cabinet, and the U.S. Department of Justice became effective that outlined an accelerated program of activities designed to further improve water quality and ensure compliance with the Clean Water Act primarily through the abatement of sanitary sewer overflows (SSOs) and combined sewer overflows (CSOs). Understanding that SSOs and CSOs are not the sole source of impairment for Northern Kentucky streams and rivers, and that multiple sources are impacting local waterways, SD1 proposed the country's first watershed management based Consent Decree. Traditionally, most Consent Decrees focus solely on SSOs and CSOs, with an emphasis on gray infrastructure solutions (treatment plants, storage tanks, etc). SD1's watershed approach identifies the characteristics of individual waterways and considers CSOs and SSOs along with other sources impacting waterways (such as storm water runoff). This approach allows for the use of new technologies such as "green" infrastructure and watershed controls (i.e. wetlands) as well as traditional gray infrastructure solutions. This integrated approach (which will be reviewed and evaluated every 5 years) is designed to address both wet and dry weather sources of pollution, eliminate SSOs, comply with CSO policies, and lead to greater improvement in water quality and public health.

As a core component of the watershed based approach, detailed characterizations have been conducted by SD1 of 16 major watersheds in Northern Kentucky. These studies, known as Watershed Characterization Reports (WCRs) provide valuable information, such as current water quality impacts, potential pollution sources, location of potentially sensitive areas, and allow for better prioritization of project implementation. Additionally, SD1 has formed a Watershed Community Council to allow for public input and has partnered with the Boone County Conservation District (and several other local agencies, including the Planning Commission) to initiate intensive watershed studies in two major and rapidly developing watersheds in Boone County (Gunpowder and Woolper

Creek). Such plans are crucial to future planning needs and also to recognize the responsibility of both the private sector and government in addressing existing problems and avoiding future problems.

## **NATURAL GAS DISTRIBUTION**

Duke Energy supplies natural gas in parts of Boone County. Currently much of the northeastern part of the county, the City of Florence, the City of Union, and the City of Walton are receiving natural gas service. Three major natural gas transmission lines pass through Boone County. All of these pipelines are located generally in the eastern half of the county. Installation and improvement of gas lines usually require an increase in residential or industrial concentration to be feasible.

## **ELECTRIC POWER DISTRIBUTION**

Electric power distribution is broadly provided by Duke Energy Kentucky and Owen Electric Cooperative. Some overlap within residential subdivisions and commercial developments exist. Duke currently operates the East Bend Power Plant, a coal powered plant. This facility is located along the Ohio River in the western part of the county. The Ohio River serves this facility by supplying the cooling water and the transportation for coal delivery via barges.

Owen Electric purchases its wholesale power from the East Kentucky Power Cooperative in Winchester, Kentucky. East Kentucky Power operates three generating stations and three renewable energy plants of its own and has interconnections with Kentucky Utilities, Duke Energy Kentucky, Louisville Gas and Electric, and Tennessee Valley Authority. This network provides the power reliability that a developing area needs.

Of all the above mentioned distribution and collection systems of the public infrastructure, electric power would offer the least limitations for urban development throughout the county. Electric and gas lines generally follow development instead of preceding it. Electric lines are versatile and can be extended to accommodate new development. For these reasons, these services do not have a great impact on directing residential development to specific areas. The fact that some industrial enterprises try to locate near energy sources should influence the placement of these facilities. From the stand point of sustainability, energy efficiency and the development of alternative energy sources are needed to keep the greater Cincinnati region economically competitive. The efficiency of many renewable sources of power, such as wind, solar, geothermal, and biomass continues to improve. Further advancements in fuel cell technology is one example of a recent development that may impact the methods of generating electrical power on-site as opposed from a centralized source and carries to end users over a network of transmission and distribution lines. The other sources of power mentioned above will be offered to area businesses and residents and their impact will need to be addressed.

## **MUNICIPAL/PUBLIC SERVICES**

Public Facilities services such as law enforcement, fire and rescue services, and other services provided by municipal and county agencies are vital to Boone County. Consolidation studies have been conducted by private consultants to examine the advantages and disadvantages of combining some city and county services, including law enforcement and utilities.

