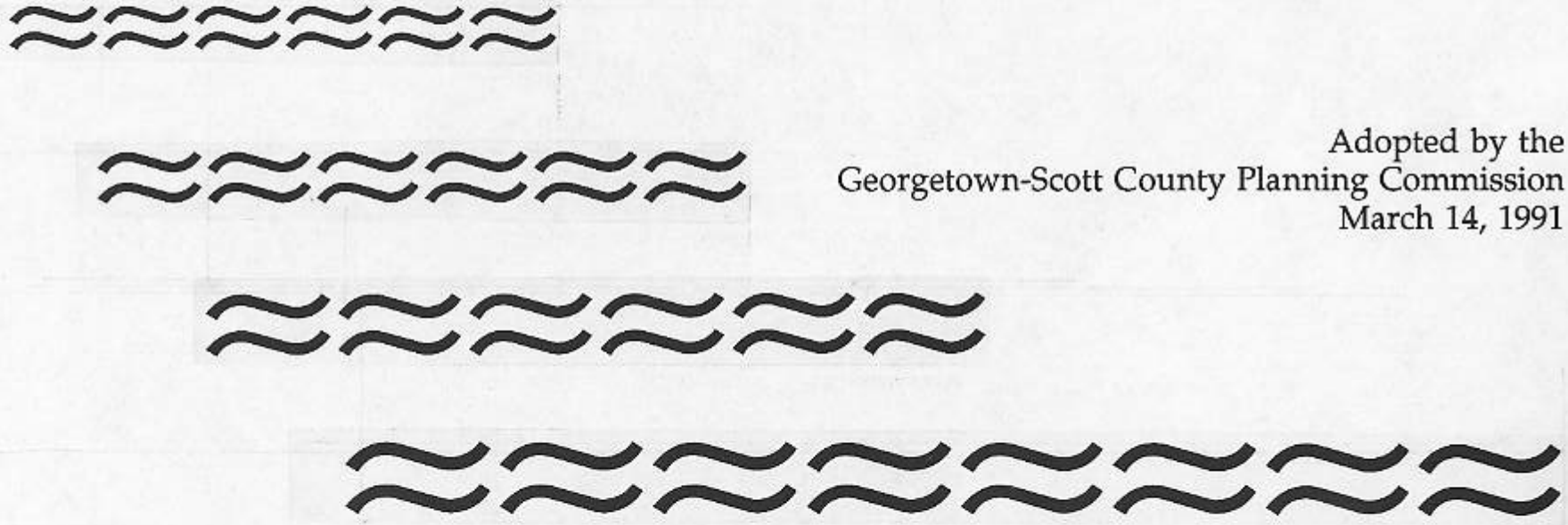
1991 COMPREHENSIVE PLAN
for Georgetown, Sadieville, Stamping Ground,
and Scott County, Kentucky



Adopted by the
Georgetown-Scott County Planning Commission
March 14, 1991

ENVIRONMENTAL QUALITY MANAGEMENT PLAN

ACKNOWLEDGEMENTS

COMPREHENSIVE PLAN CITIZEN ADVISORY COMMITTEE
ENVIRONMENTAL QUALITY SUBCOMMITTEE

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Charlie Perkins, Commission Attorney and Secretary
Ira Gray, Commission Engineer

Beth K. Stewart, Planning Director
Stephen D. Austin, Planner
Kathy Gibson, Administrative Assistant
Mary Overall, Office Manager

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I. SUMMARY

A. IMPORTANCE OF ENVIRONMENTAL QUALITY TO SCOTT COUNTY'S FUTURE

Scott Countians have strong environmental values, perhaps built on the traditional dependance of farmers on good soil and water and the harmonious combination of nature and human activities that has created one of the most beautiful rural landscapes in America. Protection of the environment is not only maintenance of the status quo, it is also an important element of Scott County's future: the continuation of viable agriculture; the attractiveness of this community as a place for new residents to live and work; and the potential to diversify the economy through tourism and recreation.

Through several citizen attitude surveys, Scott Countians have shown that environmental issues are a high priority to them (Figure 1). The majority of Scott Countians believe that it is possible to accomplish both our environmental and economic goals, and strongly feel that growth is acceptable only if it is managed so that the environment is protected. State law governing comprehensive plans (KRS 100) allows the Planning Commission to include a conservation and natural resources element in the Plan. This chapter represents an integrated plan to protect water quality, manage solid and hazardous wastes, and protect environmentally sensitive resources, in balance with other goals for growth in the Comprehensive Plan.

B. KEY ENVIRONMENTAL ISSUES

WATER QUALITY is the key environmental issue of the 1990's, and the top environmental concern of Scott Countians (Figure 1). Water resources are interconnected with all other aspects of the environment, such as geology, soils and air quality, and are especially sensitive in Kentucky due to karst topography. Water quality is potentially affected by all land use and development activities. Because of this, the quality of water resources is the best indicator of the overall health of the environment and the success of our community's environmental protection policies. This Environmental Management Plan is organized around the theme of Scott County's water resources, the threats to water quality, and the strategies to protect water quality and interrelated environmental resources. Water quality also touches on many issues found throughout the Comprehensive Plan, such as rural development and preservation, industrial recruitment, sewage treatment and septic system policies, solid and hazardous wastes, and recreation.

ENVIRONMENTALLY SENSITIVE RESOURCES: Environmentally sensitive resources are natural or cultural characteristics of the land that have value to Scott Countians and need special treatment to protect that value. Many of these relate to water or other natural resources that are important to human health, the economy, recreation, and the Scott County way of life. They include qualities of the distinctive Bluegrass landscape that Scott Countians and visitors enjoy. Others represent land or geologic features that are hazardous to develop and maintain. Environmentally sensitive resources are designated to be aquifer recharge areas, creek conservation corridors and minor waterways, the Scott County reservoir drainage area, prime farmlands, significant natural habitats for plants and animals, scenic and historic rural resources, remaining tree stands and fencerows

FIGURE 1
ENVIRONMENTAL QUALITY
SUMMARY OF COMMUNITY ATTITUDE SURVEYS

IMPORTANCE OF ENVIRONMENTAL QUALITY TO SCOTT COUNTIANS

- When Scott Countians listed the values that they feel should be important in their community, environmental concerns ranked first and fourth among 16 factors (see below). However, Scott County was rated lower as far as providing for this. For instance, while 89% of the respondents felt that **"a concern for protecting the environment"** should be "extremely or very important" in their community, only 41% consider Scott County to be "excellent" or "very good" in this. (W.)

Community Value	Extremely/ Very Important (Percent/Rank)	Excellent/ Good (Percent/Rank)
A clean place without junk or roadside dumps	94% - 1st	44% - 9th
A concern for protecting the environment	89% - 4th	41% - 10th

BALANCING THE ENVIRONMENT AND ECONOMIC GROWTH

- When asked to **weigh economic opportunities and environmental quality,** Scott Countians made it clear that the environment must be protected. (U.K.)

- Only 4% agreed that **"we must relax environmental standards in order to achieve economic growth."**

- 53% believed **"we can achieve our current goals of environmental protection and economic growth at the same time."**

- 39% felt that **"we must accept a slower rate of economic growth in order to protect the environment."**

This question was asked in 1986, shortly after Toyota announced but before the impacts of the plant and related growth were known. Since public acceptance of Toyota has been so positive, this question may have generated a different response if asked more recently. However, it still shows the importance of environmental quality to Scott Countians.

FIGURE 1, CONTINUED
ENVIRONMENTAL QUALITY
SUMMARY OF COMMUNITY ATTITUDE SURVEYS

PRIORITY ENVIRONMENTAL ISSUES

- When Scott Countians were asked which issues should be priorities for government action, the **number 1 priority** was "**improve the quality of the local drinking water.**" 94% of respondents called this "extremely" or "very important." (W.)

- "**More public programs to encourage recycling**" was considered to be "extremely" or "very important" for government action by 76% of Scott Countians. (W.)

- Rural property owners are very environmentally conscious, and rated the following topics on a scale of 5 (major) to 1 (minor) as a problem in Scott County (R.P.). Their answers emphasize the importance of **water quality and solid waste management**:

Rank	Topic	Number rating as major	Average Score
1	Water Quality	214	4.3
2	Illegal Dumps	146	3.9
3	Weed and Thistle Control	129	3.7
4	Solid Waste Management	85	3.6
5	Hazardous Materials Storage & Transportation	79	3.3
6	Septic Systems	68	3.2
7	Package Sewage Treatment Plants	63	3.2
8	Soil Erosion	62	3.3
9	Pesticides & Herbicides	57	3.2
10	Air Quality	44	2.6
11	Storm Drainage	38	2.7
12	Urban Runoff	32	2.9

(W.) = Wilkerson Community Attitude Survey, 1990
(R.P.) = Scott County Rural Property Owners Survey, 1990.
(U.K.) = Univ. of Kentucky Toyota Impact Survey, 1986.

in the southern half of the County, and steep slopes and soils with special development considerations.

The protection plan for these resources recommends that some should remain as open space, through a combination of public purchase, stronger floodplain regulation, cluster development, and transfer of development rights. Others should be respected and incorporated within development projects, which can create a special image for Scott County and enhance their own chances of success by highlighting natural features. The network of water resources through Scott County presents an opportunity to create a series of "ribbon parks" and greenbelts that will leave ample room for growth, while keeping the beauty of the countryside closely accessible to the City.

SOLID WASTE MANAGEMENT: The challenge of reducing the stream of waste we produce and the high cost of safely disposing of what remains is a critical growth issue for Scott County. The City of Georgetown, through its landfill planning, and the Scott Fiscal Court, through the Solid Waste Management Plan and Ordinance, have supported responsible planning on this issue. Yet Scott Countians are signalling that a stronger program is needed. They rated "a clean place without junk or roadside dumps" as the single most important attribute of a quality community (Wilkerson Survey), and one they feel that Scott County could better provide. They have also shown solid support for mandatory trash collection, and have shown that recycling deserves priority attention (Figure 5).

City and County government must work closely together and with other counties in the region if we are to establish a financially-feasible landfill, control illegal dumping, and coordinate waste collection, recycling, and educational efforts. Solid waste management will require a full-time planning effort and strong local governmental commitment within the next five years. This is also an issue that requires awareness and commitment from individual Scott Countians. Old habits, such as sinkhole dumping, need to be broken and new habits for recycling and proper waste disposal need to be formed.

HAZARDOUS MATERIALS MANAGEMENT: The use of hazardous materials is increasing in businesses and industries, on farms, and in the home. This brings increasing risk of accidents or improper storage or disposal that could lead to contamination of the environment. The sensitivity of our water resources is such that we should not wait for a major spill with serious consequences to convince us that local government should take a stronger role. A preventative approach would be to establish a local monitoring and enforcement program, strengthen accident response capabilities, redesignate truck routes to safer roads, establish a collection station for household and farm chemicals, and control the location and development of firms using hazardous materials to protect sensitive environmental resources.

C. SUMMARY OF ENVIRONMENTAL GOALS

1. **All growth affects the environment. However, the kind of growth that would degrade environmental quality is not desired. Instead, growth should capitalize upon and highlight Scott County's special environmental qualities.**

2. **Locations and types of growth should be guided by principles of protecting groundwater, surface water, air quality, floodplains, and prime farmland, in balance with other community goals for development.**

3. **Residential growth should continue to occur in the rural area. However, rural growth should be located and clustered so that it is more compatible with the traditional Scott County countryside, and to minimize impacts to farmland, the environment (especially water quality), and public services.**

4. **Water quality shall be protected through management of sewage treatment, hazardous and solid wastes, agricultural practices, urban development, governmental services, and other potential sources of pollution.**

5. **The scenic, recreational, and environmental quality of Creek Conservation Corridors should be protected with policies that ensure responsible floodplain management, encourage special sensitivity in public and private development projects, and support acquisition of land or easements for public use and enjoyment.**

   Management of development and land use along minor waterways should minimize potential for erosion and negative impacts from increased runoff and should encourage maintaining natural qualities of the waterways.

6. **Land use, agricultural, and recreational activities within the Reservoir Watershed Protection Area should be carefully managed to ensure the pristine water quality of the reservoir once it is constructed.**

7. **Land uses and development within Aquifer Recharge Protection Areas shall be carefully controlled to protect surface and underground water quality.**

8. **Preservation of Scenic Resources should be encouraged, and development should be sensitive to maintaining the landscape, natural, cultural, and historic qualities that make scenic resources and areas special.**

9. **Development should be designed with sensitivity for the shape and characteristics of the land, natural vegetation, and habitats of significant animal and plant species.**

10. **Solid wastes should be managed and disposed so that the amount of waste produced in Scott County is minimized with an emphasis on recycling, the cost and capacity for disposal are not a deterrent to growth, and the quality of the environment is protected.**

11. **The use, location, and disposal of hazardous materials should be controlled so that human health, water quality, air quality, and environmentally sensitive resources are protected.**

II. WATER RESOURCE PROTECTION

A. SCOTT COUNTY WATER RESOURCES

Scott County's water resources are far more than geographical features or lines on a map. Our major springs and creeks were central to our history and city development, they provide essential sources of drinking and irrigation water today, and they represent future economic opportunities for recreation and tourism.

Water resources include groundwater (aquifers), which mainly exist in the southern half of the County; springs that occur where groundwater surfaces; drainageways that include creeks with year-round flow and waterways that flow part of

the year or only after rains; lakes and ponds; and the proposed Scott County reservoir. The main water features are described below.

It is important to understand the interconnected nature of our water resources, particularly in areas with karst topography, where the underlying rock is channeled by the dissolving of limestone to create a "pipeline" system of underground waterways. Karst is not only dominant in the southern half of the county, but also occurs in the north, where erosion has cut through to limestone base rock in swales and valleys.

Through sinkholes, rainwater washing over the surface of the land can directly enter aquifers, bringing with it any pollutants picked up from the ground. Springs and seepage from aquifers deliver subsurface water to creeks. Through sinkholes in stream beds, or "sinking streams," creeks can also directly flow into underground aquifers. There has been some evidence, for instance, that contaminants in Cane Run Creek have entered the Royal Springs aquifer. Because all our water resources are interconnected, it is important to have a comprehensive strategy to protect them.

1. Royal Spring

Currently, Royal Spring is the chief water source for the municipal water supply of the City of Georgetown and western areas of Scott County served by the Georgetown Municipal Water and Sewer Service. The Royal Spring aquifer underlies farmland and urbanized areas of Georgetown and Lexington, and is very vulnerable to pollutants, as shown by the benzene contamination which interrupted use of the Spring during much of 1990.

The Spring also has historic value to the community, as the water source that led to the founding of the City of Georgetown on this site and the pure water base used in the invention of bourbon by Reverend Elijah Craig. The site of the Spring itself and Royal Spring Branch, which carries the overflow spring water north to Elkhorn Creek, has important park and open space potential as the centerpiece for Downtown redevelopment and a pathway between Downtown and Cardome.

Continued use of the Spring as a water source is discussed in the Community Facilities Section, and its park potential is covered in the Downtown Plan, Section VII. As long as the Spring remains in use, the quality of its water must be protected. Even if the Spring is one day abandoned as a water source, ensuring its protection is still important because of its symbolic value to the community and its outstanding recreational potential.

Location of the Aquifer Recharge Area: The Royal Spring basin has been closely studied, and was the subject of a recent "Wellhead Protection Study" sponsored by the U.S. Environmental Protection Agency and accomplished by the University of Kentucky. The study mapped the aquifer recharge area of the Spring (Map 1), which extends southeast through the developed area of Georgetown including Scroggin Park, the Hoover property and Georgetown Industrial Park, and along I-75 into Lexington where it encompasses the Nandino Drive industrial area, Coldstream Farm, the Horse Park, and residential development.

