CHAPTER 5

SPENCER COUNTY INFRASTRUCTURE INVENTORY AND ANALYSIS

PURPOSE

The infrastructure or the basic utilities, of the county will be examined in terms of an inventory of what exists, present service capacities, and limitations for serving future populations, businesses and industry relevant to anticipated growth. The location of future infrastructures in terms of their compatibility with the physical or natural environment in areas already determined to be suitable for development purposes is also considered.

Specifically, the adequacy and needs for water supply, sewage, solid waste disposal, and streets and highways will be analyzed as they will be essential to governing the amount and types of development that will take place in the county.

WATER SUPPLY SYSTEM

If an adequate, satisfactory, and safe water supply is not obtainable for proposed development site(s) at a reasonable cost, with or without treatment, the site should be abandoned. When a municipal water supply passes near the property to be developed, property owner(s) should be urged to connect to it because such supplies should be under competent supervision.

According to the preliminary engineering report conducted by Sisler – Maggard Engineering, the City of Taylorsville currently obtains their water supply from one source with two primary interconnections. The Louisville Water Company is the source of supply.

The Louisville Water Company supplies water through a pump station and master meter located west of Taylorsville off of SR 44 near KY 660 and north of Taylorsville along SR 155 near the Jefferson County line. The City of Taylorsville water supply system provides water to over 6000 customers. Approximately 600 of those customers are within the City Limits. The remaining customers reside throughout the county. The current average daily demand is 1,207,000 gallons per day and the maximum daily demand is 1,721,200 gallons per day.

Due to the projected and already occurring growth within the county, it is important to maintain a dependable, safe, and affordable drinking water supply. Therefore, improvements may be necessary to supply the projected population for the next 20 years.

The City has installed a 12” line along SR 55/155 into Taylorsville. Also, the City is installing a 12” line along SR 44 into Taylorsville. This will allow the distribution system to meet the anticipated 20 year projected growth. At the completion of Phase III approximately 95-98 percent of the county will have water

available where it is feasible to do so. During Phase I, II, and III, approximately 100 miles of rural water has been laid.

The determination of service area boundaries should consider the potential secondary impacts of service extensions; and using the extension of the service area to complement community growth plans rather than allowing the extension of environmental infrastructure to determine the direction and magnitude of future growth. This being said, the City of Taylorsville Water mandates a minimum 6" line to be installed throughout the county for anticipated growth.

Generally, public water supplies are provided when densities increase in suburban areas to an extent where it is no longer possible to provide both on-site water supply and on-site sewage disposal, when there is danger of contamination of the water supply by the sewage disposal system, and/or when requirements for fire fighting necessitates a reliable high pressure water system.

Table 5-1 shows the projected population growth till the year 2020. The number of units will provide adequate numbers for the projected usage of water and sewer facilities.

TABLE 5-1

PROJECTED POPULATION GROWTH BY PLANNING UNIT

	Total Population		**Occupied Housing Units**	
Planning Unit	2000	2020	2000	2020
P-1	1046	2505	440	1006
P-2	1586	3766	567	1345
P-3	1886	4278	720	1633
P-4	5471	12100	1913	4228
P-5	1777	3917	611	1346
Total	11766	26245	4251	9558

*Average household size for each planning unit is assumed to remain constant from the year 2000.

*P-1 has an assumed 11 percent vacancy rate.

*P-2 through P-5 has an assumed 6.5 percent vacancy rate.

TABLE 5-2

WATER AND SEWER CHARACERISTICS FOR SPENCER AND SURROUNDING COUNTIES, 1980-2000

	% of Total Occupied Units with Incomplete Plumbing			% of Total Occupied Units on Public Sewer			% of Units with Public/Private Water		
County	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change
Spencer	**2.0%**	**1.0%**	**1.0%**	**18.2%**	**17.0%**	**-1.2**	**65.6%**	**92.0%**	**26.4%**
Bullitt	1.5%	0.6%	0.9%	44.3%	45.0%	0.7	77.0%	88.5%	11.5%
Henry	5.1%	1.7%	3.4%	34.3%	35.0%	0.7	83.8%	94.0%	10.2%
Jefferson	0.3%	0.4%	-0.1%	91.9%	90.0%	-1.9	98.5%	99.5%	1.0%
Oldham	0.7%	0.3%	0.4%	45.5%	45.0%	-0.5	93.4%	96.5%	3.1%
Shelby	1.9%	0.8%	1.1%	48.7%	50.0%	1.3	89.2%	93.3%	4.1%
Trimble	4.5%	1.9%	2.6%	30.2%	30.0%	-0.2	86.8%	95.0%	8.2%

SEWAGE SYSTEM

Within any given community the pressure for extension of sewers or development of large scale sewage facilities is predicated in large part on the requirements for public health, which no longer allow for on-site sewage disposal through either septic tank or cesspools on lots smaller than one acre. The decision to sewer or not to sewer depends to a large extent on the alternatives available within any specific community and geographic/geological environment.

In areas in which development that uses on-site systems has already occurred, and in which soil and groundwater conditions cannot support on-site disposal, the decision is often mandated by a state or local health agency, although the precise specifications of the decision may be open to negotiation. In areas of new development, the requirement that lots be roughly one quarter of an acre per housing unit for the development to be financially successful necessitates some form of sewage facility.