### **Law Enforcement**

The City of Florence has their own police force, while Union and Walton utilize the services of the Boone County Sheriff. Florence currently has a police force of over 61 officers including 2 bicycle patrol officers. Florence has a fleet of 62 patrol cars and a new SWAT truck. The remainder of the county, including the City of Union and the City of Walton, is served by Boone County Sheriff Department, which now has substations at the Union City Building and Walton City Hall. The Boone County Sheriff's office contains 128 law enforcement personnel including 10 bicycle patrol deputies. The Sheriff maintains a fleet of 87 patrol vehicles, 1 SWAT van, and 1 SWAT

armored vehicle. The City of Florence Police Department has their office in the Florence Government Center. The county Sheriffs' offices are located in the public safety campus just outside Burlington. The Cincinnati/Northern Kentucky International Airport has a separate force of officers and several dispatchers for the Airport and vicinity.

**Fire and Rescue**

Florence has historically been the only fire district in Boone County where there are full-time staff members for fire fighting. However, since 1990 the Burlington, Hebron, Walton, Union, Point Pleasant, Verona, and Belleview Fire Departments have all added full-time or part-time paid personnel. Petersburg is currently the only remaining department in the county that has no paid positions and functions totally through volunteer participation. Firefighting equipment and personnel are also available at the Greater Cincinnati International Airport. The Airport currently has a full-time force of 59 persons and two stations. All fire departments in Boone County with the exception of Petersburg are staffed with Advanced Life Support (ALS) personnel. Petersburg has a Mutual Aid Agreement for ALS services with the Hebron Fire Department.

Figure 10.4 shows the district boundaries of all Fire Districts in the county as well as the location of the fire stations. Several fire districts, such as Burlington, Hebron, Pt. Pleasant, Union, Florence, and Walton have experienced increasing demands for fire protection as a result of the county's growth. This is expected to continue over the planning period. Full-time fire personnel and paramedics will increasingly be necessary in each of these growing districts. This is especially important as new schools, residences, churches, commercial, and industrial and other facilities are built that operate during the daytime hours.

The Boone County Fire Chiefs Association has constructed a county wide fire training facility within the Boone County Public Safety Campus in Burlington. The Association also continues to operate a fire investigation team. Fire departments are increasingly using automatic aid to assist each other and to meet national standards for emergency response.

With the rapid growth of Boone County and the accompanying major roadways, transportation of hazardous materials and the emergency response to leaks and accidents will become increasingly important. Fire and rescue departments must be equipped and trained to deal with such emergencies. To coordinate emergency response, new communication and data systems have been implemented at the communications center at the Florence Government Center. This incorporates the Boone County GIS and should in the future continue the progression toward mobile graphics terminals and automated vehicle location technology for emergency response vehicles.

With increasing traffic congestion on the major interstates, increased air traffic, increased resident population and daytime employee population of Boone County, a trauma unit will be necessary to deal with potentially large emergencies. This unit should be somewhere near I-75 and near the