The aquifer recharge area is the sensitive area where pollutants in surface runoff or subsurface storage may reach the Royal Spring aquifer and potentially contaminate it. The recharge area has been identified in two ways: by surface drainage divides, and by dye tracing through wells and sinkholes.

2. Buffalo Spring

Buffalo Spring issues from the Lexington Limestone formation within the City of Stamping Ground. The Spring features in the history of this area, as a steady source of water along a

migratory route of the buffalo and the center of their "stamping ground." Historically it was a source of pure drinking water. Although it is no longer used as a municipal supply, the City wishes to make the Spring the centerpiece of a public park. Ensuring that this water source remains clean is important to the success of the park as well as the City's historic image.

The exact outlines of the aquifer recharge area for the spring are not known, but have been estimated from drainage basins (Map 2). Much of the City may be in the recharge area.

3. Other Aquifers and Springs

Several other known springs and their estimated groundwater basins have been mapped (Map 2). Many of these springs issue at or close to the banks of the South and North Elkhorn, which emphasizes the interrelation between ground and surface water quality. It is probable that there are many other aquifers and springs that have not been mapped. Groundwater and springs are important sources of water for agricultural operations, including domestic well water, stock watering, and some irrigation.

4. Elkhorn Creek and Tributaries

The southern half of Scott County is drained by the North Fork of the Elkhorn Creek, its tributaries (Dry Run, Cane Run, McConnell Run, Royal Spring Branch, Lanes Run, Millers Run, Cherry Run, Boyd Run, and Goose Creek) and the South Elkhorn. The northern half of the County is drained by Eagle Creek, and both systems drain to the Kentucky River.

The North Elkhorn is a vital community resource for many reasons. It has shaped the land and historic development of this area, and for Scott Countians the creek is inseparable from the image of the rural countryside and Georgetown. It is an alternate municipal water source for the city in times of drought or contamination of Royal Spring, and the creek is receiving growing community attention for its recreation, scenic, and tourism value. The North Elkhorn is also becoming an attractive location for residential and commercial development, a special amenity Scott County can offer that other communities cannot match.

The North Elkhorn Creek begins in Fayette County and flows northwest through Scott County. Including the mainstem of Elkhorn Creek in Franklin County, the entire waterway is about 92 miles long. The average flow near Georgetown is 98 million gallons per day. The soft Ordovician limestone that underlies the Bluegrass region contributes to an alkaline base stream quality, which is productive of algae and invertebrates and supports an excellent sport fishery. The stream is canoeable for much of the year, and boating activities are increasing. There are several canoe concessions along the creek, and the Scott County Parks and Recreation Department sponsors races, canoe training, and fun float programs.

The creek holds great potential for hiking trails and greenspace. Most of the shoreline still exists in a thickly-wooded natural state, even through Georgetown. Most cities have channelized and culverted their creeks, and have forever lost the special qualities of a natural waterway. The North Elkhorn provides wild areas within the heart of the city that are completely screened from urban development.

The creek flows through many horse farms, receiving waters from the Kentucky Horse Park, in particular. A rich historic heritage of homes, mills, old bridges, churches, and the like follows the flow of the creek, because it was an early location for settlements and industry. All of these qualities combine to give the Elkhorn Creek corridor great potential for tourism, which is projected to be Kentucky's biggest growth industry in coming years and is an important element for diversifying Scott County's economy.

Growing community interest in protecting the Elkhorn for all of these needs has led to establishment of the Elkhorn Land and Historic Trust, a citizen group devoted to creating a public trail along the creek, from the Horse Park through Scott County to the Kentucky River. The Trust will have the ability to accept dedications of land and easements for preservation and public access.

Growth in Scott County has intensified conflicting demands on the creek: as a water source, receiving stream for treated sewage, and repository for a growing amount of agricultural chemicals; as a prime location for private development that can conflict with floodplain protection and public access. The common needs to protect the natural qualities of the creek and its tributaries and preserve them for future generations must be recognized with a comprehensive set of policies to guide public and private action.

Eagle Creek and its tributaries also are a resource for agricultural water supplies, recreation, and scenic values, and need similar protection.

5. Scott County Reservoir

The Scott Fiscal Court has embarked on a long-range plan to build a reservoir in northern Scott County (Map 5). The lake would provide a long-range, pristine source of drinking water, and the entire area purchased for the reservoir could be a regional park. The reservoir would hold 1.5 to 2.9 billion gallons of water, depending on the height of the pool. The Court is purchasing lands both within the future pool of the reservoir and within the drainage area. Eventually, 1320 acres are targetted for purchase. This includes normal and maximum pool surface areas of 297 to 464 acres; which will leave about 800 to 1000 acres potentially for park purposes.

However, this will not include 4740 acres of land that also drain to the future reservoir. Use of these lands could cause four potential sources of contaminants to the reservoir: agriculture, rural residential development, recreation, and solid waste. Siltation caused by erosion from urban development would be a major concern, as this could significantly reduce the holding capacity of the reservoir. Contamination from sewage treatment systems, urban runoff, illegal dumping, etc. must also be prevented. Farming should be encouraged to use "best management practices" and to minimize erosion and runoff from chemicals (see Objective 6.1).

In the unlikely event of a dam failure, the County would be liable for any downstream damage, according to the Water Resources Branch of the Kentucky Department for Environmental Protection. It would be wise to designate a "flood inundation area" below the dam, with special policies to control development in that area or make potential builders aware of the situation.

B. THREATS TO WATER QUALITY

There are many threats to future water quality of aquifers, creeks, and the reservoir, which calls for a broad-based approach to protection. The on-going and potential sources of pollution are discussed below and summarized in Figure 2. Because water quality is interrelated with so many issues, strategies to protect and improve water quality are found throughout this Comprehensive Plan, and as each problem is related below, there is a reference to the section where it is discussed and solutions are proposed. For issues that are not dealt with more fully elsewhere, water quality protection strategies are summarized in the "Environmentally Sensitive Areas" section of the report.

1. Is There a Problem?

Just how serious a problem is water pollution in Scott County? Episodes like the benzene con-

FIGURE 2
COMMON SOURCES OF WATER POLLUTION

Sewage Treatment

- Untreated sewage discharge
- Failing septic and lagoon systems
- Failing package plants
- Municipal plants - inadequate treatment
- Leaking sewer pipes and malfunctioning pump stations

Business, Industry, and Utilities

- Gasoline storage tank leakage
- Hazardous materials storage/leakage
- Hazardous materials transportation accidents
- Inadequately treated industrial discharge
- Quarries, concrete and asphalt plants - surface runoff
- Power substations and storage areas - leakage of PCB's

City and County Services

- Runoff from storage of road construction material
- Road salts
- Sanitation truck parking and washing areas

Solid Waste

- Landfill leachate
- Private and illegal dumps
  - in sinkholes
  - on creekbanks
- Junkyards - surface runoff of gas, oil, fluids

Agricultural Activities

- Erosion
  - Poor land management
  - Clearing and environmentally insensitive rechannelizing of creek banks
- Agricultural pesticides, herbicides, fertilizers
  - improper application and surface runoff
  - storage/dumping of containers
- Concentrated animal waste

Urban Development

- Household pesticides, fertilizers, etc.
  - improper application and surface runoff
  - storage/dumping of containers
  - improper disposal of waste oil
- Development projects
  - site erosion
  - storage/dumping of paint, tar, and chemicals
- Urban runoff
  - grease, oil, trash from paved areas
  - service station pavement cleaners

contamination of Royal Spring, reported livestock illnesses from contaminated creeks and springs, and encounters with raw sewage by Elkhorn canoers and fishermen have led Scott Countians to feel that this is the most serious environmental and community issue facing us. However, there has been no study or inventory that clearly tells us the current quality of water in our streams, wells, and springs, or the magnitude of the pollution problem. Many separate studies have been done:

- Elkhorn and other stream monitoring by the Division of Water, Natural Resources and Environmental Protection Cabinet.
- Royal Spring testing by GMWSS.
- Well testing by the Scott County Health Board.

However, this data is either not generally available or has not been combined and reported in a form understandable to laymen.

The Elkhorn Land and Historic Trust is collecting data on the Elkhorn to create a baseline understanding of conditions in the creek. This needs to be a County-wide effort on all major water resources. Until we understand the components of the pollution problem more clearly and can demonstrate that it is a problem with hard facts, it may be difficult to gain political consensus to support solutions or to decide which parts of the problem are most serious and should be tackled first.

Although the Division of Water is charged with monitoring water quality at the State level, there is no local agency with clear responsibility for this. GMWSS has an obvious interest in water quality of the Elkhorn and Royal Spring, and could take the lead in coordinating a baseline study, with involvement by the Elkhorn Trust. The Health Department or Soil Conservation Service could direct information-gathering for other water resources. Substantial assistance from the Division of Water will be necessary.

There are many known or potential sources of pollutants. Some of these result from everyday activities of citizens, businesses, and even local government. Some of the most important sources are summarized in Figure 2 and listed below.

2. Junk and Garbage:

The Solid Waste Management Section of this report (Section IV) recommends a comprehensive program to control the following:

- Garbage dumps, especially in sinkholes, are a prime source of pollutants. Scott County farmers are beginning to realize that this traditional method of disposing of household and agricultural waste leads to direct contamination of aquifers, and is akin to dumping garbage in a reservoir.

- Creek bank dumping: Creekbanks are commonly used for dumping of pesticide bins and other waste.

- Junkyards cause pollution from gasoline, oil, brake fluids, battery acids, etc., especially if crushing operations are located where stormwater carries these contaminants into a creek or sinkhole.

3. Inadequate Sewage Treatment:

- Failing septic systems: In karst geology and soils such as Maury, that percolate very well, leachate from the septic field finds or creates pathways through the soil and rock, and eventually will percolate into the aquifer so quickly that purification does not take place. According to testimony at a Citizen Committee-sponsored forum on septic systems, it is hard to detect failure of these systems because they fail straight down into the aquifer without the telltale odor and surfacing of leachate that warn us of septic failures in clay soils. Contaminants include not only human waste, but also heavy

metals and organics from household detergents and chemicals, which are not filtered as well by the soil.

Uncontrolled rural development can result in too great a concentration of septic systems in one location and septic loading of the groundwater table. However, no studies have been done in this region to give guidance on the acceptable number or density of septic systems in karst areas. The "cluster development" proposal in the Rural Development and Preservation Section should be monitored carefully for potential ground-water impacts. Based upon such a study, the Commission may consider amendment of the cluster development standards (number, density, and location of units).

- Failing package plants: Private sewage treatment plants, commonly called "package plants," are often inadequately maintained, staffed, and funded. Regulation by the State is ineffective, and chronic discharges of raw or incompletely treated sewage affect ground and surface water. The Community Facilities Plan recommends policies to prevent proliferation of these plants and to better regulate and maintain the existing plants (Appendix, Section B.5).

- Inadequate municipal sewage treatment: Incomplete sewage treatment by municipal plants also impacts local streams and groundwater. During heavy rains, storm-water infiltrates old sewers in Georgetown, and the sheer volume of water (often 5 million gallons per day or more) is far above the treatment capacity of Plant #1 (2.8 mgd).

  Uncertainty about the functioning of the Sadieville treatment plant should also be examined, as the plant is adjacent to Eagle Creek. Recommendations concerning municipal plants are found in the Community Facilities Plan, Appendix, Sections B.2 and B.3.

- Untreated sewage discharges: There are still locations on the Elkhorn and other creeks where untreated sewage is piped direct to the creek. Although this is illegal (except for Homestead Exemptions), there has been no effective State or local program to shut down these pollution sources.

  Because of the "Homestead Exemption" passed at the 1988 legislative session, owners of farms of 10 acres or more are exempt from regulation of septic systems by the Health Department. This exemption is reportedly being abused by homeowners that are directly discharging sewage into drainages to avoid the cost of installing septic systems. Many counties are experiencing this problem, and a Statewide effort is needed to appeal or amend the Homestead Exemption to ensure that all residences must have a septic system (see Community Facilities, Appendix, Section B.4).

- Sewage Pumping Stations: When pumps fail or the capacity is exceeded, raw sewage is piped directly to a waterway. Two of these pumping stations are located on the banks of Elkhorn Creek near the Oser Landing and Cardome recreation areas and upstream from the Elkhorn water intake. Failure of both stations has occurred on several occasions.

4. Business, Industry, and Utilities

- Underground storage tanks are located throughout Scott County, especially in Georgetown. Many of these are abandoned sites. A quick survey for the Wellhead Protection Study listed 18 known locations of tanks in or near to the Royal Spring aquifer recharge area. The benzene contamination of Royal Spring is assumed to be from an underground tank.

This is considered to be such a serious threat to water quality that the Commonwealth has adopted stricter regulation about removal and clean-up of abandoned tanks than federal law requires. The UST (Underground Storage Tanks) program maintains a database of the 12,000 tanks statewide. Property owners must pay a $30 yearly fee, to create a fund to assist in removal and clean-up. Owners of property with abandoned tanks are required by law to remove them. Recommended policies concerning this are under Hazardous Materials, Section V.

- Hazardous materials storage and transportation is a serious threat to water quality, which is discussed within Section V of this report.

- Quarry, concrete, asphalt plants: Surface runoff from quarries and associated plants can carry silt and possibly contaminants to creeks and sinkholes. For example, the quarry located near Elkhorn Creek stores gravel next to the banks, which is washing into the creek and altering the channel.

- Utilities: Power substations and storage areas are a potential source of PCB's, a contaminant that is particularly dangerous to human health. KU, for instance, has a major substation and equipment storage area located just above the mouth of Royal Spring.

5. **City and County Services:** Many activities of City and County government affect water quality.

- Heavy use of road salts, while necessary for traffic safety, loads brine water into creeks. Other de-icing alternatives could be explored.

- Road construction materials are stored on the Elkhorn banks near U.S. 460 West, where gravel and silt can wash into the creek.

- Parking areas for heavy trucks and sanitation vehicles concentrate drippings from fuel, lubricants, and garbage, and stormwater runoff can convey these to creeks and sinkholes. Vehicle washing areas, especially for sanitation vehicles, should be connected to sanitary sewers to prevent dirty wash water from reaching waterways.

6. **Agricultural Activities:** Poor agricultural practices can produce stormwater runoff laden with silt, pesticides, fertilizer, manure, etc. Overuse of pesticides and fertilizers or dumping of excess chemicals into creeks and sinkholes are serious pollution sources. Runoff from feed lots and dumping of stall muck can also contaminate water resources.

7. **Urban Development**:

Urban uses result in many sources of pollution. Although each source may seem minor, the combined effect of all urban activities can lead to significant impacts to water quality. Government regulations can only go so far to prevent this. Common, everyday actions of people -- disposing of leftover pesticides down a storm drain, changing a car's oil and letting it run out on the ground -- can only be changed through educating them about the end result of their actions. The Solid Waste Management part of this report (Section V) addresses this.

- Household chemicals: City dwellers, as well as farmers, misuse pesticides, fertilizers, etc. A fish kill has been caused in Mallard Point Lake by inappropriate use of yard chemicals. Disposal of leftover chemicals and empty containers is also a problem -- they often go down the drain or out with the trash. Whether through landfill leachate

or incomplete removal at the sewage treatment plant, some of these chemicals will reach water resources.

- Urban runoff refers to stormwater runoff from streets and parking lots, which carries trash, oil, and gasoline to creeks and sinkholes. Another source is de-greasing pavement cleaners used by service stations. This is not the minor issue it may seem, as it takes only a small amount of gasoline or oil to pollute a large amount of water. For instance, a study of development around San Francisco Bay has shown that runoff from paved areas has caused significant contamination of the bay and its shellfish. Because of growing national attention to this problem, water quality monitoring and treatment of stormwater discharge will be required in 1992 of cities with 100,000 population or more. In cities the size of Georgetown, new federal regulations will require industries to receive permits for storm runoff and to monitor their discharge. Regulations requiring small cities to periodically monitor discharge are under consideration.

