

Fire Protection Districts

Nine fire protection districts serve the Christian County area, *all* of which are tax supported. All of the fire protection districts have mutual aid agreements with surrounding districts, with assistance provided on a request basis.

Billings Fire Protection District

The Billings Fire Protection District serves area of Christian County west of Farm Road 14-7. This district also extends into portions of Stone, Lawrence and Greene Counties. Fire protection equipment is housed at 3 stations and the district operates with 40 volunteer firefighters. Stations are located throughout the district. One station is located in Billings on Washington Street, a second Station is located in Lawrence County on Highway 14 West, and a third is located on Highway 13. A fourth station is planned around the Greene County line. Fire protection equipment includes 17 pieces of equipment:

Station #1

- Two 3200 gallon tankers
- 1500 gallon tanker
- Heavy Rescue
- Class A pumper
- Brush Truck
- Two suburbans (medical rescue)

Station #2

- Class A pumper
- 2100 gallon tanker
- 1400 gallon tanker
- Rescue Service Truck
- Brush Truck

Station #3

- Engine
- Utility Truck
- Pumper

The district's average response time is five minutes. The district also has mutual aid agreements with Clever, Republic, Crane, Hurley, Marionville, Marionville Rural, North Stone County, and Aurora.

The Billings district is supported by a \$0.28 property tax levy. In addition to fire protection services, the district also provides first response services and instructors, storm warning, and participate in school programs. Plans to upgrade fire protection services include the addition of a fourth station currently under construction, additional equipment including 2 more engines and an aerial truck.

Brookline Fire Protection District

The Brookline Fire District services a small area of Christian County generally bounded by ZZ Highway on the east, Terrell Creek on the south, and P Highway on the west. The district has two stations; Station #1 is located in Brookline and Station #2 is sited at Farm Roads 97 and 178. Fire protection services are provided by 26 volunteer firefighters and the district operates on a \$0.26 property tax levy. Brookline has mutual aid agreements with Clever, West Republic, Willard and Battlefield. Equipment housed at the two stations include:

Station #1

1. 2002 KMA pumper rescue
2. 2,800 gallon tanker
3. 1,800 gallon tanker
4. 1,800 gallon tanker
5. Brush truck
6. 1989 Ford 4x4 rescue truck, fully equipped

Station #2

1. 1986 Smeal 1,000 gpm pumper

2. 2,100 gallon Ford tanker
3. 1,200 gallon Ford tanker
4. Brush truck
5. 1986 rescue truck, fully equipped with medical

The Brookline District maintains an average response time of 7 to 8 minutes depending on location and has a Class 8 fire insurance rating without fire hydrants. The district provides a range of public services, including storm warning and rescue services. Anticipated needs over the coming years include building a new station in Greene County and purchasing a hazmat truck and training four new hazmat technicians. The department also wants to train more first responders.

Chadwick Fire Protection District

The Chadwick Fire Protection District serves a 135 square mile area in the southern and eastern part of the County (same as the Chadwick School District boundaries). In November of 2001, the fire protection district was voted in as a tax supported department. The district has cooperative agreements with Sparta and Forsyth and an unwritten agreement with the Conservation Department and the National Park Service (Mark Twain National Forest area).

The district's fire equipment is housed on Highway 125 in Chadwick and includes 2 pumpers, 2 tankers, 1 rescue unit, and a small brush truck .

17 volunteer fire firefighters and 15 first responders comprise the district's personnel. All volunteers respond to calls, with the exception of grass fires. Under agreement with the National Park Service, the Chadwick volunteers will respond to a fire in the Mark Twain National Forest if a member's property is in imminent danger.

The district has several needs that are related to the lack of financial resources and the rural nature of the district's service area. One of the most immediate needs identified is to build new station out around the district and purchase more equipment.

Because the district covers a largely rural area, adequate sources of water supply are also a concern. The district either needs increased water carrying capacity or additional water supply sources in the field. The Chadwick District provides other services besides fire protection. The district also provides first responders and storm watchers. *A storm-warning siren was donated to the district, but this must be repaired before it can be put into service.*

Clever Fire Protection District

The Clever Fire Protection District serves the portion of Christian County located generally between Billings and Nixa. The district also has mutual aid agreements with Billings, Hurley, Nixa, Republic, Highlandville, Battlefield and Brookline.