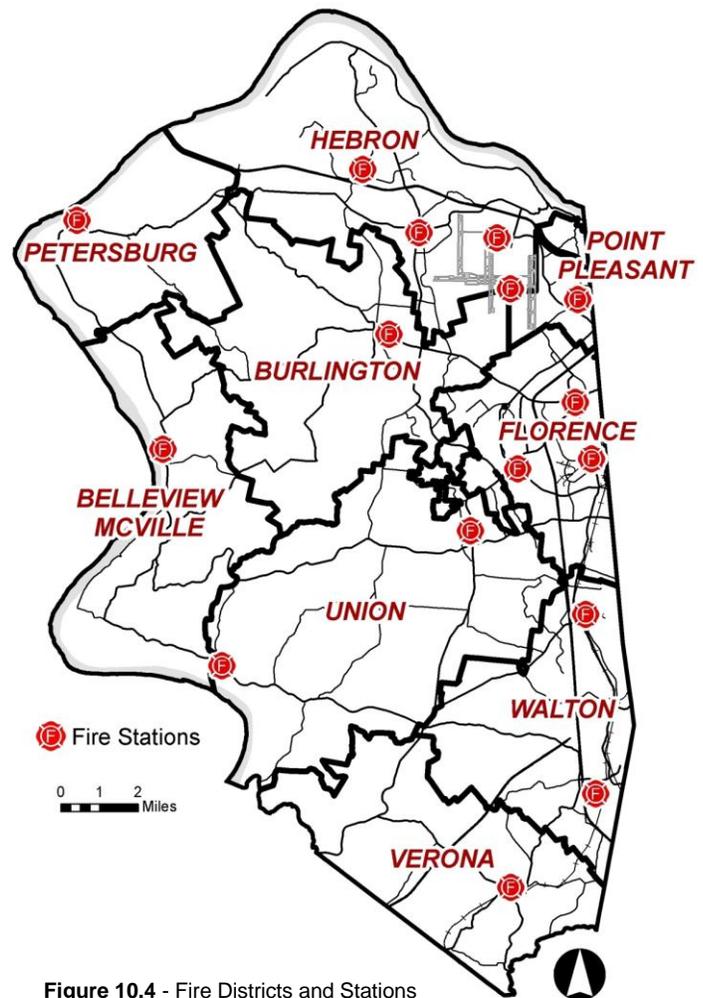


Figure 10.4 - Fire Districts and Stations

Florence area. Currently, trauma situations are flown by helicopter to the trauma unit at University Hospital in Cincinnati. Lastly, a new trend of urgent care facilities are appearing across the region which provides 24-hour care that may not be deemed an emergency. It is anticipated that these facilities will continue to appear in Boone County. In addition, Homeland Security has become an issue since 9/11, and emergency response needs to be designed with this issue in mind. In addition, a new truck was purchased with funds from Homeland Security that allows for a more efficient response to emergency calls involving weapons of mass destruction (WMD) and hazardous materials. Personnel from all departments have been trained to respond with this unit as part of a regional response team.

### **Emergency Telecommunications**

Telecommunications, or the transmission of signals containing voice or data over a distance, is essential for public safety. In 2010, Boone County Public Safety Communication Center (PSCC) upgraded the microwave backbone that exists between the PSCC and the radio transmission towers throughout the county. This upgrade provides sufficient bandwidth for current operation and should meet future bandwidth needs.

The Federal Communications Commission (FCC) issued a federal mandate to narrow-band the spectrum of radio frequency currently used by police, fire, EMS and public services in Boone County. The published deadline for this mandate is January 1, 2013. PSCC as well as other public safety entities like police, fire, EMS, and public services continue to upgrade radio equipment to meet the narrow-banding mandate. The need for interoperable communications between police, fire, EMS and public service has been identified in a significant number of incidents throughout the United States. A fully functional interoperable communication model does not currently exist in Boone County.

Much work could be done to improve telecommunication and dispatch. The current technologies employed throughout the county presents problems with interoperability, radio coverage, expansion and future growth. Bringing police, fire, EMS and public services together in the same radio frequency would aid in interoperable communication. Moving toward a 700MHz, 800MHz, or similar system would certainly aid in interoperable communications, expansion and future growth. Although this is not an action that should be undertaken without serious consideration and input of all stakeholders as different technologies present different problems. For example, digital radio communications don't always bode well in high background noise environments like fire incidents. If a common radio frequency spectrum is established, consideration should be given to enact legislation that would require bi-directional amplifier installation for improving radio coverage in buildings of considerable size or building material make-up.

The County Judges Executive of Boone, Campbell, and Kenton Counties engaged in conversation in 2010 to discuss regional communications. Each of the counties encounters similar hurdles when it comes to radio communications, emergency dispatch, etc. A regional approach to clearing these hurdles will be determined at a later date.

### **Municipal/County Offices**

Each of the municipalities within the county operates their offices out of a city or municipal building. Each municipal building provides a central location within the community for public services. A municipal complex on Ewing Blvd. houses the City of Florence offices as well as other government agencies. Expansion of this complex could include even more public services and needed meeting facilities which would serve the entire community.

Boone County Government Administrative offices were originally spread throughout the town of Burlington providing no central location for services. Although the Boone County Administration Building was completed in 1982, it is experiencing severe space limitations. Some agencies began to move out of the building, beginning the decentralization process again. The new justice center, jail, and sheriff's building have relieved the space problems and Boone County has begun to see the re-centralization of county offices and services once again.

The Boone County Planning Commission is an important agency that is a vital tool for the community in dealing with rapid growth. Boone County is in a beneficial situation in that the Commission is a joint planning commission and is responsible for directing land use and development for all of Boone County, including the three cities of Florence, Union, and Walton. As a result, the four legislative bodies operate under the same Comprehensive Plan and consistent regulations.