- Construction sites can be a concentrated source of silt, due to grading, and pollutants, due to improper storage or intentional dumping of paint, tar, and other chemicals.

8. **Recreational use** of the land around the reservoir or creeks could lead to water contamination if sewage treatment systems are poorly sited or function inadequately, or if storm runoff carries contaminants from parking areas. These can be kept to a minimum and adequately controlled. However, recreational use of the water should be carefully monitored.

C. FLOODPLAINS AND STORM DRAINAGE

Scott County is lucky to have a tradition of protecting floodplains from encroachment and development. This was confirmed by the experience of only a few Georgetown homes being flooded in the recent winter of 1988 high water, compared to the extensive damage in Frankfort and other communities. Prudent floodplain policy has two aspects: limiting development within the floodplain, to keep threats to human safety and property damage to a minimum; and limiting filling of the floodplain, so that flood elevations on other properties are not increased. These policies should apply to "creek conservation corridors" which are major streams defined in Section III, A.2.

State floodplain regulations provide insufficient protection, and past actions of the Planning Commission have allowed fill of the floodplain in commercial areas, although 1985 Comprehensive Plan policies discourage this. It is important to establish a strong floodplain management policy based on concerns for human health and safety, protection of property values, and preservation of the natural creek qualities that have evolved over hundreds of years for the safe control of floods. It is also important that these policies be fairly applied to all property owners along the creeks.

Defining the Floodplain: The floodplain is defined as the 100-year floodplain, or the level that water will reach in a storm event of a magnitude that is likely to occur in a 100-year period. This does not mean that a storm of this magnitude will occur once every 100 years; it could occur next week, and it could reoccur next year. The 100-year time frame is a measure of probability.

The 100-year floodplain is defined for major streams by the U.S. Army Corps of Engineers and is mapped on Flood Insurance Rate Maps supplied by FEMA (Federal Emergency Man-

agement Agency) for the National Flood Insurance Program. In Scott County, the 100-year floodplain has been determined by detailed study for the parts of Elkhorn Creek, Cane Run Creek, Dry Run, Locust Fork, and Eagle Creek that are in or near cities, and has been more generally determined for the lower reaches of major streams such as Millers Run, Lanes Run, McConnell, LeComptes, Goose Creek, and Boyd Run. (The recent computer-generated maps of some parts of the County have allowed more accurate mapping based on actual topography.) For creek conservation corridors outside the limits of the Corps of Engineers study, assumed floodplain limits should be designated by the Planning Commission, based on factors such as the size and runoff rate of the drainage area and topography of the floodplain.

Shortcomings of Current Floodplain Regulations: Both State and local governments regulate use of floodplains. A permit is required from the Division of Water to place fill in a floodplain. Permits are granted if it can be shown that overall fill and development in an area will not raise the floodplain elevation by more than one foot. The Scott Joint Planning Commission has independent authority under Section 4.24 of the Zoning Ordinance to review and permit floodplain fill. The Commission has previously permitted fill for commercial developments if it can be shown on a case-by-case basis that the fill will not raise the level of the floodplain. These policies are not strong enough to ensure long-term protection from floods, for several reasons.

- Cumulative impacts: Current policies of the Planning Commission treat each property in isolation. While studies such as the HEC Program may show that fill on one property does not noticeably raise flood levels, if all properties are treated equally and many are allowed to fill in their floodplains the combined effect is likely to significantly increase flood levels. The water that no longer is accommodated in the filled area must be accommodated elsewhere. In recent years large properties next to the Elkhorn have been developed, such as VanHoose, First Lexington, and the U.S. 460 East commercial area. If all had equally been allowed to fill, this would have affected about 1/12th of the linear distance of the floodplain through Georgetown. Future years will see increasing pressures toward floodplain development and fill.

- Fairness: Current policies favor some property owners to the detriment of others. Commercial properties have been allowed to fill and residential properties have not. When cumulative effects are considered, those developers that fill in the floodplain and get greater value from their properties are simply transferring their floodwaters and problems onto other properties, which will reduce the use and value of those lands.

- Hidden effects: Fill and storm management projects that alter creekbanks often have unanticipated effects. Because flood velocity is increased and currents are changed, erosion patterns are changed. Previously stable banks can become unstable. These impacts often occur on other properties, and are difficult to model and predict.

- Natural creek qualities: Floodplain fill and development can degrade the natural creek qualities that are valued for recreation and scenic enjoyment. Trees can be damaged or killed by changing drainage patterns or loading fill over their roots. Control of urban runoff and creek bank erosion is more difficult when development encroaches close to creek banks. The floodplain also creates a setback that reduces and screens the visual impact of development.

The natural topography, banks, and vegetation of creeks have evolved and adjusted over a long period of time to safely handle floodwaters. The stability of these natural flood management systems should be respected and preserved.

Strengthened Floodplain Management Policies: A more prudent approach to floodplain management would take a more comprehensive view of the value of the floodplain for protecting public safety and the environment. The general aim of floodplain management should be no net decrease of the floodplain on each individual property, so that all property owners share equal responsibility. In general, this means no filling within the 100-year floodplain, except as provided elsewhere in this Plan (Policy 5.3). The policy should be flexible, however, to allow innovative site design that is sensitive to the creek's natural and recreational qualities. For instance, within a property, one area could be filled if another was graded out so that the overall volume of water handled by that section of the floodplain remained the same. The fill and grading must be carefully handled so that it does not damage creekbank vegetation or affect the flow characteristics of the stream or stability of the banks. A major regrading that changes the natural flood channel could have unanticipated erosion or siltation effects and should be avoided.

On-site stormwater runoff should be handled differently for properties adjacent to the floodplain. Rather than retaining stormwaters in on-site retention basins, runoff could be allowed to flow direct to the stream. This would allow these stormwaters to move down the stream in advance of the stormwater peak from land situated further from the creek. The property should compensate for the lack of retention by increasing the natural floodplain by the same volume of water that would have been retained. This ensures that, over time, the floodplain will handle increased runoff from development. On-site runoff must still be carefully controlled to slow the velocity, protect against erosion, and filter out trash.

Urban development should not encroach within the floodplain, except for minor uses that would not impede floodwaters, such as parking lots or landscaping. Again, urban uses should not be incompatible with natural qualities of the creek. There could be opportunities for commercial development within the floodplain if it is related to the creek, such as restaurants on pilings overlooking the water, or recreation equipment rental, as long as the floodplain management policies are respected.

Impacts to the Floodplain from Public Projects: Publicly-funded projects also have potential to reduce the floodplain and damage natural creek qualities, and local governments should set an example of sensitive development. Flood control, storm drainage, and bridge improvement projects should aim to minimize floodplain encroachment and disturbance of creek banks and trees. Rechannelizing of streams should be avoided unless necessary to reduce an existing threat to public safety, health, and property. When streams must be rechannelized, the project should aim to recreate a natural appearance, to stabilize the bank with vegetation where possible, and to allow no overall reduction in the flood storage volume. If the floodplain protection strategies outlined in this Plan are not followed, it is likely that it will one day be necessary to embark on the type of rechannelization projects that have destroyed many urban creeks by routing them underground or through concrete channels.

Applying Floodplain Management Policies: The C-1 (Conservation) zone and subdivision regulations should be amended as quickly as possible to encompass this comprehensive floodplain management program. Properties lying within the 100-year floodplain of designated creek conservation corridors (see Section III.-A.2) should be rezoned C-1, either at the time each property is rezoned for development, or by the Planning Commission in a county-wide action. For minor waterways (all blue-line U.S.G.S. streams), drainage practices should minimize erosion and negative downstream impacts from runoff.

It is recommended that the C-1 zone within Creek Conservation Corridors should also include steep creek bluffs with severe

development limitations and major stands of riparian (creek-related) vegetation where these occur beyond the 100-year floodplain, unless these can be developed in a sensitive way that is compatible with preserving the natural qualities of the stream.

Maps 3-4 generally indicate the area designated Conservation. The exact location of the zone would need to be determined as development occurs and site surveys are available for each property.

Location of the 100-year Floodplain: The actual location (or elevation) of the 100-year floodplain needs to be verified. Floods in recent years that were not of the 100-year magnitude have reached levels that are thought to be the 100-year flood elevation. A simple study could compare the known elevation of the 1988 Elkhorn flood at several locations with the Corps of Engineers 100-year flood elevation. This would help determine if a more detailed hydraulic study is needed to reassess the floodplain location. Assistance should be requested from the Cabinet for Natural Resources and Environmental Protection, Division of Water.

Floodplain Maintenance: Along many Scott County creeks there are piles of logs and debris. These can impede floodwaters and raise flood levels upstream. They also are barriers to boating and canoeing. The Kentucky Transportation Cabinet is responsible to clean out debris at State bridges, but it is not unusual for log jams to go without attention for years or for cleaned-out debris to be left on the creekbank, where the next flood catches it. Private property owners do not have the equipment or financial capability to remove large obstructions elsewhere on the creeks. A publicly-funded cleanout program with yearly inspections and evaluation of the priority areas needing work would help reduce this problem. KYTC should be encouraged to do the same.

III. ENVIRONMENTALLY SENSITIVE AREA PLANS

A. DESIGNATION OF ENVIRONMENTALLY SENSITIVE AREAS AND RESOURCES

Environmentally Sensitive Areas, in general, can include natural characteristics of the land that have value to Scott Countians and need special treatment to protect that value, such as:

- Major water resources or land features that are related to water quality;
- Land or geologic features that have special development considerations or present possible hazards to health and safety;
- Natural resources that are significant to the Scott county economy and way of life;
- Natural land qualities that are special or create the distinctive bluegrass landscape that Scott Countians and visitors value and enjoy;
- Significant natural habitats for plants and animals.

Environmental qualities are often intertwined with cultural and historic features, and this section of the report also includes scenic rural routes.

Today's large-scale development techniques can completely transform the surface of the land and

the environmental, visual and cultural attributes that local residents value. Inappropriate development can remove these attributes, while sensitive location, density, and design of development can protect and highlight them in a way that will enhance the project. Environmentally Sensitive Areas and Resources, which are specifically designated as follows, must be given special respect and attention in the development process, as outlined in the Goals and Objectives. The following definitions were specifically adopted as a part of the Goals and Objectives:

ENVIRONMENTALLY SENSITIVE AREAS AND RESOURCES:

1. **Aquifer recharge areas:** An aquifer recharge area is the land surface from which surface water, either in streams or falling as rain, will percolate down through rock and soil to feed underground water resources. The recharge area may be defined by topography, geology, die tracing, and other accepted means. Aquifer recharge areas designated environmentally sensitive are generally shown in Maps 1 and 2, and include the following:

   a. The Royal Spring aquifer is the most sensitive, because of its use for domestic drinking water.

   b. Buffalo Spring aquifer.

   c. Sinkholes and caves, especially those that are known to direct waters to Royal Spring or those that are within a known aquifer recharge area. However, because of the special soil, geologic, and hydrologic characteristics of sinkholes and caves that present difficulties for development, all sinkholes are environmentally sensitive. Sinkholes are generally defined as the area within the closed topographic contour, although conditions can merit a larger area being designated as a sinkhole.

   d. Other known springs and aquifer recharge areas that supply well or spring water to rural areas.

2. **Creek Conservation Corridors and Minor Waterways:** Through C-1 (Conservation) zoning, there is a well-established program for protecting the unique environmental qualities of major creeks such as the Elkhorn. There is growing community consensus that the program should be strengthened and expanded. Two levels of protection are appropriate for above-ground waterways. "Creek Conservation Corridors" (shown on Map 3 and 4) would receive the strongest protection, which would build upon the existing C-1 zoning.

   Creek conservation corridors were first defined based upon all streams designated C-1 on the 1977 zoning map, and were expanded to include: streams with a 100-year floodplain drawn by the U.S. Army Corps of Engineers; creeks that supply municipal water systems, or the main tributaries that discharge into such streams above the water intake; or creeks that are a recreational or scenic resource. For example, this includes North and South Elkhorn Creek, Royal Spring Branch, Cane Run, Eagle Creek, and the lower reaches of Lanes, McConnell, and Millers Run. Those serving as a municipal water source or discharging into such a stream should have the highest priority for protection. The protected area should include not only the stream itself, but also:

   a. 100-year floodplains, as designated by the U.S. Army Corps of Engineers or a local hydraulic study designed to identify the floodplain.

   b. Riparian habitat: Vegetation and wildlife habitat closely associated with the waterway.

c. Steep creek bluffs and banks that cannot be developed without causing erosion or destruction of the habitat and visual character of the stream.

d. Land uses and development adjacent to or near the creek that could affect its natural qualities should also be included in the Creek Conservation Corridor for planning purposes, although these would not be zoned C-1.

The second level of protection would be for "minor waterways," defined as all U.S.G.S. blue-line streams. These would not be rezoned C-1. The main objective in these areas would be to manage land uses and development to protect water quality and minimize potential for erosion or negative impacts from increased runoff downstream. Maintaining the scenic, habitat, and open space value of these waterways would be encouraged but not required, through clustering, transfer of development rights, etc.

3. **Prime farmlands:** (Farmlands designated "prime" by the Federal government.) There were originally 66,790 acres of prime farmland in Scott County, out of 181,010 total acres in the County. Prime soils are listed in Table 1. The City of Georgetown is located in an area of predominantly prime soils, and development in Georgetown and the rural area has taken about 13,500 acres of prime soil, or 20% of this resource. The Rural Preservation and Development Section of the Growth and Land Use Plan (Section III) contains a complete farmland protection strategy.

TABLE 1

PRIME FARMLAND SOILS IN SCOTT COUNTY

Soils	Slope	Acres	%	Yield Tobacco	Yield Corn
Ashton silt loam	0- 4%	925	0.3	3,200 lbs.	140 bu.
Dunning	0- 2%	470	0.3		120 bu.
Huntington silt loam	0- 2%	9,055	5.0	3,200 lbs.	130 bu.
Lowell silt loam	2- 6%	15,205	8.4	2,900 lbs.	110 bu.
Lowell-Nolin silt loam	2-10%	6,945	3.8	3,000 lbs.	90 bu.
Maury silt loam	2- 6%	24,780	13.6	3,200 lbs.	125 bu.
Newark silt loam	2- 6%	595	0.3	2,500 lbs.	110 bu.
Nicholson silt loam	2- 6%	3,640	2.0	3,000 lbs.	130 bu.
Nolin silt loam	0- 4%	5,175	2.8	2,700 lbs.	115 bu.
		66,790	36.7		

4. **Significant natural habitats for plants and animals:** Environmental resources include habitats of significant plant and animal species, but there is no information about the presence of significant plants and animals in Scott County, what kinds of habitats support them, and where these are located. There needs to be an inventory, which could identify and locate rare or endangered species habitats (Federal designation), species that are distinctive to or characteristic of this region, and species that are valued for hunting, fishing, or recreation. Future development in or near the habitats of significant species should be sensitive to maintaining habitat for any such species that should be discovered and identified in the County. (See Objective 9.3 and policies.)

   Wetlands are considered to be significant natural habitats. The U.S. Fish and Wildlife definition and federal protection policies for wetlands should be incorporated in local policies. Wetlands are defined as areas with a predominance of hydric soils that are saturated by surface or ground water at a frequency and duration sufficient to support hydrophytic vegetation. The few wetlands in Scott County have been mapped by the Soil Conservation Service. Other wetlands are likely occur along creeks or springs, and will be included within those environmentally sensitive areas.

5. **Steep slopes and clay soils** (e.g., Eden Clay Shales) with special development considerations. Steep slopes present special difficulties in development: special grading methods and negative visual impacts of extreme grading; and quicker storm runoff and more frequent springs, requiring special attention to retention, erosion control, and prevention of seepage and flooding of foundations. Eden clay shale soils present special development considerations for grading and foundations such as the potential for shrink/swell and creep or slope failure. Hilly topography and clay shale soils generally occur in the northern half of the County. For the purposes of these policies, the percent grade of steep slopes/ hillsides will be defined through the subdivision regulations process.