The district has 3 fire stations, one is located in Clever, *another at* and another is situated in Stone County at Union City. Fire protection services are provided by 26 volunteers. The district operates on a \$0.27 tax levy. Average response time to a fire is 8 minutes and the district has a fire insurance rating of 9.

Fire fighting vehicles maintained by the district include a 1976 Chevy 1800 gallon pumper, a 1976 Ford 1800 gallon pumper, a 1975 White 3200 gallon tanker, a 1976 Brush truck, a 1976 GMC 4200 gallon tanker, 2 medical rescue vehicles, and a Jeep brush truck.

In addition to fire protection services, the district also provides storm warning and emergency medical services. The district has 18 certified first responders and 5 emergency medical technician to assist on ambulance calls.

The district hopes to add a new station and additional equipment in the future. The district has applied for a Fema grant and with this funding; they will purchase the needed equipment.

Highlandville Fire Protection District

The Highlandville Fire Protection District encompasses a 100 square mile area in the central and southern portions of the County. Fire protection is provided by 25 volunteer firefighters operating out of four stations, one station located south of Highlandville, a second station located in Abesville, third located at Steinert Lane and Highway 160 and a fourth at Saddlebrooke. Main equipment housed at these four facilities includes:

1. Station #1 – pumper, rescue, tanker, brush truck
2. Station #2 – pumper, tanker, brush truck, rescue
3. Station #3 – pumper, tanker, brush truck

In addition to fire protection, the district also provides emergency medical services, first response, and storm warning. Emergency response equipment on hand includes air bags and two sets of jaws.

The district's operations are financed through a \$0.27 tax levy. There are no user fee charges except in unusual circumstances. Written mutual aid agreements are in effect with Ozark, Nixa, Western Taney, Hurley, and Southern Stone. The district maintains a fire insurance rating of 9 with a typical response time of four minutes from the point of notification via pagers to manning the fire trucks.

The district anticipates the need for a fifth station, an additional tanker, engine and brush truck. The Highlandville District has also noted the need for additional water supply sources at appropriate locations throughout the County, such as a dry hydrant system.

Logan-Rogersville Fire Protection District

In addition to portions of Greene and Webster Counties, the Logan-Rogersville Fire Protection District also serves the northeast corner of Christian County. The District maintains

three stations in Greene County. Station #1 is located on Highway 125 and Station #2 is on Blackman Road. The third Station, Station #5 is located on Farm Road 174. Station #4 and Station #6 are located in Webster County. Station # 4 located at Highway AD and Highway B and Station #6 located in the city hall of Rogersville. Station #3 is located at County Roads U and U-17 in Christian County. Mutual aid agreements are in effect with surrounding fire districts except Springfield.

The district operates on a \$0.25 tax levy and is manned by 65 volunteer fire fighters, seven full time staff. Of the total personnel, there are 10 emergency medical technicians, 5 paramedics and 30 first responders. Fire fighting equipment located at each of the six stations includes:

1. Station #1--one pumper, two tankers, one rescue unit, two brush trucks
2. Station #2--one pumper, one tanker, a truck
3. Station #3--one pumper, one tanker, one brush truck, one light tower unit
4. Station #4--one pumper, one tanker, one brush truck, one hazmat trailer
5. Station #5 – Rehab complete with fans, coolers, bottled water, etc.
6. Station #6 – Truck, chief's car, a service vehicle.

All apparatus are equipped with multi channel radios. In addition to fire fighting equipment, the district also has specialized equipment for rescue services including two sets of Jaws, spreaders-cutters, light and heavy air bags, and six defibrillation unit. The district also provides storm-warning services. The fire insurance ratings within the district are currently a 7. Average response time is four minutes.

The district hopes to add a new engine to its apparatus in the coming years. The district has noted the need for additional water sources, such as fill wells located throughout its service area.