The Planning Commission has historically functioned mainly by reviewing development plans and managing growth, with the assistance of four boards of adjustment. The overall goal for land use regulation in Boone County is a balance between the right of the property owner to utilize their land for economic purposes with the protection of public health safety and welfare. The chief tool for accomplishing this task has been zoning regulations and subdivision regulations, but the future likely holds new methods of regulating land use, solving problems, pursuing opportunities, and affecting infrastructure provisions. The Boone County Geographic Information System (GIS) was developed through the 1990's and 2000's, and increases communication and cooperation between public and private organizations. GIS data and analysis will continue to be important in Boone County, and will be increasingly connected through wireless and cellular technologies.

## **EDUCATION**

There are two public school systems in Boone County, the Boone County School District and the Walton-Verona Independent School District. Each system offers education for grades 1 through 12 along with kindergarten classes. Both districts excelled in the Kentucky Core Content Test with Boone County placing sixth in the state for county districts and Walton-Verona finishing fourth of all the state's independent districts. Throughout Boone County there are also several private/parochial schools. The Boone County Success By 6 program has been in existence for over 5 years and is now improving the quality of life for children and families in Boone County. The Boone County Human Services Department also runs the aging tax board. These functions are important for the quality of life of Boone County residents.

### **BOONE COUNTY SCHOOL DISTRICT**

The Boone County School District currently operates 22 schools within the county. These schools are listed in **Table 10.1**. The Boone County District had an enrollment, as of the beginning of the 2000-2001 school year, of 13,167 in grades kindergarten through 12. This figure is now nearly 19,000, representing a 44 percent increase. Because of the dynamics of population migration in and out of Boone County, the usual population pyramid approach to forecasting future enrollments is often not reliable. The school district has to examine many factors in addition to natural population increase including future land uses as foreseen by this Comprehensive Plan. **Table 10.1** details the current enrollment of and the designed capacity of each school.

**Elementary Schools** - Longbranch Elementary and Mann Elementary have both been constructed since the 2005 Comprehensive Plan update. Burlington, New Haven, Ockerman, and Florence elementary schools have recently undergone additions and renovations. Enrollment is generally greater than the designed capacity, even with classroom additions and mobile classrooms. Concentric locations of elementary schools have made the distribution of students more difficult without transporting children excessive distances. Recent major redistricting efforts have utilized the Boone County GIS, which is also being used in the planning for the most efficient locations for new schools in the future as the Boone County student population continues to grow.

**Middle Schools** - The middle schools are all operating at or near capacity. Although they are all located in the eastern section of the county, they are strategically placed so that the rural sections of the county (south and west) are directly accessible by road.

**High Schools** - Two high schools in the county are operating over capacity. These schools are Boone County High School and Ryle High School. Conner and Cooper high schools are right at capacity. Like the middle schools, the high schools are located in the most populous areas with convenient road access to most of the county.

**Table 10.1 - Boone County School District**

<b>SCHOOL</b>	<b>2000</b>	<b>2011</b>	<b>DESIGN CAPACITY</b>
Burlington Elementary	628	886	825
Collins Elementary	566	608	650
Erpenbeck Elementary	798	666	850
Florence Elementary	528	662	625
Goodridge Elementary	549	845	775
Kelly Elementary	306	247	450
Longbranch Elementary	-	744	750
Mann Elementary	-	839	750
New Haven Elementary	629	719	750
North Pointe Elementary	462	1,042	975
Ockerman Elementary	639	750	800
Stephens Elementary	621	740	875
Yealey Elementary	597	626	750
<b>Elementary sub-total</b>	<b>6,323</b>	<b>9,374</b>	<b>9,825</b>
Camp Ernst Middle	-	953	1,033
Conner Middle	1092	1,026	700
Gray Middle	780	981	886
Jones Middle	447	647	933
Ockerman Middle	728	849	700
<b>Junior High sub-total</b>	<b>3,047</b>	<b>4,456</b>	<b>4,252</b>
Boone County High	1,341	1,400	1,100
Conner High	1,216	1,213	1,266
Cooper High	-	986	1,000
Ryle High	1,240	1,556	1,500
<b>Senior High sub-total</b>	<b>3,797</b>	<b>5,155</b>	<b>4,866</b>
<b>Total</b>	<b>13,167</b>	<b>18,985</b>	<b>18,943</b>

**WALTON-VERONA SCHOOL DISTRICT**

Enrollment growth has historically been relatively slow in the Walton-Verona Schools. This school system operates an elementary school just west of Verona and a high school in Walton. While population growth projected for that area is not anticipated to be dramatic, the enrollment numbers for the district have increased at a much higher rate over the past decade. The Walton-Verona school system had a year 2011 enrollment of 1,520 students from pre-school through 12. This enrollment represents a 51 percent increase since 2000 when the enrollment was 1,006 students. The grade configuration has changed recently in the Walton-Verona School District. Elementary now consists of pre-school through 4th grade; middle school includes 5th through 8th grades; and the high school is comprised of 9th graders through the 12th. Current additions to the existing Middle School and High School campus in Walton will accommodate the near term growth in the district.