6. **Remaining tree stands and fencerows** in southern Scott County, especially in farming areas that have been denuded of trees over the years. In much of southern Scott County, the only remaining tree stands are in fencerows, along waterways and roads, or in major stands of older trees within fields and homesites. It is important not only to save what is left, but also to relandscape rural and urban areas (See Objective 9.2).

7. **Scenic and historic resources -- rural routes and views, rural historic districts, and areas of outstanding beauty.** The Historic Resource Management Section of the Plan recommends areas that should be designated as rural historic districts, for preservation. In order to adopt protection policies, there must be a study to create an inventory and protection plan for the rural roads and scenic views that are important to Scott Countians and to building a tourism economy. This should become an element of the Comprehensive Plan, in balance with other elements of the Plan. The study must include objective criteria for selecting special places and scenic vistas, which could include: important scenes that define the natural, historic, or cultural character of Scott County; rural routes that combine many natural and historic features; places or features that are unique to Scott County or the Bluegrass region. Some features are so valued that they can be readily identified, such as stone fences or views of the Elkhorn from major roads.

8. **Scott County Reservoir Drainage Area:** The entire land area that drains to the future reservoir can effect the water quality in the

lake (Map 5). Land uses should be carefully managed, both on the lands that will be owned by the County and those that will remain in private hands. The area below the dam that would be subject to inundation in the unlikely event of a dam failure should also be included as environmentally sensitive.

Interpretive Guidelines for "Scenic" and "Recreational" Considerations: "Scenic" and "recreational" considerations mentioned throughout this Element of the Plan are not intended to prevent or unreasonably restrict growth or development, and shall not be so interpreted. Unless otherwise provided by a scenic protection plan and ordinance adopted by the legislative bodies, all references to "scenic" considerations regarding land use and/or development in this Element of the Plan shall be interpreted as to encourage, but not require or regulate, the protection of these resources, through public purchase, transfer of development rights, cluster development, purchase or voluntary dedication of scenic easements and other strategies that are voluntary or compensate the property owner. The same interpretation should be given to references to preservation or provision of recreational opportunities on private lands or developments for public use. It is recognized that public recreation cannot be required on private lands unless the site has been acquired for public use through purchase, dedication, easements, etc.

B. PLANNING APPROACH -- COMBINING ENVIRONMENTAL PROTECTION AND GREENSPACE SYSTEM

Protection of sensitive environmental resources goes hand in hand with open space and recreation planning. In limited situations, the best way to protect the resource is to keep it in a natural, undeveloped state. One way to prevent flood damage, for instance, is to keep the floodplain area undeveloped. For many environmental resources, however, sensitive development can be compatible with protection of the resource, and can even enhance it. Development can be clustered on parts of the property that are less sensitive, leaving sensitive areas open for private recreation and pathways through the project.

Everyone will benefit if protection of environmentally sensitive resources is a collaborative effort between government, developers, and the citizens. Efforts of groups such as the Elkhorn Land and Historic Trust, an association of citizens from Scott, Fayette, and Franklin Counties dedicated to protecting the Elkhorn and establishing recreational access to it, can be a focal point for these efforts.

One example is the Boston Square office complex on the banks of the Elkhorn at U.S. 460 East. The creekbanks had been stripped of trees by earlier uses of the property. The office buildings have been designed to overlook the creek, and the developers are dedicating space for a public trail, helping organize volunteer labor to build it, and will relandscape the banks. Residential projects such as the Colony and First Lexington have been designed using creek floodplains as linear parks and trails. By taking advantage of a beautiful and unique natural feature, these development projects create a special image for Scott County and enhance their own chances of success.

Policies to protect environmentally sensitive areas can result in a system of permanently protected greenways in rural and urban areas. Since water quality is the theme of our environmental program and Scott County is blessed with a network of water resources, this presents the opportunity to create a series of "ribbon parks" throughout the County. Some of these open spaces may be appropriate for public purchase; others can be protected by easement that grants public access; and many will remain entirely private in use.

These environmental quality concepts also

support the proposal of the Growth and Land Use Plan to limit urban sprawl and identify a "greenbelt" around southern Georgetown. According to community surveys, the "small town quality" of Georgetown and rural beauty of surrounding areas is highly valued by Scott Countians. The vision of greenbelts and ribbon parks through and around Georgetown will leave ample area for growth, while keeping the beauty of the countryside closely accessible to the City.

Greenway Preservation Methods: Federal, state and local policies have traditionally recognized the public necessity of limiting use of floodplains, but for other resources such as aquifer recharge areas, rights of development that have already been established must be respected. In these areas, there are a variety of ways to develop with sensitivity to the resource or to fairly compensate a landowner if the land remains undeveloped. The Growth and Land Use and Historic Resource Management Elements of the Plan describe these methods, which include:

- **Cluster development** in rural and urban areas is a way to concentrate that development potential of a property on the part of the land that is most suitable, while leaving the sensitive area undeveloped.

- **Purchase or transfer of development rights** (PDR or TDR) is a fair way to determine how much value a landowner would have received from developing, and to compensate them for deciding not to develop. The development rights can either be purchased by the public or transferred toallow higher density development on another, more suitable property. In either case the landowner is compensated.

  The Growth and Land Use Plan contains a thorough discussion of the proposed TDR program. The Plan recommends a weighting system to encourage PDR and TDR from the areas most in need of preservation. Selected environmentally sensitive areas should have priority. Figure 3 ranks these resources and recommends which ones should be weighted most heavily.

- **Easements** allow the owner to continue to use the land, such as for farming or a home, while protecting it from change or allowing controlled public access. If the easement is dedicated to the public, the owner may receive tax benefits based on the value of development forgone. An easement can also record that development rights have been purchased from a property.

The LESA System: To more fully integrate environmental considerations in the planning and zoning process, the Planning Commission should investigate ways that the Land Evaluation System Analysis (LESA) could be followed. This method determines the development capability of land by assigning points for environmental and infrastructure factors. The process has been very successful and has replaced traditional zoning in Hardin County. This could also be helpful in deciding TDR priorities.

FIGURE 3

TARGETED PROTECTION AREAS FOR PURCHASE OF DEVELOPMENT RIGHTS

Selected Environmentally Sensitive Areas: (a)

Royal Spring Aquifer Recharge Area
Other Aquifer Recharge Areas
Creek Conservation Corridors (b)

Prime farmland outside and adjacent to the southern Georgetown USB

Historic Districts (c)

NOTES:

While all rural lands would be generally eligible for development rights purchase, these areas would be targeted for purchase of development rights through a weighting system. Public purchase of development rights should only be within these areas.

a. See Environmental Quality Element, Section III, for further definition of the selected Environmentally Sensitive Areas listed above, which are to be included in this program.

b. Floodplain management policies will protect most creek conservation lands. However, a few critical properties outside the floodplain with special scenic and natural qualities may need to be targeted for involvement in the TDR program.

c. See Historic Resource Management Element for definition of historic districts.

C. GOALS, OBJECTIVES, AND POLICIES FOR PROTECTION OF ENVIRONMENTALLY SENSITIVE AREAS AND RESOURCES

These include general goals, objectives, and policies for protecting environmental resources, especially water quality (Goals 1 through 4). Some of these environmental goals are also found in the Growth and Land Use Element of the Plan. Policies for particular areas, such as Creek Conservation Corridors, are also outlined (Goals 5 through 9).

1. **All growth affects the environment. However, the kind of growth that would degrade environmental quality is not desired. Instead, growth should capitalize upon and highlight Scott County's special environmental qualities.**

2. **Locations and types of growth should be guided by principles of protecting groundwater, surface water, air quality, floodplains, and prime farmland, in balance with other community goals for development.**

2.1 Areas with a concentration of sensitive resources or areas prone to hazards to human health and safety should require extensive analysis prior to development, or should be left undisturbed as permanent open space. Examples include concentrations of sinkholes, floodplains, and extremely steep slopes.

2.2 Development should be sensitive to the natural characteristics of the land where feasible. Where development is compatible with protection of environmentally sensitive areas and resources, lower density or clustered development is desireable so that mass grading and alteration of the land is not necessary.

3. **Residential growth should continue to occur in the rural area. However, rural growth should be located and clustered so that it is more compatible with the traditional Scott County countryside, and to minimize impacts to farmland, the environment (especially water quality), and public services.**

4. **Water quality shall be protected through management of sewage treatment, hazardous and solid wastes, agricultural practices, urban development, governmental services, and other potential sources of pollution.**

4.1 Create a monitoring system to guide efforts to protect water quality.

- Combine all known water quality data and interpret it for decision-makers and the public, to demonstrate clearly what problems exist and to help prioritize action.

  - What pollutants exist, and which ones are the most serious? What are the likely causes?

  - Which water sources are most affected?

- Publicize the report widely, to educate Scott Countians about their role in protecting water quality.

- Work with the Division of Water, GMWSS, the Health Board, and other appropriate agencies to set up an ongoing monitoring program for key water resources, to answer these questions.

  - Which water resources and pollutants need to be added to the testing program?

- Which pollutants get worse and which ones improve?

- Are water quality protection programs working? What changes are needed?

- What are the water quality impacts of rural development policies (septic systems)? Should these policies be amended?

Other water quality protection policies are integrated throughout the Plan.

5. CREEK CONSERVATION CORRIDORS AND MINOR WATERWAYS

The scenic, recreational, and environmental quality of Creek Conservation Corridors should be protected with policies that ensure responsible floodplain management, encourage special sensitivity in public and private development projects, and support acquisition of land or easements for public use and enjoyment.

Management of development and land use along minor waterways should minimize potential for erosion and negative impacts from increased runoff and should encourage maintaining natural qualities of the waterways.

5.1 Implement the C-1 (Conservation) Zone as a comprehensive floodplain management, water quality, and scenic protection program.

- The Planning Commission should amend the C-1 zone and subdivision regulations to incorporate policies of this Plan, and should initiate rezoning of designated Creek Conservation Corridors (Maps 3 & 4) to C-1. Those within urban service boundaries should be first priority.

Currently, there are some properties in Georgetown and smaller communities where zoning for residential, commercial, and industrial development goes to the center line of a creek, following property boundaries. This leads to misunderstanding on the part of the property owner as to the development potential of the floodplain. To institute these policies concerning floodplain management, the Commission should act to rezone the floodplain to C-1. This could also include steep creek bluffs and sensitive riparian habitats and tree stands within creek conservation corridors, where it is feasible to identify them. The boundaries must be estimated for the area-wide rezoning based on the Army Corps of Engineers designated elevation, or that designated by a special hydraulic study of the floodplain, as shown on the computer-generated topo map. The exact boundaries of the C-1 must be determined on a case-by-case basis as development is proposed for a property and it is surveyed. At that time there could be further study of slopes and riparian habitats that may need to be included in C-1.

5.2 Protect water quality of creek conservation corridors and minor waterways, for public and private domestic use, irrigation, and recreation.

- Perform a water quality assessment and plan with priorities for action, especially for creeks that supply municipal drinking water.

- Require erosion control of areas in development projects draining to creeks and minor waterways, and require adequate replanting of ground cover. Encourage this in agricultural operations. While grading is necessary for most development, sensitivity to erosion control includes minimizing grading and disturbance to natural

ground for development projects adjacent to Creek Conservation Corridors.

- Prevent and clean-up agricultural/ domestic chemical dumping (see Solid Waste Management). Educate developers/builders about the importance of proper storage and disposal of paint, tar, chemicals, etc.

- Identify and abate all untreated waste discharges, including surface and industrial runoff that contains contaminants.

- Ensure adequate treatment capacity at municipal treatment plants and reduction of stormwater infiltration and pass-through (see Community Facilities section). Install improved back-up and monitoring systems for pump stations to eliminate as much as possible raw sewage spills to creeks.

- Approval of new or expanded quarrying operations should be subject to a materials storage and erosion control plan that will protect water resources. Existing quarries should also be encouraged to implement such a plan.

- Relocate and properly store road construction materials to prevent runoff to creeks.

- Actively seek effective alternatives to road salts on roads near major creeks.

- Septic systems shall not be located within designated 100-year floodplains.

Since all urban storm drainage eventually reaches creeks, the following should apply to all land uses, not only within the creek protection corridors:

- Commercial and governmental auto and truck wash water should be discharged to the sanitary, not storm, sewer system.

- Reduce trash and contaminants in urban runoff to creeks. Large parking areas should not discharge direct to creeks where feasible. Trash should be screened from runoff, and retention areas should be used to filter oil and grease, etc. The Commission should consider whether federal laws concerning stormwater monitoring should be applied to Scott County prior to the 1992 deadline.

5.3 Protect floodplains from encroachment, filling, debris obstructions, and development that would reduce available floodplain area or increase property damage due to flooding.

- Require C-1 zoning of creek conservation corridors, including the floodplain, whenever property adjacent to creek is rezoned. The C-1 Zone should be amended for a complete floodplain management program.

- No fill or obstruction of floodplain in creek conservation corridors should be allowed except under one or more of the following conditions:

- If compensated by additions to the floodplain storage volume. However, this should be only a minor change to topography, should not be accomplished at the expense of natural creekbank vegetation, and should not alter the natural flood channel or stream hydrology sufficient to cause bank instability, siltation, or erosion.

- If a project will provide a significant public benefit so that negative impacts of the fill and development are balanced and the policies and objectives of the conservation corridor are substantially met. This should be for unique situa-

tion, such as pre-existing commercial zoning within the conservation corridor.

- If a study shows that some degree of fill and development will not raise the floodplain and is consistent with the policies and objectives for creek conservation corridors. This study must fully consider impacts of projected cumulative development and fill for the entire corridor, and must fairly allocate fill and development potential among properties.

- Development should not occur within creek conservation corridors, except where it is compatible with the recreation, scenic, and natural qualities of the creek and ensures protection of life and property from floods, as outlined in these policies and objectives. This should apply to both public and private actions, except public projects such as bridges or sewage treatment facilities that cannot occur without floodplain fill and development. See Figure 4 for examples of compatible land uses.

- For minor waterways, land use and development review should encourage sound drainage practices and should minimize potential for erosion and negative impacts downstream due to increase in runoff.

- Flood control, storm drainage, and bridge improvements should be designed for minimum disturbance of natural creek banks and vegetation where feasible. Explore bio-engineering techniques (use of natural vegetation) to stabilize creekbanks, rather than rechannelization, concrete, rip rap, etc.

- A storm drainage study should verify the actual location of the Elkhorn 100-year floodplain. Assumed floodplain limits should also be designated for waterways outside the limit of the Corps of Engineers study. Assistance should be requested from the State Division of Water, Environmental Protection.

- Establish a publically-funded creek clean-out program to remove major creek obstructions that increase flooding or impede recreational uses. Work with the Kentucky Transportation Cabinet for regular clean-out of debris at State bridges. Perform an annual evaluation of debris locations to prioritize those needing cleanout.

5.4 Protect the scenic quality of the creeks as elements that define the rural and urban character of Scott County and Georgetown and enhance the attractiveness of residential and commercial areas.

- Encourage viewshed protection at special scenic locations near creek conservation corridors, especially at entrances to Georgetown, through clustering, development rights transfer, and easements.

- Creek bank and vegetation protection within creek conservation corridors - Avoid disturbance to natural creek vegetation in new development where feasible. Where a development project alters creekbanks and disturbs vegetation, bank stabilization and relandscaping must be required. This should apply to both public and private projects.

- For minor waterways, work with property owners during development review to encourage preservation of natural creekbanks and vegetation, through clustering, transfer of development rights, etc.