Nixa Fire Protection District

The Nixa Fire Protection District serves a 65 square mile area in the north central portion of Christian County. The district is supported by a \$0.40 tax levy. Fire department personnel include

10 full-time staff, one part time staff and 30 volunteer firefighters. The paid staff provides the community 24 hour coverage. Eighty percent of the personnel are state certified and the staff trains on a weekly basis. Equipment is housed at 4 stations: Station 1 located at 711 N. Main, Station 2 is at 1765 S. Nicholas, Station 3 can be found in the northwest part of the city at 1752 W. Tracker Rd., and Station 4 situated at 301 S. Nicholas Road. Equipment at the four stations includes:

1. *1987 Ford fire truck with 1,000 gpm pump and 1,000-gallon reservoir*
2. *1967 2,500-gallon water tanker with 750-gpm pump*
3. *1964 American La France truck with 500 gpm pump and 500-gallon reservoir*
4. *1967 Chevrolet tanker/brush truck with 1,200-gallon capacity*
5. *1963 Dodge brush truck*
6. *1953 Willys Jeep brush truck*
7. *1967 Ford 1,500 gallon tank truck*
8. *1979 Ford ambulance converted to a rescue vehicle*
9. *Rescue boat with 20 hp jet engine and trailer*

Depending upon the location, response time to fire alarms ranges between four to eight minutes. Service is also provided to other fire districts upon request.

In addition to fire protection, the district also provides land and water rescue, ambulance and helicopter assistance, traffic control assistance and weather watching. Fire department personnel also participate in number of community-sponsored events such as school programs, festivals and parades.

Future needs identified by the fire department include additional trained full-time firefighters, renovations to Station 1, and expanded EMS services.

Ozark Rural Fire Protection District

The Ozark Rural Fire Protection District covers the central portion of Christian County surrounding Ozark, between the Greene County line on the north and close to the Taney County line on the south. The district has written mutual aid agreements with the Highlandville Fire Department and the Logan-Rogersville Fire Protection District. The district also has oral

agreements with all other departments in the county. The Ozark District is supported by a \$0.24 tax levy.

The district operates with 48 volunteer firefighters and maintains four stations. Station #1 is located in Ozark, Station #2 is located at Highway 65 and County Road CC, Station #3 is sited at Highway W at the Christian Center, and station #4 is located at 175 Pippenville Road. Major equipment maintained at the four stations includes:

Station #1

1. *2000 Freightliner 1,500 gallon tanker*
2. *1993 Ford Light Rescue Truck*

Station #2

1. *1994 Freightliner 1,500 gpm pumper*
2. *1997 Freightliner 2,000 Tanker*

Station #3

1. *1991 GMC pumper*
2. *1997 2,000 gallon tanker*

Station #4

1. *1984 GMC 1,800 gpm pumper*
2. *1999 Ford 2,500 gallon tanker*
3. *1986 Chevrolet 4X4 pickup*

Average response time to fire alarms within the district is 2 1/2 to 3 minutes and fire insurance ratings range from 3 to 5, depending on location. The district also provides rescue services and storm warning. At the present time, the district has no major problems or needs to maintain fire protection services.

Sparta Fire Protection District

The Sparta Fire Protection District encompasses an area of 150 square miles in the northeastern part of Christian County. The district's equipment is housed at the Community Building in Sparta. The department has 2 pumpers, a tanker truck, a brusher truck, and a mini pumper.

The fire district is supported by a \$0.27 cent tax levy. The department has 25 volunteer fire fighters and maintains a 2 minute average response time. The district's fire insurance rating is 7 for within the city and 1,000 feet of its boundaries. The rating is 9 for farther out in the county.

The fire protection district plans on adding a working station in Bruner. The department also intends to upgrade safety with an anticipated FEMA grant.

Fire Protection Needs Summary

As noted in the preceding discussion several of the fire protection districts in Christian County are in need of additional revenues to finance training and equipment needs, including field communications equipment. All districts are now tax based, this is an improvement from ten years ago when half the fire protection districts were supported by membership funding. The County and the rural fire districts should jointly work to develop and secure funding to establish fill wells and/or ponds at needed locations throughout the rural areas of the County.

Law Enforcement

Law enforcement in Christian County is provided by the police departments in the County's various cities and by the Christian County Sheriff's Department. The cities of Nixa and Ozark have 24-hour coverage, while the cities of Billings, Clever, and Sparta have less than 24-hour coverage and rely upon assistance from the County's Sheriff's Department.