Due to limited bonding potential, Walton-Verona is not planning on a new high school at the Verona interchange anywhere in the near future. Instead, they will be utilizing the Walton campus for middle and high school for the foreseeable future. Land is set aside in the Verona Park for the long range construction of a new school building. This property currently contains the sports facilities for the district. In the meantime, the addition to the existing complex will accommodate the increase in students.

**PUBLIC EDUCATION PLAN**

**Facilities Plan** - In 1991 the Kentucky Education Reform Act (KERA) was passed by the Kentucky General Assembly to totally revise the public educational system in Kentucky. Consequently, both school districts are attempting to comply with KERA requirements. In addition, the Boone County School District adopted a Master

Educational And District Facility Plan in 2003 for the needs of the District. That plan was updated in 2007. State law requires school districts to develop and adopt a Master Educational Facilities Plan and to update it every 4 years based upon needs. Boone County Schools and Walton-Verona Schools recently updated their 4-year plans. The current plans for both districts are available at their respective Board of Education offices for review.

An overview of the future educational needs is concentrated on the central portion of the county where the greatest population growth is occurring. As the center of the county becomes more densely populated, more classroom space in the form of new schools or expansions of existing buildings will be necessary in growth areas. The current strategy of school location in the Boone County District is to distribute the location of new schools where areas are experiencing population growth.

The next five to ten years represents an important time period for building expansion of both school districts. Continuing industrial development in Boone County increases the tax revenues available to education. However, continuing residential development can increase the needs impacts on the system. The education system must closely coordinate its efforts with land use planning activities. Correlation of school size and location with approved residential development, as well as the Future Land Use Map, will be a major focus of the school district's efforts. This is especially apparent with the elementary schools in the district which are currently overcrowded. A strategy of the school district is to disperse new school facilities out from the central urbanized Florence area through the use of the Boone County GIS in order to minimize student travel time and problems with traffic congestion.

Because of Boone County's growth, new school facilities should be strategically located in the transportation network and near residential areas they are designed to serve. Besides being easily accessible to new growth areas, this can enable future redistricting to avoid overcrowding. Aside from elementary school construction, the major improvement to the school system will be a planned fourth high school. Future expansion of the Boone County Vocational School or construction of additional facilities will be necessary as the county becomes more urban. Transportation activities can also have a negative impact on the education system. This is apparent with airport noise impacts on several Boone County schools. Noise mitigation measures, including sound insulation, should continue to be implemented where necessary.

In terms of land acquisition, suitable land donation to the school district by Boone County land owners should be encouraged, as well as the provision of suitable land within planned developments or subdivisions, as long as the sites are somewhat level and strategically located to avoid future redistricting problems. The Boone County Zoning Regulations Planned Development Article and the Boone County Subdivision Regulations should be considered for revisions to facilitate such donations or lease arrangements for suitable school sites. Erpenbeck Elementary and Northpointe Elementary are two examples of schools built through these types of efforts.

In addition, both school districts should continue to work with the Boone County Parks and Recreation Department in providing joint use facilities. This can be beneficial in terms of land costs, maintenance costs, and provision of facilities. This is also recommended in the Boone County Parks and Recreation Master Plan.

### **Private Schools**

Currently, seven private or parochial schools exist in Boone County:

- **St. Paul School** - U.S. 25 (Dixie Highway) Florence; Enrollment - 625; Grades K-8.
- **Mary, Queen of Heaven Elementary** - Donaldson Road at Turfway Road; Enrollment - 260; Grades PS-8.
- **Immaculate Heart of Mary School** - KY 18; Enrollment - 540; Grades PS-8.
- **St. Joseph Academy** - Needmore Street, Walton; Enrollment - 300; Grades K-8.
- **Heritage Academy** - U.S. 42, Florence; Enrollment - 357; Grades K-12.
- **St. Henry District High School** - Donaldson Rd; Enrollment - 540; Grades 9-12.
- **Assumption Academy** - Beaver Road; Enrollment - 40; Grades K-12.