- Landscape enhancement - Encourage developers and landowners to undertake bank clean-up and relandscaping where creek banks have been damaged in the

past. Seek public (such as federal Urban Forestry grants) or private funds to support these efforts.

- Public utilities and infrastructure may be located within creek conservation corridors only when they cannot be located elsewhere, and should be located outside of creek vegetation areas whenever feasible. The proposal for a gravity-flow sewage collection system paralleling creeks should be re-examined to ensure that this would not necessitate major impacts to creek vegetation and scenic qualities.

- Lakes may be developed within creek conservation corridors if the recreation, scenic, water resource, and habitat value of the lake would be greater. Flood control may be a consideration, if other values are not diminished. (There are no local limitations on lakes and agricultural ponds on minor waterways.)

- C-1 zone - include steep creek bluffs with severe development limitations and major stands of vegetation associated with the creek in C-1 zones.

5.5 Enhance use of Elkhorn Creek as a resource for recreation and tourism and a unique attraction for development within the urban service boundary.

- Support efforts to secure public access to creek and to create a trail system along its banks.

- Encourage appropriate residential and commercial development to locate near to creek conservation corridors, to take advantage of the special scenic and recreational features.

- Encourage design of development that allows public or private recreational or view access to the creek.

- Development should be sensitively designed and buffered for an attractive appearance from creek recreation areas.

5.6 Protect natural environmental qualities of the creeks as special habitats for plants and animals, and make them accessible for educational purposes. (Differences in treatment of creek conservation corridors and minor waterways are set forth under Objectives 5.3 and 5.4.)

- Policies to protect water quality and prevent damage to creekbanks will accomplish this.

- Establish an interpretive creekside park on the Elkhorn in Scott County with nature trails and educational exhibits.

5.7 Protect and showcase historic resources located along and within creek conservation corridors.

- Identify creek-related historic resources and encourage public access to them.

- Seek protection through local historic district and National Register designation (see Historic Resource Management Plan, Section II.B & C).

5.8 Encourage regional protection of creek conservation corridors.

- Encourage surrounding counties that share use of and access to Scott County creeks to establish similar protection policies. Water quality is most crucial for the North Elkhorn, South Elkhorn, and Cane Run creeks and tributaries (Fayette and Woodford Counties).

- Work with surrounding counties to protect and enhance creeks as regional recreation resources.

6. RESERVOIR WATERSHED PROTECTION AREA

To ensure that the reservoir water will remain pristine, it is essential to adopt special development and use policies for the entire drainage area, which is shown on Map 5.

Land use, agricultural, and recreational activities within the reservoir watershed protection area should be carefully managed to ensure the pristine water quality of the reservoir once it is constructed.

6.1 Agricultural Uses: Generalized farming shall and will be permitted with no restrictions. Once the reservoir is built, the Soil Conservation District should give special attention and assistance to farmers within the protection area to encourage "best management practices" that will minimize agricultural runoff such as pesticides, fertilizer, silt, animal waste, etc.; however, nothing herein contained should be interpretted to inhibit or discourage normal agricultural practices.

6.2 A-1 Rural Residential development within the protection area shall be located and designed to minimize urban runoff or impacts from inadequate sewage treatment.

- If a property is partially located outside of the reservoir protection area, development shall be clustered on that part of the property if feasible.

- On-site sewage treatment systems (septic, lagoon, etc.) shall be located and designed to minimize risk of failure and contamination to the reservoir.

- Rural residential development should be kept to a minimum within the reservoir protection area. The Transfer of Development Rights program should target this area for purchase of development rights, by weighing these rights more heavily than other development rights in the northern half of the county.

- Erosion and siltation of the reservoir shall be strictly controlled and prevented.

- Additional package sewage treatment plants and pump stations shall not be located within the protection area and shall not discharge to any land or waterway within the protection area. New sewage treatment plants and collector system pump stations already authorized by zoning approvals must have protection measures to prevent spills from reaching the reservoir, such as alarms, back-up generators, on-site replacement equipment, and overflow storage.

- Additional rural PUD's (not currently zoned) shall not be allowed within the reservoir watershed protection area.

6.3 Recreational use of the protection area shall not degrade reservoir water quality.

- Parking lots and camping areas shall be located and designed to minimize harmful runoff to the reservoir.

- Sewage treatment systems must follow the same guidelines as for rural residential development above.

- Recreational use of the water should be carefully controlled to limit potential contaminants.

6.4 Solid Wastes will be managed and properly disposed outside of the protection area to prevent any leachate or contaminated runoff from reaching the reservoir.

- No junkyards or landfills will be allowed within the protection area.

- The Fiscal Court should strictly enforce prevention and clean-up of illegal dumps within the protection area.

6.5 Flood Inundation Area: Development should be controlled in the area that would be flooded if the dam fails; new construction should be minimized and property owners should be fully notified of the situation.

7. AQUIFER RECHARGE PROTECTION AREAS

Land uses and development within aquifer recharge protection areas shall be carefully controlled to protect surface and underground water quality.

7.1 Land uses that store, transport, or generate hazardous materials should be carefully controlled within aquifer recharge areas.

- Strategies concerning this are outlined in the Hazardous Materials section of the report.

7.2 There should be no further expansion of the urban service boundary for urban development into the Royal Spring Aquifer Recharge Area. Planned land uses for lands within the urban service boundary that are currently zoned A-1 should only be those that do not present potential for contamination of the aquifer.

- Aquifer recharge areas should be a high priority for purchase of development rights, with the Royal Spring recharge area as the highest priority.

- The Georgetown Urban Service Boundary should not be extended to include new lands within the Royal Spring aquifer recharge area for urban development.

- See Hazardous Materials Objective 11.4 and policies concerning land uses for the aquifer recharge area within the Urban Service Boundary.

- If a property is partially located outside aquifer recharge areas, development should be clustered on that part of the property, if feasible.

- Aquifer water quality should be monitored to identify potential sources of contamination, such as concentrations of septic systems, and to track the impact of rural development.

- The Lexington-Fayette Urban County Government should be strongly encouraged to adopt similar urban service boundary, land use, and rural clustering policies to protect the Royal Spring aquifer. The current land use plan for Lexington/Fayette includes industrial uses within the recharge area. The LFUCG is requested to not allow an increase of industrial designations allowing use of hazardous materials within the recharge area and to carefully control the industries permitted on currently-designated land, as outlined in the Hazardous Materials policies (Section V.C).

7.3 Sinkholes should be treated sensitively in development projects to avoid geologic hazards, storm drainage problems, and contamination of aquifers.

- The Planning Commission should institute a permit process to carefully control fill and development within sinkholes. Regulations should be adopted to allow the Commission to establish non-buildable areas within sinkholes according to soils, geology, hydrology, or other related factors that limit development capability.

- Drainage from developed areas into sinkholes should be carefully controlled. Urban runoff and storm drainage should be directed away from sinkholes within aquifer recharge areas.

- Development should not increase the level of ponding or cause flooding in a sinkhole or closed drainage area unless approval is secured from property owners affected by the ponding or flooding.

- Septic systems within the drainage area of sinkholes should be located to prevent contamination of aquifers or contamination of ponded water within the drain field. No septic systems should be located within a sinkhole or should discharge into a sinkhole.

- The Planning Commission should maintain an inventory and map of known sinkholes and should establish a process for identifying new sinkholes during development review.

7.4 The County should give priority to an educational and regulatory program to stop use of sinkholes for dumping and garbage disposal.

8. SCENIC AND HISTORIC RESOURCES

Preservation of scenic resources should be encouraged, and development should be sensitive to maintaining the landscape, natural, cultural, and historic qualities that make scenic resources and areas special. (See page 23 concerning interpretation of scenic policies.)

8.1 Conduct an inventory based on objective criteria to identify Scott County's significant scenic resources, such as certain rural roads, important scenic views, historic areas, and places with outstanding natural beauty. Scenic resources are those that are visible and highly important to the public overall, not just to individual property owners.

8.2 Identify scenic areas with special significance that should be protected from change by public purchase, transfer of development rights, scenic easements, and other strategies that compensate the property owners.

8.3 For other areas, adopt scenic protection plans with standards that will help new development be compatible with scenic qualities, while maintaining the development rights of property owners.

8.4 Identify rural routes that should be preserved from major changes by road improvement projects, except where current safety problems exist. When road improvements are necessary, pursue alternative designs that will preserve scenic features where possible. Protected scenic rural roads should not be used as traffic access to major new development, if the traffic increase would create the need for major road improvements. (See also Transportation Plan policy on "constrained roadways.")

- Rural clusters would not be considered "major development."

8.5 Stone walls and natural views of Elkhorn Creek and other major waterways from public roads are scenic resources that should be protected in the development review process.

- Preserve stone walls, especially those along roads, in new development and road improvement projects where feasible.

- Perform an inventory of Scott County's stone walls to create a record and way to monitor their condition and preservation.

- Encourage protection of significant views of the Elkhorn Creek and other major waterways through clustering of development on other parts of the property, transfer or purchase of development rights, easements, etc.

9. RURAL AND URBAN LANDSCAPES AND NATURAL HABITATS

Development should be designed with sensitivity for the shape and characteristics of the land, natural vegetation, and habitats of significant animal and plant species.

9.1 Development should consider the capabilities and special design requirements of hillsides and clay shale soils.

- For the purposes of these policies, the percent grade of steep slopes/hillsides will be defined through the subdivision regulations process.

- In general, locate roads and development that require mass grading, such as higher intensity urban uses, on the more level areas of a site, such as ridgetops and/or lower slopes, and keep drainage swales open and natural.

- Step development with the topography to reduce cut and fill.

- Determine need for special building and grading regulations to address hillside soil and drainage conditions.

9.2 Encourage the "greening" of Scott County by preserving trees and establishing new landscaping in urban areas.

- Encourage preservation of hedgerows, major tree stands, trees lining roads, and large trees, particularly in the southern half of the County. This should be weighed as a factor in determining the location of rural cluster subdivisions, along with the primary factor of preserving prime farmland. This shall not limit in any way the clearing of trees necessary for agricultural or tree farming operations. Through educational programs, farmers should be encouraged to replace trees that are removed.

- Pursue tree planting programs for city streets, downtown areas, parks, etc. Target major entrances to Georgetown for attractive landscaping.

- Use new landscaping to buffer incompatible land uses and to soften the visual impact, heat, and other environmental impacts of paved areas. Existing hedgerows and major trees should be preserved and incorporated in landscape plans for new development where feasible.

9.3 Development within or near habitats of significant plant and animal species that may be discovered or identified in the County should be sensitive to maintaining habitat for their survival.

- Conduct an inventory to identify and locate habitats for species that are threatened, rare or endangered in Scott County, and species that are valued for hunting, fishing, or recreation.

- Land use and development policies should encourage preservation of habitats important to the survival of only threatened, rare, or endangered species and wildlife corridors generally.

IV. SOLID WASTE MANAGEMENT

A. SUMMARY

Solid waste has become the key environmental issue of the 1990's. In recent years Scott County and Kentucky as a whole have seen an increase in awareness about the challenge of reducing the stream of waste we produce through recycling and safely disposing of what remains. "A clean place without junk or roadside dumps" was rated by Scott Countians as the most important community quality in the Wilkerson Survey (Figure 5). Scott Countians are also concerned about the link between properly controlling the disposal of solid and hazardous wastes and protecting the quality of underground and surface water resources. Of the highest ranked environmental issues on the Rural Property Owner's Survey, water quality ranked #1, and illegal dumps, solid waste management, hazardous materials, and pesticides/herbicides ranked #2, 4, 5, & 9 respectively.

FIGURE 5
SOLID WASTE MANAGEMENT
SUMMARY OF COMMUNITY ATTITUDE SURVEYS

IMPORTANCE OF SOLID WASTE ISSUES

- Solid waste management issues received an overwhelming response from the majority of Scott Countians when asked to rate factors of importance to the community.
- **"A clean place without junk or roadside dumps"** was rated as the single most important attribute of a quality community. This was rated as "extremely" or "very" important by 94% of Scott County residents surveyed, yet only 44% felt that the community did an "excellent" or "very good" job of providing for this environmentally sensitive issue. (W)
- Scott County rural property owners were asked to rate a series of topics as seen as a problem in Scott County and in addition to rate them as being perceived as minor or major. **"Illegal Dumps" and "Solid Waste Management"** were ranked at number 2 and number 4 respectively and as major problems (R.P.).

SUPPORT FOR MANDATORY TRASH COLLECTION AND RECYCLING

- 67.4% of rural property owners replied that they would use a trash collection service if made available to them, while 58.8% of residents felt the need for **county-wide mandatory trash collection.**(R.P.)
- 82.6% of rural property owners responded that they would participate in **a recycling program** if made available to them.(R.P.)

(W) = Wilkerson Survey
(R.P.) = Scott County Rural Property Owners Survey

Both the County and City governments have taken a role in solid waste management. Scott County has adopted a solid waste management plan as required by State law, and the new Solid Waste Management Director has initiated planning, educational, and dump clean-up activities. The City of Georgetown has developed a landfill to meet current State requirements and best management practices, and is planning for two new facilities to meet future needs and toughened regulations.

No single government agency, however, can meet these challenges alone. A comprehensive solid waste management strategy is needed, especially if universal collection is instituted. The City and County will need to work closely together to coordinate waste collection, landfill planning, recycling, control of dumping, and educational efforts. City and County officials must also continue and strengthen their involvement in planning at the regional level. New regulations for landfills may make solid waste disposal our most costly utility bill in the future, and regional landfills may be a more cost-effective solution. Recycling also will be most effective at a regional level. Solid waste management will require a full-time planning effort and a strong local governmental commitment within the next five years.

B. BACKGROUND AND ISSUES

1. Solid Waste Management Plan and Ordinance

The County has adopted a Solid Waste Management Plan (SWMP) and ordinance in accordance with State law (Figure 6). A newly-hired Solid Waste Management Director has begun to implement the strategies of the plan and ordinance, with a focus on education, recycling, and clean up of illegal dumps.

The State Division of Waste Management has notified Scott County that the policies of the Solid Waste Management plan are a good framework, but that the specific strategies for carrying out these policies must be stated in more detail when the Plan is updated. An updated Plan is required by December of 1990.

Relationship of Solid Waste Management Plan to Comprehensive Plan: Proper management of solid wastes is an important issue for the future growth of Scott County and for the Comprehensive Plan because of the implications for protection of the environment, controlling the costs of growth, and ensuring adequate landfill capacity to accommodate growth. Accordingly, the SWMP is considered to be a background study to the Comprehensive Plan, which hereby incorporates its goals and policies. In addition, the Comprehensive Plan recommends more detailed actions for accomplishing the policies of the SWMP, and encourages the County to consider these for incorporation in the 1990 Update to the SWMP and ordinance. The cities of Georgetown, Sadieville, and Stamping Ground are also encouraged to participate with the County in solid waste planning.

2. County-wide Waste Collection

The current SWMP recommends an optional, not required, County-wide waste collection service. The Solid Waste Management Director is working on a system for making county-wide collection available. Service areas are being drawn for the whole County, and private collectors will be required to cover an entire service area, rather than choosing their own boundaries. Private collectors cannot reject a customer due to inaccessibility.

However, there is support for a stronger waste collection program. Illegal dumping is likely to continue unless waste collection is required. The Rural Property Owner Survey found substantial support for county-wide mandatory trash collection: 59% of the 391 respondents agreed that it is needed, and 67% would use a trash collection service if it were available.

In the 1992 Legislative Session, the State may

require mandatory collection of solid waste, State-wide. However, if Scott County institutes mandatory collection within the next two years, grant funds are available from the State to help accomplish it. Public sentiment appears to be in favor of this action.