The Sheriff's Department is housed in the Christian County Justice Center in Ozark. The department has 70 fulltime personnel including the Sheriff, a chief deputy, five secretaries, a jail administrator, 32 jailers, four cooks, four investigators, one evidence officer, 18 patrol deputies, and two civil process deputies. In addition, the Department has 19 reserve patrolmen. Major equipment on hand for law enforcement includes 22 police vehicles, bullet proof vest, portable radios and 20 cell phones for GPS (Global Positioning Systems).

Law enforcement personnel receive handgun and shotgun training for qualification requirements, as well as other training in communications, domestic violence, crisis intervention and many other areas. The Department also participates in the DARE Program (drug education) and has a drug dog and trained deputy.

Criminal investigation and law enforcement needs continue to increase significantly in Christian County. In 1989, the Sheriff's Department conducted 765 criminal investigations. Ten years later, in 1999 the numbers increased to 1,686. Calls for service (Table 8-3) decreased greatly in 2001 compared to 2000. This decrease can be attributed in part to increased law enforcement and training, neighborhood watch programs, victims advocate programs, and other agencies certainly play a part in the decrease in crimes.

TABLE 8-3

CALLS FOR SERVICE, 1999 - 2001

Crime	1999		2000		2001	
	No.	% Change	No.	% Change	No.	% Change
Burglary	233	---	336	44.2	232	-31.0
Stealing	382	---	525	37.4	377	-28.2

Property Damage	335	---	395	17.9	314	-20.5
Assault	319	---	285	-10.7	171	-40.0
Domestic Violence	417	---	399	-04.3	250	-37.3

Source: Christian County Sheriff's Department, June 2002

In March 2002, the Christian County Sheriff's Department moved into the new Judicial Facility on the Ozark square across from the County Courthouse. The former jail held a maximum of 14 inmates. The new jail has a capacity 100 inmates. This increases our needs for manpower. Current needs identified by the department include a substantial increase in manpower. Also, in order to compete with other agencies, salary increases are needed. These current needs will become more critical as the County's population continues to grow over the next decade. The department's operations are currently funded through a 1/2-cent sales tax and through appropriated County revenue. A percentage of this sales tax contributes to the financing of the new Judicial Building. Once the building is paid off, the sales tax will revert to 3/8-cent where 1/4-cent is for law enforcement and 1/8-cent is for the maintenance and upkeep of the Judicial Building.

911 Emergency Communications

In November of 1991, voters approved a countywide 911 emergency communications system, which is funded through a charge added to telephone bills. This charge went into effect in the spring of 1992 and the 911 system came on-line in April 1994. This service is supported through a 15% customer surcharge on telephone services provided by Southwestern Bell, Verizon (formerly GTE) and its subsidiaries. The department is staffed with an administrator, 12 fulltime dispatchers

(including a supervisor), and an addressing/mapping technician. While the County does not provide dispatching for the City of Nixa and the Nixa Fire Department, it does provide service for the surrounding area fire departments and part-time for the City of Ozark.

Ambulance/Rescue Services

Ambulance services in Christian County are provided by Cox Ambulance Services. Services are provided to two separate districts in the County, one, which is tax supported and the second which is supported by user fees. The tax-supported district includes most of the County, with the exception of western panhandle area (Billings and Clever area). This ambulance district is supported through two separate sources: (1) a property tax levy of \$0.1397 per \$100 assessed valuation and (2) user fees of \$425.13 for basic emergency services and \$194.98 for transfer/non-emergency services.

The eastern district has three operating stations located in Nixa, Ozark and Sparta. A Total of 24 fulltime and 20 part-time personnel help staff these stations. The average response time from each station is five minutes. A standing mutual aid agreement is available from the surrounding communities.

Cox Paramedics-Republic serves the user-fee ambulance district in the Billings and Clever area. Ambulances are dispatched from the station in the City of Republic. This service has 12 fulltime staff and one part-time personnel. In addition to the user-fees, a special membership program for emergency services is provided on a subscription basis. For a \$36 annual fee, the district will accept insurance and Medicare payments as payment in full for emergency services.

Air ambulance services for Christian County are available through Cox Air Care and St. John's Lifeline-Air Ambulance. Both air ambulances serve all of Christian County.