Private schools ease part of the pressure placed on the public schools as new residents come into the county. As the county continues to grow, new private schools can be expected to emerge. The Covington Diocese has conducted a facilities plan which includes a future high school and grade school in Boone County. This plan

encourages these schools as long as they meet or surpass the standards of public schools. These schools can be expected to be built in conjunction with religious institutions.

### **Colleges/Trade Schools**

At present, there is the Gateway Community & Technical College at the I-75/Mt. Zion Road interchange which opened in 2005 and includes the Center for Advanced Manufacturing that opened in 2010. There are several private business and trade schools located in the Florence area. These are not regional campuses, but primarily serve individuals from the immediate Northern Kentucky area. As the population of the county grows, expansion of these schools or construction of new schools can be expected. Furthermore, the continued increase in industrial activity indicated that Boone County would be an ideal location for a state technical college. Any new college or trade schools should locate in urbanized areas that are easily accessible to their students.

### **Visual and Performing Arts**

The Northern Kentucky Arts Council produces visual arts displays and theater shows at the Carnegie Arts Center in Covington. The last few years have seen National Endowment for the Arts funding to help the state-wide Kentucky Council operate in the face of the overall economic conditions. The Council is overseen by the Kentucky Tourism, Arts and Heritage Cabinet (renamed in 2008). The Northern Kentucky Symphony and Stained Glass Theatre troupe perform in Kenton and Campbell counties. This indicates a need for the growing population of Boone County to have greater access to the arts in general.

During 2010, the Union Theatre Group began to offer for-pay play performances. The Group reached an agreement with Ryle H.S. for the use of the school auditorium, but has expressed a need for permanent stage and educational facilities. Such facilities could also offer opportunities for other groups to perform and provide arts education. The planned Union Town Center may be an effective location in the future.

### **Libraries**

The Boone County Public Library is an important educational asset that provides educational resources and services to the community as a whole. The library has grown to serve the needs of a rapidly growing county. Starting in a temporary storefront in Florence in 1973, the library now includes six locations in Burlington, Florence, Hebron, Petersburg, Union, and Walton that house a collection of over 483,000 books, videos, DVDs, audiotapes, and CDs. The library is a presence in the community and this is reflected in the 4,786 programs, ranging from lectures to concerts, which were attended by over 73,559 people in 2011. The library also provides training classes, job fairs, and coordinates with public, private, and post-secondary schools and home schooling parents to provide programming and educational services.

Since the [2005 Comprehensive Plan](#), branches have opened in Petersburg and Burlington, and a remodeling has been completed at the Scheben Branch. The Main Library in Burlington has been noted for its architecture and modern amenities such as study rooms and enhanced children's and teen areas. The Main Library is also home to the Local History Department which serves as the county hub for genealogical and historical research.

The Library District is poised to continue to grow and tailor its services to the public as Boone County grows. The Library District has purchased land in Hebron and Walton for the eventual replacement of the branches currently serving those communities. In planning for the future, existing services as well as future services and programs will guide the development of facilities. As the demands of the 21<sup>st</sup> Century Boone County change so too do the services that the Library District provides.

## **HEALTH CARE SERVICES**

**St. Elizabeth Florence** is currently the only hospital in Boone County. This hospital is located in Florence on Turfway Road, with access to I-71/75. The hospital is a full service facility with 177 beds and a 24-hour full service emergency unit. The hospital added 36,000 square feet improving the emergency and outpatient services. Major expansions, including medical office facilities, will be needed in the future. The county's medical services are presently well concentrated in the urbanized areas. As the county's residential growth extends to the

south and west, the placement of additional medical services will have to reflect this growth pattern. There is the potential to expand public health care facilities due to the growing population and business expansion.

The **Boone County Health Center** was previously located on Woodspoint Drive. However, a larger facility was constructed in 1988 on KY 18 in Florence to replace the Woodspoint center. The former Health Center building is now used for a Senior Citizens organization and Adult Learning Center. The Griesser Farm development on KY 18 west of Burlington is proposed to contain an assisted living component in addition to the residential development.