3. Landfills

City of Georgetown Landfill and Future Improvements: Scott Countians are fortunate to have a well-managed and controlled landfill, owned by the City of Georgetown. However, the life of the landfill is limited, and new State regulations are likely to greatly add to the cost of future waste disposal. The City-owned landfill will reach full capacity in 2-3 years. A 100-acre area adjacent to the landfill has been designated for future expansion. (Georgetown Landfill Study) New regulations will take effect in 1992, and tipping fees are expected to increase greatly for landfills constructed to the new standards.

The City is proposing two new landfill facilities to meet future capacity needs and the new, more stringent State regulations. One facility is a "contained" landfill which will accept municipal solid waste. It will have elaborate liners, cap, leachate collection, and groundwater monitoring. It will be very costly to construct.

The second facility is a "construction/demolition debris" landfill. It will accept bricks, cement blocks, wood, brush, etc. Because its wastes do not generate leachate, the design requirements are less stringent and construction costs are lower. This facility will save valuable air space in the contained landfill, thus minimizing overall disposal costs.

Location of Landfills: Future landfills must meet locational criteria for adequate traffic and heavy truck access, suitable geology, remoteness from areas with an existing or planned concentration of population, and visual screening. The landfill siting study for the City of Georgetown is an example of the type of criteria that should be met.

Some developers have requested several more convenient locations for disposal of demolition debris. According to Nesbitt Engineering, however, the limestone geology in the southern half of the County would not be suitable. Although the liner requirements are less stringent (2' clay liners), there will still be costs associated with construction of the landfill. Most importantly, it is crucial that a demo landfill is staffed at all times to ensure that only proper materials go into it. However, Scott County does not generate enough debris to financially support construction costs or staff at more than one site. These factors support a single demolition landfill, centrally located and managed at the existing City site. Use of this demo landfill must be strictly enforced.

Extending the Life of the landfill: Most landfills, including the Georgetown Landfill, must meet the design standards of the new State regulations by July 1, 1992. The City has applied for a vertical expansion which will allow the landfill to remain in operation for two years. Other strategies such as recycling and composting of yard waste could help extend the life of the existing landfill. Toyota's waste alone accounts for over 40% of the matter going into the landfill, and other options for recycling or disposal of their waste should be examined. The need for other options will become urgent if there is a major expansion at Toyota and increase in their waste stream.

Need for Regional Planning: Because of the increased cost of future landfilling, a regional landfill may be the only cost-effective alternative. It is essential to have a study made of the projected cost of future tipping fees and the service base needed to keep these costs reasonable. A regional landfill would spread the cost of solid waste management over several counties. It is important to note that operating costs for a regional landfill could continue many years after the landfill is closed, due to monitoring requirements.

There are two options: participation by Scott County waste haulers in a major regional facility that combines landfilling, separation and recycling, and possibly incineration; or acceptance of out-of-county waste at the City landfill. Currently, the landfill does not accept out-of-county waste except Midway sewer sludge and waste brought from private haulers whose routes straddle the county lines. This amount is negligible. According to Nesbitt Engineering, solid waste consultants to the City, the City and County should be able to fund the new landfills initially without accepting out-of-county wastes.

Scott County is in a good location for a major regional facility due to its geology and transportation access. However, there is very little support for accepting out-of-county wastes. If the new facility were planned as a regional facility, the resulting protests would likely delay permit approval and increase application costs. Additional waste streams or participation in a regional facility elsewhere may need to be considered after Scott County residents begin to experience the increased disposal costs necessary to support the new facilities.

Privately-owned landfills should be discouraged. To be financially successful, a private landfill must compete with the City landfill and must accept out-of-County and possibly out-of-state wastes. The decision to have a major landfill of this type in Scott County must be made with full participation by local governments and citizens. Also, with a private landfill, it would be more difficult to ensure day-to-day that regulations concerning acceptable materials that can be placed in a landfill are being met.

Management of Closed Landfills: There are several closed landfills in the Sims Road area, including the previous City landfill and several privately-owned dumps. Landfill practices that were common and accepted at that time have left a legacy of leachate and surfacing garbage. The City has complied with State requirements for monitoring and collection of leachate from the Sims Road landfill, which will require on-going attention, and is preparing plans for final closure of the site. The location and condition of private dumps should also be identified. The need for clean-up should be determined, and policies are needed to guide future development of these properties.

4. Recycling

The best way to extend the life of landfills and reduce future costs of waste disposal is to reduce the amount of waste we generate. There is both regional and local interest in recycling, as well as potential Bluegrass Add funding assistance. According to the Rural Property Owners Survey, a sizeable 83% of the respondents would participate in a Scott County recycling program. There needs to be a definite plan developed for a local program that is fully coordinated with regional efforts. The City of Georgetown and the County should take a leadership role to institute recycling for business and industry, and should study options for a residential recycling program.

5. Illegal Dumps and Enforcement

Scott Countians believe that illegal dumping is a serious problem. Illegal dumps were ranked as the second highest environmental concern on the Rural Property Owners Survey and a top concern of the Wilkerson Survey. The traditional use of sinkholes, creek banks, and road sides for dumping have polluted groundwater and created serious visual blight. Clean up of existing dumps and enforcement of the new Solid Waste Management Ordinance should be a priority of government officials and the courts. Violators should be made clearly aware of the penalties of non-compliance.

6. Education

Education is one of the strongest goals being pursued by the County's solid waste management program. Irresponsible acts such as littering and polluting can be attributed to a broader behavorial problem. Many people do not under-

stand the environmental hazards they cause. With this in mind, it is clear that the public must be educated in the area of solid waste management. The emphasis on education in the schools and through farming-related organizations should be continued. There also needs to be a stronger effort to inform people of the current local and State regulations and the intention to enforce them.

C. GOALS AND OBJECTIVES FOR SOLID WASTE MANAGEMENT

10. Solid wastes should be managed and disposed so that the amount of waste produced in Scott County is minimized, the cost and capacity for disposal are not a deterrent to growth, and the quality of the environment is protected.

10.1 Solid Waste Management Planning

- Scott County and the three cities should work together cooperatively to plan for and incorporate more specific strategies in the SWMP, in preparation for the required updated plan in 1990.

- The position of Solid Waste Management Director should be full-time to carry out the policies of the SWMP, prepare the updated plan, and enforce the Solid Waste Ordinance.

10.2 County-wide Waste Collection

- Franchising, through the use of private haulers, should make waste collection available to all residents of Scott County. County government should encourage 100% participation in the voluntary program.

- Scott County should seriously consider instituting mandatory waste collection, which is supported by many Scott Countians. Institution of the program now would qualify the County for state grants. Officials should monitor participation in the voluntary program, and should pursue mandatory collection if lack of participation leads to problems such as water pollution, health impacts, or visual blight.

- If State regulations require mandatory collection county-wide, County officials should diligently pursue full compliance with the law, with an emphasis on educating Scott Countians about the need for collection and creating a cost-effective collection program.

10.3 Landfills

- Develop strategies to lengthen the life of the landfill:

  - Develop a requirement at the new landfill site which will facilitate "on-site" compaction of debris.

  - Implement separate landfill for construction/demolition debris and wood waste, such as from Toyota.

  - Work with Toyota and other industries that produce a large amount of wood waste to find options for waste -- recycling, incineration to produce heat, etc., especially as part of expansion plans.

  - Pursue creation of a composting farm for yard waste.

- City officials are encouraged to consider the financial implications of becoming a regional landfill with a multi-county agreement, or participating in a regional landfill located elsewhere.

- Privately-owned landfills should be

discouraged as long as governmentally-owned landfills meet Scott County's needs.

- Road access and improvements are key issues to address for the new landfill. Landfill capital budgeting should include funds for improvements and on-going maintenance to accommodate heavy truck traffic. Residents near busy roads leading to the landfill need to be protected from the increase in traffic.

- New construction or uses should not be allowed on land underlain by old landfills or dumps, if there is risk to the health of the proposed users or residents.

10.4 Recycling

- Develop a comprehensive local recycling strategy, and participate actively in regional planning efforts related to recycling.

- Government offices should institute paper, glass, aluminum can, and plastic recycling as soon as possible, to show commitment and lead by example.

- Pursue a Scott County collection center as a priority for local funding, with potential funding support from Bluegrass Add. Support the efforts of Georgetown College and private businesses to provide recycling centers.

- State and regional cooperation is needed to create a market for recycled materials. Study the need for regional industries that use or process recycled materials, and support local or regional recruitment efforts. Lobby for State incentives to draw these industries.

- Encourage local leaders to support State legislation to require recycling of bottles.

10.5 Education

- The public should be notified through the press, schools, and farming organizations, that a local Solid Waste Ordinance exists and what it requires.

- Farming organizations (FFA, Soil Conservation Service, ASCS, Farm Bureau) should help educate the farming community about waste management and environmental concerns in rural Scott County.

- Schools should offer educational programs pertaining to waste management and environmental concerns, especially recycling.

- Students should make field trips to the landfill to learn how garbage is disposed and to understand the importance of minimizing the waste stream through recycling and composting.

10.6 Illegal Dumps and Enforcement

- The updated SWMP should include an inventory of former landfills and illegal dumps and junkyards, and should establish a priority system for identifying those dumps for clean up. Possible criteria include: dumps in sinkholes; leakage of hazardous materials; water contamination; health risk; visibility from roads.

- Local regulations should be adopted and enforced to prohibit dumping in sinkholes. A strong education program is needed.

- Enforcement of the Solid Waste Management Ordinance should be given priority by government officials.

V. HAZARDOUS MATERIALS MANAGEMENT

A. SUMMARY

The use of hazardous materials is increasing in our society, in businesses and industries, on farms, and in the home, and this brings increasing risk of accidents or improper disposal that could contaminate the environment. In Scott County there have been a few incidents in recent years -- the benzene contamination of Royal Spring, the illegal dumping of hazardous materials on a Scott County farm, the gasoline truck accident and spill on U.S 421, and the gasoline station spill on South Broadway -- that have aroused the concern of the community. As new industries locate here, the potential for a problem increases.

The sensitivity of our water resources are such that we should not wait for a major spill or dumping with serious consequences before local government takes a stronger role in controlling hazardous materials. It would be better to take a preventative approach, by establishing a local monitoring and enforcement program, strengthening accident response capabilities, and controlling the location and design of industries with hazardous materials to protect sensitive environmental resources.

B. BACKGROUND AND ISSUES

1. The Need for Local Inspections and Regulation

Communities with a growing industrial base often are not aware of the increasing amount of hazardous materials that are used by the companies and are accumulating in storage yards, warehouses, and possibly illegal dump sites. Although the majority of industries and businesses that handle hazardous material do their best to do so responsibly, the experience of many communities has shown that there are likely to be a few businesses that, through lack of knowledge, carelessness, or intent, improperly store or dispose of hazardous material.

Although there has only been one known instance of illegal hazardous material dumping in recent years within Scott County, the potential that this could become a problem should not be ignored. There have been unofficial reports in Scott County of hazardous materials stored in improper containers and of materials stored together that would be dangerous if combined, according to the Director of Disaster and Emergency Services. The best way to ensure that hazardous materials are used safely is to monitor each business, maintain a list of the typical quantities and kinds of materials, and regularly inspect each site for proper storage, handling, and disposal.

Although federal and state agencies are responsible for regulating hazardous materials, monitoring of whether local businesses comply with the regulations is beyond their means. The State requires reporting of hazardous materials storage and disposal, but this information is not made available at the local level. To improve local monitoring, many communities have instituted their own program. Santa Clara County in California instituted such a program when it was found that improper storage of hazardous materials from Silicon Valley light industries had seriously contaminated aquifers and many municipal water supplies. The Lexington-Fayette Urban County Government has a strong local inspection and regulation program, which is summarized in Figure 7.

Scott County needs this level of protection also. A local hazardous materials control ordinance establishing such a program would require: specially trained personnel; an in-house computer data base system to keep track of

businesses, their hazardous materials inventories, and results of inspection and enforcement actions; and legal assistance. If these are beyond the means of City government, the possibility of contracting with LFUCG's program for skilled services could be considered. The program could be funded by fees from the regulated businesses. A third option would be to educate businesses and citizens about proper handling, and develop the capacity to respond to citizen complaints.

2. Hazardous Materials Accident Response

Accident Response Plans: Another important benefit of a local hazardous materials control ordinance is in the area of accident response. The ordinance could require each business using hazardous materials to develop response plans to deal effectively with spills, leaks, and fires. The State requires these emergency contingency plans only for large users of materials classified as extremely hazardous. Response plans are needed for smaller users as well, such as gasoline service stations or dry cleaners. The response plan would educate the business about the proper actions to take and who to notify, and would help the accident response team quickly identify types of materials involved and the safest containment strategy. Situations such as the gasoline spill on U.S. 25, where the company hosed down the site before notifying the authorities, must be avoided.

Accident Response Team: Local response to accidents involving hazardous materials is coordinated by the Director of Disaster and Emergency Services and the Fire Chief. According to the Director, Scott County and the region is not prepared to deal with a major chemical accident. The cost is too great for local government to have the specialized training or equipment to fully handle major accidents, and assistance from the Lexington and State accident response teams must be relied upon. The State assesses the problem and brings in a company trained to handle the spill.

However, Emergency Services recommends that Scott County should build the capability to handle smaller spills, such as gasoline stations. The local role would be to more quickly contain the spill and protect the public; clean up and disposal would remain the responsibility of the business owner and EPA. Spade Pipeline is a local resource; the company is certified to clean up problems such as gasoline spills.

Transportation and Truck Routes: The high incidence of transportation of hazardous materials through Scott County on state and federal highways and the potential for accidents cannot be controlled locally. The best strategies to minimize the risk are to lobby for needed roadway improvements, build a skilled and well equipped accident response effort, and ensure that adequate roadways are designated as truck routes. Currently, the use of Main Street through Downtown Georgetown and Military Street, Clayton, and Lemons Mill as truck routes presents too great a risk that a major accident would have devastating consequences. With construction of the southeast bypass, the City and County should strongly push for redesignation of truck routes to more appropriate roads.

3. Controlling Hazardous Materials through Land Use Policies

Protecting Environmentally Sensitive Resources: Because of the sensitivity of Scott County's water resources, it is not desirable to encourage industries that are major generators or users of hazardous materials to locate in the County. As noted above, the potential for accidents while hazardous materials are in transport is something that local government cannot control, and the potential for accidents is increased when local streets are used. Even the best monitoring and regulation program, which may be beyond the financial means of the community, cannot ensure that improper handling, leading to on-site spills

or leakage, will not occur. If it comes down to a choice between economic growth and protecting the environment, Scott Countians have clearly indicated that the environment should not be sacrificed (Figure 1), and water quality is the top concern.

In the past, industrial recruitment and the location of industrial parks have not strongly considered the possible impacts of hazardous materials. The Lemons Mill industrial area, for instance, is located within the Royal Spring aquifer recharge area. There are several land use policies that would allow better control of hazardous materials. In general, there should be a demonstration that water quality is not at risk before Planning Commission approval of a new or expanded industry anywhere in the County that is a major user or generator of hazardous materials, and these industries should not be encouraged to locate here. Environmentally sensitive areas (with the exception of prime farmland) should be given special protection from development of new or expanded hazardous materials users. Aquifer recharge areas, creek corridors, and sinkholes should receive the strongest protection.

To implement these policies, there needs to be a determination of what types of businesses and hazardous materials are of concern. Some small-scale businesses may use such small quantities of less hazardous materials that on-site containment and storage policies would be sufficient, and no special locational policies are necessary.

Underground Storage Tanks: Underground storage tanks for hazardous materials (such as gasoline storage tanks at service stations) must be controlled even more carefully than other storage of hazardous materials, because the tanks are prone to leaking as they age, and it is extremely difficult to monitor them. The benzene contamination of Royal Spring was suspected to be from a leaking tank, which could not be identified and cleaned up. An inventory of current and defunct gas station sites indicated that there are as many as 18 sites with tanks in or near the aquifer recharge area. New uses requiring these tanks should not be located near to surface and underground water resources, and existing businesses with tanks should not expand their use of underground storage, but should be abated over time.