Library Services

Community library services are provided through the Christian County Library. The library operates from a single headquarters building in Ozark, built in 1972 with an addition constructed in 1984. Most counties with populations over 50,000 have one or more branch locations, and suburban counties with similar population typically have branches within average of ten miles of all residents. However, money is not available to build, equip, or stock another facility, or to operate one if it existed. Distance to the library is probably a major reason many of the per capita statistics are well below average. Despite their limited resources, Hennen's American Public Library Ratings gives Christian County Library a score of 407 of a possible 1,000. The average score of Missouri public libraries is 484.

The Christian County Library District operates primarily on a \$0.0932 per \$100 assessed valuation real and personal property tax levy. In 2001, this tax accounted for approximately 88% of the library's revenues, with the balance of income derived from state aid and athletes and entertainers' tax 5%, financial institutions tax .7%, cost recovery from late materials returns and printouts and photocopies 2%, interest on bank accounts 3%, and gifts 1.3%. These percentages do not include the one-time income from the major grants.

The library has eleven public-use computers. Internet access is provided on a T-1 line through the Remote Electronic Access to Libraries (REAL Project) of the State of Missouri and Missouri Research Network, MoreNET. New in 2002 are seven from the Bill & Malinda Gates Foundation with internet access; Microsoft Office programs; Encarta Reference Suite; tutorials; resume programs; and Streets and Trips. Also available for public use are two library catalog computers and two CD-ROM computers, one with programs primarily for adult interest and another with children's programs.

The Christian County Library uses Innovative Interfaces Inc. (III) library automation system which allows cataloging, locating and tracking of library materials and maintains the records of users and materials by use of barcodes. Resources and personnel for maintaining the system are pooled in the Consortium of Ozarks Libraries (COOL). Library patrons have access to materials belonging to other library districts through requests staff submit on their behalf to the Missouri Library Network Corporation (MLNC), the OCLC cooperative, and First Search, a single search method of looking at the catalogs of hundreds of libraries simultaneously.

Three library websites serve users at any computer with internet access. The catalog at coolcat.org allows searches, requests, renewals and checking on personal materials loan records. The transcribed records website at www.rootsweb.com/~moccl provides guidance and information for researching families and history in Christian County. The library home page at christiancounty.lib.mo.us is a frequently updated, customized collection of information about the library and its services and the most useful and reliable websites in ten categories includes: Reference, Internet, Christian County, Missouri, the United States, the World, Home, Family, Work and Play.

The Library district's ability to meet citizens current and anticipated future library needs is related to the need for increased funding. More convenient library access for residents throughout the County; a more diversified collection, in the full range of current formats from print, audio, and video to on-line, to match the increasingly diverse interests of the county's growing population; space for collections and library users; and the ability to work toward meeting the state library standards are among needs which could be addressed if voters approved adequate funding. Table 8-4 compares funding with national averages in 1996, state averages in 1996, Christian County Library in 1996 and Christian County in 2001.

TABLE 8-4

COMPARISON OF LIBRARY FUNDING

CATORAGIES	US ave. 1996	MO ave. 1996	CCL 1996	Standard*	CCL 2001
Tax Rate (per \$100)			0.11	0.15 min.	0.0932
Collection Spending	2.96	3.84	1.30		1.22
Percent income spent on collection				15% min.	12.4%
Books per capita	2.72	4.01	1.38		1.11
Audios per capita	0.11	0.10	0.036		0.04
Videos per capita	0.42	0.38	0.036		0.06
Library visits per capita	4.31	4.06	1.75		1.35
Circulation per capita	6.35	7.81	3.93		2.30
Local Income	\$16.63	\$18.58	\$6.45	\$15.00 min.	\$8.18
Other Income	1.79	1.79	.80		1.11
Total Income**	21.26	21.89	7.25		9.78

Source: Christian County Library Administrator, 2002

* Standard is expressed in 1996 dollars

** Includes grants and one-time gifts

Parks and Recreation

While Christian County has considerable acreage available for recreation opportunities, there are no parks or recreation facilities that are owned or operated by the County government. The vast majority of lands available for public recreation are contained in the Mark Twain National Forest, operated by the National Park Service. Approximately 51,312 acres of national forest are located in Christian County; the Ava/Cassville District Rangers office locally administers this area.

The Mark Twain National Forest in Christian County contains two developed recreation areas--Cobb Ridge and Camp Ridge. Cobb Ridge provides group camping facilities, individual camping units and trailer space. Camp Ridge facilities include camping units, picnic areas and trailer spaces.