The following are private medical care facilities in the Florence area:

- **Bridgepoint Care and Rehabilitation Center**, located on Woodspoint Drive, is a 150 bed facility with 100 intermediate care and 50 skilled care beds.
- **Florence Park Care Center**, located on Burlington Pike in Florence, is a 150 bed facility with 120 intermediate care and 30 skilled care beds, as well as 200 assisted living.
- **Gateway Rehabilitation Center**, located on Merchants Street in Florence, contains 40 private rooms, overnight family accommodations, and an outpatient center. It provides several types of therapy, radiology and lab services.

## **PUBLIC COMMUNICATIONS**

The written medium involves one weekly newspaper (the Boone County/Florence Recorder) and one daily newspaper (Kentucky/Cincinnati Enquirer). The visual medium involves several television stations located in Cincinnati and cable television. In addition, Insight Communications provides cable TV in Boone County.

### **Wireless Communications**

In 1998 the Boone County Planning Commission conducted a study on cellular towers, the regulations concerning them, and actions that Boone County could take to address impacts. The purpose of this study was to provide an informative document on the wireless communication industry, investigate the effects of this technology on Boone County, and develop a stance on how to regulate this industry while reaping the benefits of this technology.

This study and Kentucky Revised Statutes (KRS) 100.985 - 100.987 are the foundation of Section 3197 of the Boone County Zoning Regulations ("Regulations for Wireless Communication Facilities and Services"). Among other things, Section 3197 of the Zoning Regulations defines the application process and procedures for building new wireless communications facilities, provides design guidelines for new towers, and addresses the co-location of antennas on existing structures.

The Boone County Planning Commission has noticed a trend over the last several years that most of the new tower applications are for taller towers located in rural/agricultural areas. Largely, wireless providers are co-locating on existing towers and other structures near our Interstate highways and city centers and are looking at providing contiguous coverage along our rural highways and underserved residential areas. Boone County Planning Commission staff believes this trend will continue as more citizens look to buy cell phones and I-phones and cancel their conventional land line services. As a result of these trends, Boone County Planning Commission staff is beginning to study the design guidelines found in Section 3197 of the Zoning Regulations and may be recommending changes to minimize the siting impacts of these taller towers on Boone County's citizens. Providing wireless communications throughout the county is essential for personal use and, more importantly, public safety.

## **WASTE MANAGEMENT**

### **Garbage Collection**

Garbage collection is currently contracted out to private firms. Waste collection in Boone County is handled by three companies: Rumpke Waste Services, CSI Waste Services, and Bavarian Waste Services. Bavarian owns

and operates a landfill on McCoy Fork Road on the west side of I-71 just west of Walton, KY. The 660 acre landfill has a site life that extends to the year 2052.

### **Recycling**

Boone County may have reached the point in its development where large scale recycling of garbage is feasible, including curbside recycling service. Large scale recycling is a key component of the concept of sustainability, which is addressed in detail in the Economy Element. This plan supports recycling of materials for not only residential uses, but commercial and industrial as well. Recycling should be treated as an important part in a complete Solid Waste Plan for Boone County and surrounding communities. Recycling efforts need to also include a continual search for economic markets for materials. A well known innovative example of recycling has been instituted in Curitiba, Brazil. Residents exchange recycled goods for bus fare vouchers. Other methods of promoting recycling as a central function in the community would include convenient facilities for composting. Recycling drop-off sites in Boone County are handled by Boone County Public Works Department and are offered for free. Boxes are located in several different locations and at schools throughout the county.

### **CONCLUSION**

Public officials are finding nationwide that in most communities revenues are not keeping pace with resources needed to provide services. In the suburbs, this is largely a result of the inefficient pattern of low density development, while in the central cities this is a result of losing resources to the suburbs. This is also why such controversial topics like development moratoriums and impact fees have received nationwide attention over the last several years.

It is well known that currently Boone County has low tax rates compared to more urbanized communities in the metropolitan area. Boone County Fiscal Court's budget situation has been positive from past growth in revenue from commercial and industrial development. To accommodate rapid growth Boone County Government needs to determine whether or not taxes and other revenues adequately pay for public services and identify the deficiencies as the first steps in preparing an effective Capital Improvement Plan. The costs of providing public facilities and services for different suburban land uses should be determined. Property values can also change where public improvements have been made, and some development directly results from publically-provided infrastructure. With a slow growth period, there is a chance for the public sector to catch up on some infrastructure needs.