There are many sites with abandoned tanks in Scott County, which could still be leaking gasoline or could be surrounded by contaminated soil. This is a serious statewide problem, and the Commonwealth has adopted laws requiring an inventory of all sites with tanks that are abandoned or in use. Current property owners are required to remove abandoned tanks, and there are state funds to assist in the high cost of this. Scott County and city officials should help the State fully inventory locations of abandoned tanks, and should assist the state in requiring removal.

Standards for Site and Building Design: Those businesses and industries using hazardous materials that do locate within the County should institute measures to keep the potential of leaks or accidents to a minimum, and to safely contain and dispose of any spills that occur. Building design and development plans should be reviewed to make sure that storage areas are secure and protected from the elements. In areas where materials are used or handled and the possibility of accidents exists, there should be a method for containment and safe disposal that will not send chemicals into the storm or sanitary sewer system.

The Need for Regional Cooperation: Since much of the Royal Spring aquifer recharge area extends into north Lexington, some of which is designated for industrial land use, the Lexington Fayette Urban County Government should be encouraged to follow similar policies concerning location of hazardous materials users and on-site storage and spill containment. Under federal regulations concerning aquifers that supply municipal water, adjacent local governments are

FIGURE 6
SUMMARY OF SCOTT COUNTY ADOPTED SOLID WASTE MANAGEMENT ORDINANCE

1. The ordinance creates a County position of Director of Solid Waste Management, who has the power to make, amend, revoke, and enforce rules and regulations regarding solid waste management.

2. Containers are required for all solid waste storage that are waterproof, leakproof, and have a fitted lid. The container must be larger than 10 gallons and smaller than 35 gallons in volume.

3. Waste must be stored in acceptable containers and placed at the curb or mailbox for collection. The Director sets policy for the collection of bulky rubbish. Waste will be collected once a week; however, the Director may increase the frequency of collection. Hazardous waste disposal must comply with State regulations.

4. An annual permit is required for any company engaging in the business of solid waste collection, transportation, or processing. Liability insurance is required.

5. It is the duty of the Director to give notice to individuals in violation of the ordinance and demand abatement within 15 days. After 15 days, the County can proceed to abate the nuisance and charge expenses to the violator. If payment is not received in 20 days, a statement of lien claim may be filed against the violator's property. For other ordinance violations, the matter is enforced in Court, with potential fines of $25 to $500 per day.

FIGURE 7
LEXINGTON-FAYETTE HAZARDOUS MATERIALS ORDINANCE SUMMARY

1. Those responsible for the discharge are also responsible for its clean-up.

2. Those who handle hazardous materials are required to file an inventory of information on the type, quantity, and location of these materials with the Urban-County Government.

3. A multi-disciplinary hazardous materials team (HMT) is responsible for enforcement, inspection, and supervision of clean-ups as conducted by the violators.

4. The HMT conducts a public education program.

5. Inventoried industries must submit a "Spill Prevention and Control Plan."

6. HMT is comprised of 8 or more members from Division of Fire, Division of Streets and Roads, Division of Sanitary Sewers, Division of Police, and the County Health Department (appointed by Mayor).

7. A 21-member technical advisory committee, comprised of government officials, acts in a "Review" capacity to oversee the program and the inventory.

8. Primary responsibility for enforcement falls to the hazardous materials coordinator. Penalties are provided which include fines ranging from $100 to $10,000 per day, or even prison terms, depending on the severity of the offense and environmental damage.

liable if their land use policies lead to contamination of the water source. The development of the Cold Stream Farm area is of special concern, and LFUCG has invited a GMWSS Board Member to sit on the advisory committee for the Cold Stream Area Plan.

4. Hazardous Waste Disposal Facilities

Scott County could be an attractive site for a hazardous waste disposal or incineration facility because of its interstate highway access. However, the County is not a suitable location for such a facility due to geology, the potential for ground and surface water contamination through leakage at the site or transportation accidents, and the high value that Scott Countians place on water and air quality. Scott County business and industry does not generate enough hazardous waste to create local need for such a facility, and it is not desirable for the County to be burdened with waste brought from other counties or states. The policy of the County is to discourage new industries that are major generators of hazardous waste, thus a need will not be created for such a facility within the time frame of the Comprehensive Plan. For the same reasons, Scott County is not a suitable location for companies specializing in hazardous materials transportation or storage.

5. Household and Farm Use of Hazardous Chemicals

The average Scott County citizen also uses hazardous materials, in pesticides, fertilizers, herbicides, cleaning fluids, gasoline and motor oils. These chemicals enter the environment in many ways. They are poured on the ground when the oil is changed; run off in storm water after being overused on lawns and fields; and enter aquifers from septic system drain fields, because soil does not filter these chemicals from the effluent. Leftover chemicals leak from half-used bottles in storage sheds, are poured down the drain, are dumped in sinkholes or on creek banks, or are sent out with the trash to eventually seep from landfills.

Public education is needed through the Farm Bureau, Soil Conservation Service, and schools to make people more aware of proper handling and disposal. Most of the problems arise, however, because people have no safe and fairly easy way to dispose of the chemicals. The Rural Property Owner Survey found that 76% of the respondents would support creation of a collection station in Scott County for household and farm chemicals, where they could be contained for safe transportation and disposal at a licensed facility outside of the County.

C. GOALS, OBJECTIVES, AND POLICIES FOR HAZARDOUS MATERIALS MANAGEMENT

11. The use, location, and disposal of hazardous materials should be controlled so that human health, water quality, air quality, and environmentally sensitive resources are protected.

11.1 **Local Monitoring:** Adopt a hazardous materials management program that allows local monitoring and enforcement of proper handling, storage, and disposal. The program should be based upon State and federal regulatory standards, where they are appropriate and feasible to apply locally. The program should include:

- Determination of what types of businesses and hazardous materials are of concern. Many businesses may use such small quantities of materials or those of such low hazard that monitoring and reporting is not needed or cost-efficient.

- Reporting by businesses of an inventory of the types, locations, and quantities of hazardous materials they use or generate.

- Preparation by each business of a spill prevention program and emergency contingency plan for handling accidents.

- Creation of a computer data base to adequately track inspections and inventories. Regular inspections to ensure that rules are being followed and inventories are accurate.

- Enforcement ability, including fines and legal action.

- Fees levied on hazardous materials users to help fund the program.

- A public education program.

- The feasibility of either a locally-staffed program or a contractual relationship with the LFUCG program should be examined.

11.2 **Accident Response Team:** Develop a skilled and well equipped team for local response to hazardous materials accidents.

- Continue to improve the cooperative inter-governmental efforts of the local office of Disaster and Emergency Services, the Fire Chiefs, local industries, LFUCG, and the State to establish a response team for major fires and accidents.

- Develop local capacity for quick response to minor accidents, for spill containment and protection of the public.

- Investigate feasibility of connection to the enhanced 911 program, so that inventories of hazardous materials located at each site are quickly available to accident response teams.

11.3 **Transportation:** Designate safe transportation routes for hazardous materials.

- Work with State government to transfer official truck routes to safer roads, such as the new bypass, and to avoid heavily populated areas and accident-prone streets.

- Lobby for needed safety improvements to roads designated as truck routes.

11.4 **Location and Land Use Policies:** Through land use policies and ordinances, carefully control the location of firms using hazardous materials to ensure protection of water and air quality and environmentally sensitive areas.

- Firms that use, transport, generate or store hazardous materials of such quantity and characteristics that could represent a significant threat to water or air quality shall not be permitted in Scott County, unless they can demonstrate a management plan for the materials based upon accepted "best practices" that will reduce the risk to a level acceptable to the community. In making the decision, factors such as State environmental regulations, the type and quantity of the material, track record of the company, containment and transportation methods and routes, etc. may be considered.

- In making a determination, the Commission should consult State environmental agencies and other available expertise, such as the Environmental Quality Commission, and should be guided by State and federal regulatory standards, where they are appropriate and feasible to apply locally.

  In general, there should be a demonstration of a very low level of risk before Planning Commission approval of a new

or expanded industry anywhere in the County that is a major user or generator of hazardous materials, and these industries should not be encouraged to locate here.

- Where environmentally sensitive resources such as aquifer recharge areas, sinkhole areas, or creek corridors are already zoned industrial and commercial, new hazardous materials users should be prohibited within those areas. Existing firms within those areas would be grandfathered, but must demonstrate that their operation would not present an unacceptable risk to environmental quality before being allowed to expand, including bringing their older facilities up to current protection standards.

- Determine what types of businesses and hazardous materials are of concern, based upon state and federal standards as stated above. Some businesses may use small quantities of materials or those of low hazard, so that on-site containment and storage policies would be sufficient.

- The only type of new industrial zoning allowed within environmentally sensitive areas (with the exception of prime farmland) shall be Environmentally Sensitive Light Industry, which only allows businesses that will not present an unacceptable level of risk for potential contamination of water quality (see Growth and Land Use Element, Section V.B.5). Those environmentally sensitive areas designated industrial in the previous comprehensive plan should be redesignated to other, more compatible land use categories or to Environmentally Sensitive Light Industry.

11.5 **Underground storage tanks** for hazardous materials should be carefully controlled to protect water quality.

- New underground storage tanks should not be located within aquifer recharge areas, sinkhole areas, or creek corridors. Existing uses in these areas are grandfathered, but in general should not be allowed to increase underground tank capacity or install additional tanks, and should be abated over time.

- Local governments should work with the State to aid in a complete inventory of existing tanks.

- Use development, building, and occupancy permit review to ensure that State regulations concerning certification of all tanks and removal of abandoned tanks are followed.

- Assist eligible property owners where possible to receive available State financial assistance to remove tanks.

11.6 **Site design and building standards** for firms that use, transport, generate, or store hazardous materials should ensure safe storage and spill containment.

- All storage must be on a durable paved surface. Storage areas must not be exposed to the elements (e.g. rainfall, temperature extremes, etc.) that could weaken containers or effect volatile components.

- Areas where hazardous materials storage, parking, loading, or use occurs must be designed so that spills can be contained and disposed of without discharge to sanitary sewer or storm drainage systems.

11.7 **LFUCG:** Encourage the Lexington Fayette Urban County Government to adopt similar land use and development policies to protect

the Royal Spring aquifer recharge area and the Elkhorn and Cane Run Creeks from contamination by hazardous materials.

11.7 **Hazardous waste disposal or incineration** facilities shall not be permitted in Scott County, except solely for wastes generated within the County.

11.8 **Household and Farm Use:** Improve the awareness and control of hazardous chemicals used in households and on farms.

- Examine the feasibility of establishing a station for collection of Scott County agricultural and household hazardous materials, such as pesticides, herbicides, used motor oil, and other toxics, to allow environmentally acceptable disposal.

- Create a program through the schools and farm organizations to educate the public about safe use and disposal of toxics.

VI. AIR QUALITY

This section of the plan discusses the status of the most serious air quality issue facing Scott County -- ozone. This section is not intended to be a thorough examination of air quality.

Scott and Fayette counties are within the same air quality region. Under the federal Clean Air Act, air quality is monitored by region to ensure that it meets federal standards for various types of pollutants. The measured ozone levels in the Fayette region have been above standard, and this region may be declared a "non-attainment area" for ozone, according to the Division of Air Quality in the Kentucky Department for Environmental Protection.

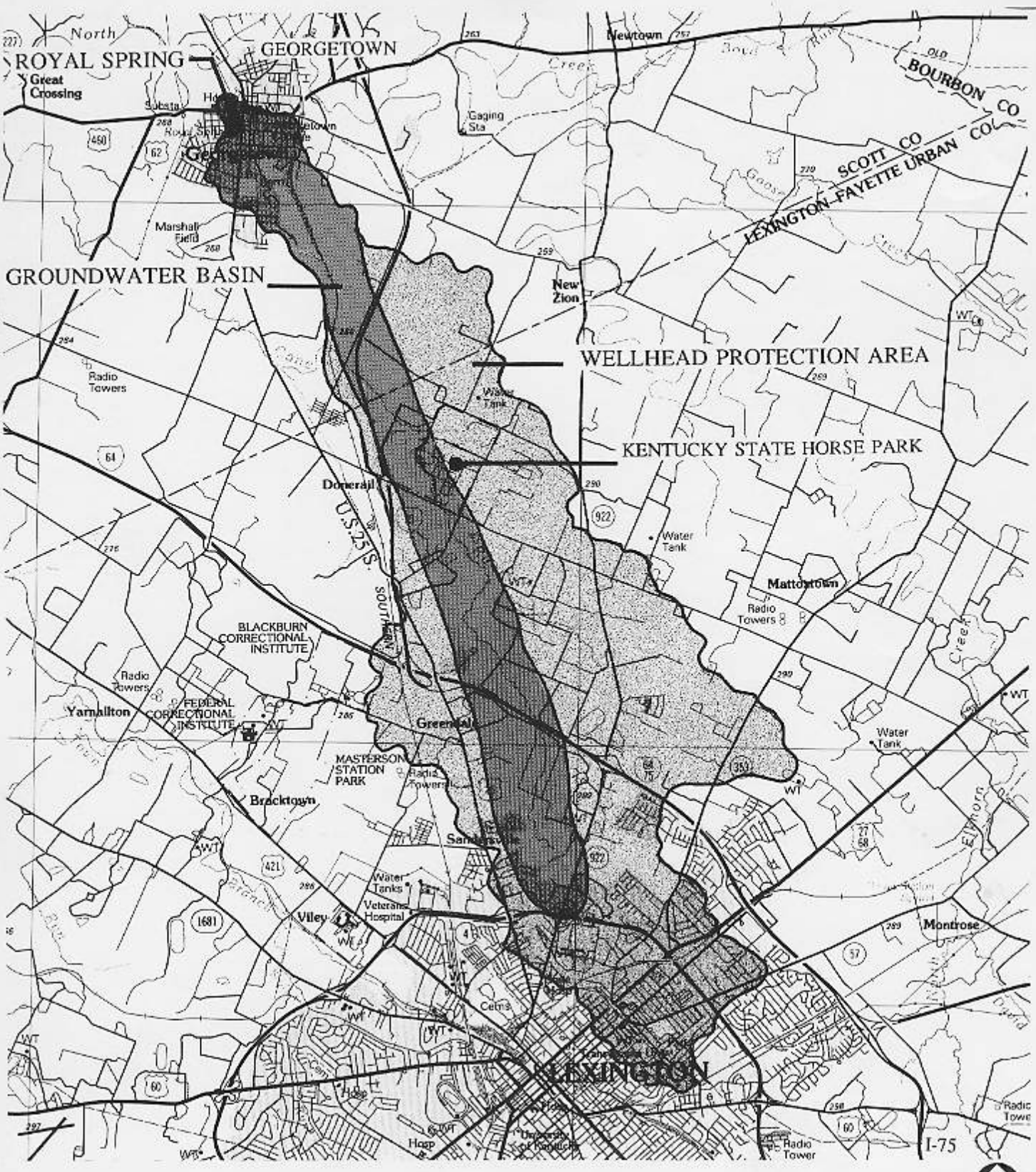
The fact that the recent amendments to the Clean Air Act have not yet been approved has delayed action on this. However, if the Act is approved, the region may be declared non-attainment for ozone. If this occurs, it will lead to greater federal and State control of industrial emissions. In such event, it is probable that new industries that would increase ozone levels cannot locate within the region unless their increase is "offset" by an equal reduction of emissions from existing industries. Emissions standards will be greater for new industries. Industrial recruitment efforts must be aware of these potential controls.

Obviously this is not a situation that Scott County alone can impact. A regional effort is needed with federal and State assistance to reduce industrial and auto emissions enough to have a measurable effect on ozone levels.