The current system consists of three cells. The first cell holds approximately 22 million gallons, the second cell holds approximately 18 million gallons, and the third cell holds eight million gallons. Liners were installed in all three cells in 2001 at a cost of approximately $800,000. During this project, the City also lined existing gravity lines in town that showed serious ground water infiltration. The total project costs were approximately 1.5 million dollars.

The City of Taylorsville will begin construction in 2008 on the expansion of the sewer plant. The current sewage system maintains approximately 200,000 gallon. The system is currently operating at approximately 200,000 gallons per day. The system will be expanded to 1 million gallons per day and is designed to accommodate any future development throughout the area.

There are two package plants in the county: one at the Tanglewood Golf Course aarea and one on Taylorsville Lake Corp property. Also, there is a privately owned sewage treatment plant at the Top Flight Subdivision Golf Course, which currently only serves homes within the development.

Sewer sizes should be flexible enough to allow expansion at minimum expense. Service extensions should be made where economic and health factors make this desirable; and should include provisions for the extension of lines across vacant lots, requiring a decision as to the method of payment or cost sharing. Map 4 shows the current sewage system.

In those areas where a public sewage system is not feasible the use of on-site disposal systems will be necessary. In those areas where soils and terrain can accommodate septic systems, the location of septic tanks must be such that it will achieve the following minimum distances.

TABLE 5-3

MINIMUM DISTANCES FOR SEPTIC TANK LOCATIONS

From	Septic Tank	To Absorption Field	Seepage Pit	Absorption Bed
Well	50’	100’	100’	100’
Property Line	10’	5’	10’	10’
Foundation Wall	5’	5’	20’	5’
Water lines	10’	10’	10’	10’
Seepage Pit	6’	6’		
Drywell	6’	20’	20’	20’

Source: Manual of Housing/Planning and Design Criteria, Joseph DeChiara and Lee Koppelman; Prentice Hall, Inc., 1975.

Design of the septic tank should provide adequate volume for settling, for sludge and scum storage, and access for cleaning. The structural design and materials used should be in accordance with generally accepted good engineering practices, providing a sound durable tank which will safely sustain loads and liquid and earth pressure involved.

Liquid capacity should be based on the number of bedrooms proposed, or that can be reasonably anticipated in the dwelling and shall be at least as follows:

TABLE 5-4

MINIMUM CAPACITIES FOR SEPTIC TANKS

Number of Bedrooms	Minimum Liquid Capacity Below Outlet Invert (gallons)
2 or less	750
3	900
4	1000
Each additional bedroom, add	250

Source: Manual of Housing/Planning and Design Criteria, Joseph DeChiara and Lee Koppelman; Prentice Hall, Inc., 1975.

The analysis of the county's topography and soil associations indicate specific areas of the county where onsite disposal systems cannot be readily accommodated. The extreme northwestern and west central part of the county, the north central and south central portion of the county (with the exception of the stream terraces and broader ridges), and virtually all of the eastern half of the county all have limitations for on-site disposal systems ranging from moderate to severe, mostly due to steepness of slope, slow permeability, and shallow depth to rock.

Therefore, only the land on the stream terraces and broader ridges in the county can easily accommodate septic systems or other on-site disposal methods. Development, when properly monitored, can be encouraged in these areas. Establishment of an enforced septic tank inspection, maintenance and pumping program can offer a cost-effective alternative to sewer extension. In these areas, a septic treatment facility or specific arrangements with adjoining communities with large scale sewage treatment facilities to accept the seepage should be considered.

SOLID WASTE DISPOSAL

Residential, commercial, and industrial solid waste generated in Spencer County is collected by private sector haulers, principally Rumpke Sanitation Company. Waste disposal is handled at the Rumpke Sanitation Company landfill located on in Hardin County. Rumpke's Sanitation operates under contract to provide waste collection service to residents and business in Taylorsville. Currently, Spencer County is in compliance with the updated solid waste plan.

Of prime economic importance is the proper location of the disposal facilities relative to future population concentrations. Sites for these facilities must be acquired through zoning, leasing, purchasing, or condemnation. There must also be close coordination of the refuse collection and disposal services and the community transportation plans to develop the most economic hauling system.

The area required for the sanitary landfill operation is approximately 4 acres per 10,000 persons served. The operation requires constant supervision and may develop insects and rodents if poorly operated. Additional capacity needs estimated for Spencer County through the year 2000 is 87 acre-feet and 46,789 tons of waste capacity.

SUMMARY

Within the United States today, infrastructure standards require that water supply systems should provide each citizen with roughly 100 gallons of water per day, that sewage systems be capable of removing that 100 gallons from the household as wastewater, and solid waste disposal systems should remove and dispose of roughly five and one-half pounds of solid waste generated per capita per day in an environmentally acceptable manner. With these standards as necessary goals, the community needs to be aware of the physical constraints, the economic tradeoffs, and the significant secondary impact of extensive infrastructure development in the areas of provision of water supply, wastewater management, and solid waste management.

This chapter deals with infrastructure planning and emphasizes the importance for the infrastructure to complement rather than lead the development of communities. Adherence to this principle is especially critical early in the facilities development process when locations are being considered and when such significant parameters as population projections and future land use and density patterns are being discussed.