ENVIRONMENTAL QUALITY ≈ MAP 1

ROYAL SPRING AQUIFER RECHARGE AREA

GEORGETOWN-SCOTT COUNTY COMPREHENSIVE PLAN **MARCH 1991**



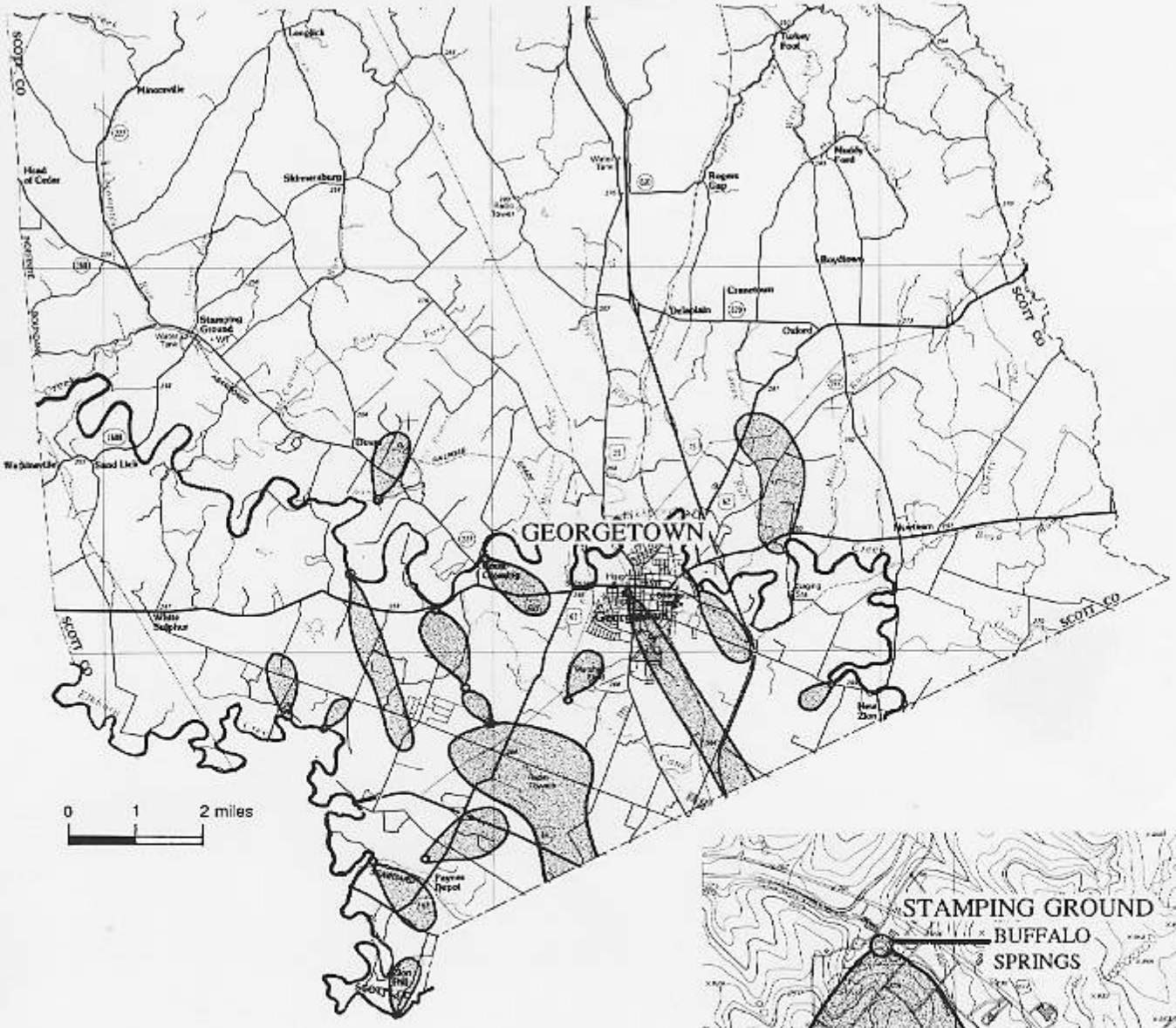
INFORMATION SOURCE: FITZMAURICE AND SENDLEIN: THE ROYAL SPRING WELLHEAD PROTECTION AREA STUDY, UNIVERSITY OF KENTUCKY, DEPARTMENT OF GEOLOGY, 1990. BASE MAP SOURCE: U.S.G.S.

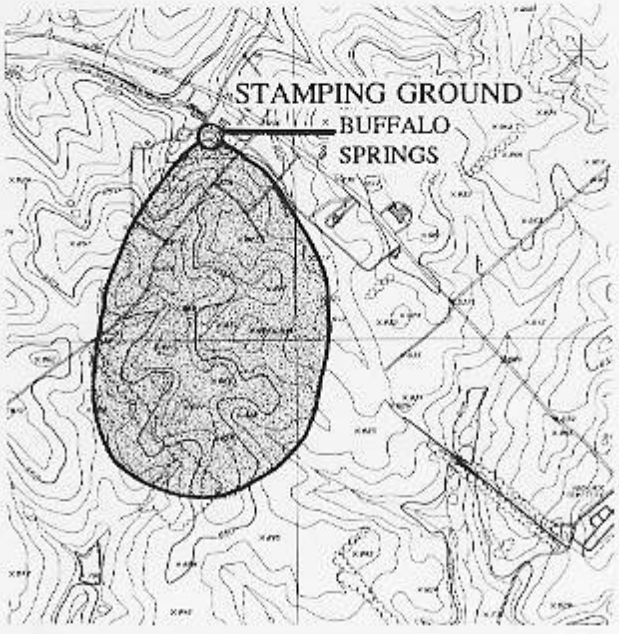
0 1 2 miles

ENVIRONMENTAL QUALITY ≈ MAP 2

SPRINGS AND AQUIFER RECHARGE AREAS, SCOTT COUNTY

GEORGETOWN-SCOTT COUNTY COMPREHENSIVE PLAN **MARCH 1991**





INFORMATION SOURCE: THRAILKILL: WATER RESOURCES RESEARCH REPORT #136: GROUND WATER RESOURCES IN THE INNER BLUEGRASS KARST REGION

BASE MAP SOURCES: STAMPING GROUND: PHOTOSCIENCE, INC./PROCTOR DAVIS RAY ENGINEERS, AND U.S.G.S.

ENVIRONMENTAL QUALITY ~ MAP 3

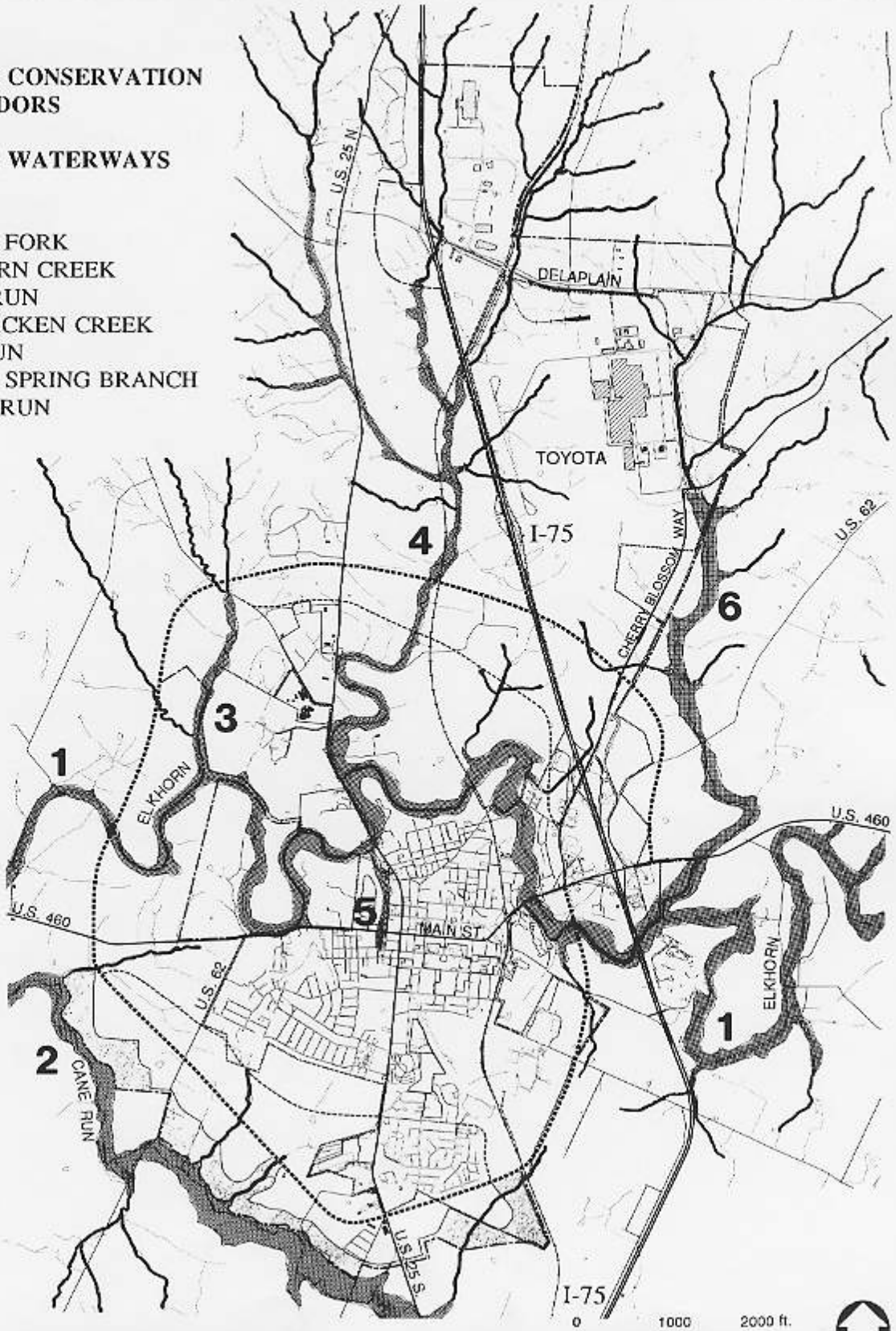
CREEK CONSERVATION CORRIDORS AND MINOR WATERWAYS IN GEORGETOWN

GEORGETOWN-SCOTT COUNTY COMPREHENSIVE PLAN **MARCH 1991**

CREEK CONSERVATION CORRIDORS

MINOR WATERWAYS

1. NORTH FORK ELKHORN CREEK
2. CANE RUN
3. MCCRACKEN CREEK
4. DRY RUN
5. ROYAL SPRING BRANCH
6. LANES RUN



BASE MAP SOURCE: PHOTOSCIENCE, INC./PROCTOR DAVIS RAY ENGINEERS

ENVIRONMENTAL QUALITY ≈ MAP 4

CREEK CONSERVATION CORRIDORS IN RURAL AREAS

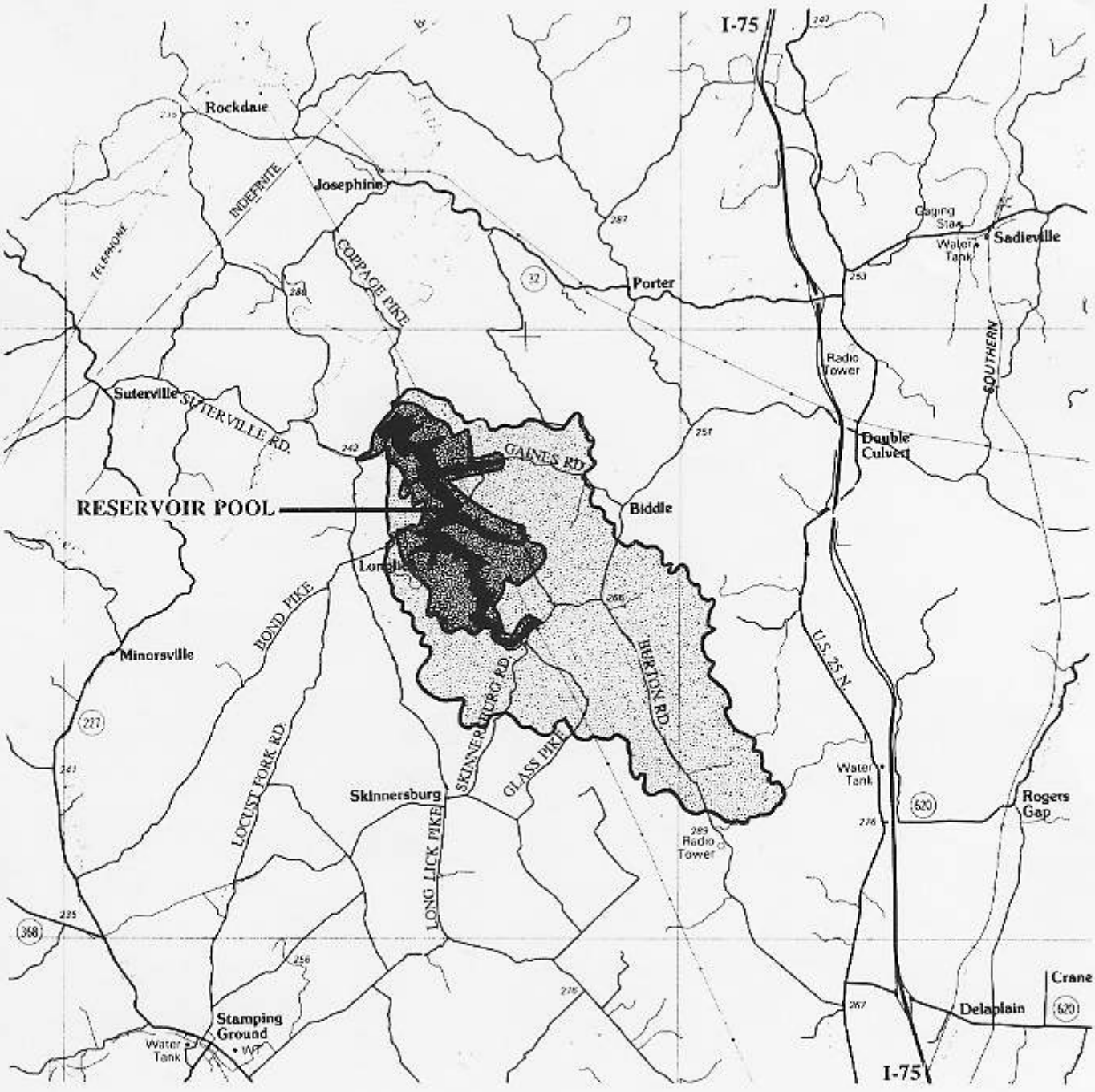
GEORGETOWN-SCOTT COUNTY COMPREHENSIVE PLAN **MARCH 1991**

1. RAYS FORK
2. MILE RUN
3. LITTLE EAGLE CREEK
4. WOLF BRANCH
5. EAGLE CREEK (West & East Forks)
6. PARRISH AND HUMPHREY LAKES
7. OAKLAND BRANCH
8. LOCUST FORK
9. MCCONNELL RUN
10. NORTH FORK ELKHORN CREEK
11. BIG SPRING BRANCH
12. CANE RUN
13. MCCRACKEN CREEK
14. DRY RUN
15. LANES RUN
16. MILLERS RUN
17. CHERRY RUN
18. BOYD RUN
19. GOOSE CREEK
20. SOUTH FORK ELKHORN CREEK

BASE MAP SOURCE: BLUEGRASS DRAFTING CORP.

0 2 4 miles

SCOTT COUNTY RESERVOIR PROTECTION AREA



PUBLIC OWNERSHIP OR EASEMENT AREA

WATERSHED PROTECTION AREA

0 1 2 miles

BASE MAP SOURCE: U.S.G.S.