One of the more notable recreation opportunities in the Mark Twain Forest is the Glade Top Trail, a 23-mile panoramic trail that winds along narrow ridge tops and valleys in the southern part of the County. Also, 6000 acres of the national forest are available for use by all terrain vehicles. The ATV use areas are administered by a partnership between the National Park Service and the Ozark Enduro Riders, Inc., a Springfield area motorcycle club. This club helps to maintain the ATV trails in the Chadwick Motorcycle Use Area. Other recreation opportunities in the national forest include fishing, hunting and horse and hiking trails.

The National Park Service also administers the Wilson's Creek National Battlefield, a portion of which is located in the northwestern panhandle of Christian County. This historic site provides opportunities for learning about the area's Civil War history and lifestyle of the mid-1800s.

The Missouri Department of Conservation administers Busiek State Park, located along Highway 65 in the southern part of the County. This site offers opportunities for hunting, hiking, biking and picnicking. The Department of Conservation also administers two public access points

on the James River. Shelvin Park is a 20-acre access site located southwest of Nixa on Highway M. The 24-acre Delaware Town Access is located west of Nixa.

As growth continues in Christian County, there will be an increasing need for recreation opportunities in the unincorporated portions of the County. It is suggested that planning for future parks, open space and recreation needs should be incorporated in the continuing planning process for Christian County. The County should also encourage developers to provide usable recreation and open space areas in residential developments as urbanization continues.

UTILITIES

Water and sewerage facilities are primary environmental infrastructure components that provide for basic health and safety needs of the people of Christian County. The availability and capacity of these facilities are also key determinants of future growth and development potential. In addition to water and sewer services, this chapter of the Plan also summarizes electric, gas, and solid waste disposal services in Christian County.

Water Supply/Services

The residents and businesses in Christian County derive their water supply from groundwater supplied through municipal water systems, other public water systems and private wells. The County government itself does not provide public water services. Each of the incorporated cities in Christian County has its own municipal water system with the exception of Fremont Hills. Fremont Hills is connected to the Ozark water system. The City of Nixa and the City of Ozark has also extended water service to some developments outside of their city limits.

According to records maintained by the Missouri Department of Natural Resources (DNR) there are approximately 42 active public water systems in Christian County in addition to the municipal systems. These include systems serving subdivisions, apartment complexes and mobile home parks. The communities of Chadwick and Highlandville also have public water districts serving approximately 300 and 1000 persons, respectively. The vast majority of developments in the unincorporated portions of the County derive water from private wells.

TABLE 9-1

WATER SYSTEMS FOR MUNICIPALITIES AND WATER DISTRICTS

City/ Public Water District (PWD)	Persons Served	Average Daily Consumption	Maximum Daily Consumption	Capacity	Service Connections	Finished Storage	Source of Supply	Permit to Dispense
Billings	1125	.100 MGD	.180 MGD	.475 MGD	469	.200 MG	2 Wells	1/1/1942
Clever	810	.100 MGD	.115 MGD	.590 MGD	408	.050 MG	2 Wells	1/1/1948
Nixa	12000	1.0 MGD	2.0 MGD	2.3470 MGD	5000	.715 MG	5 Wells	1/1/1942
Ozark	9600	1.0 MGD	1.50 MGD	6.60 MGD	4223	.725 MG	9 Wells	1/1/1929
Sparta	800	.110 MGD	.163 MGD	.6040 MGD	476	.100 MG	2 Wells	1/1/1960
PWD #1 Chadwick	280	.02 MGD	.027 MGD	.194 MGD	127	.010 MG	1 Well	1/1/1964
PWD # 2 Highlandville	1400	.058 MGD	.078 MGD	.50 MGD	475	.065 MG	3 Wells	1/1/1972

Source: Department of Natural Resources, Division of Environmental Quality, 2002.

As discussed in the Physical Characteristics Section, many of the private wells in the County are tapped into the shallow aquifer that is prone to pollution from surface contaminants. It was also noted that a random sampling of water from 60 wells throughout all areas of the County found 50% of the wells to be contaminated and unfit for human consumption.

Maintenance of water quality is a critical concern for the current population as well as for future development. While availability of safe drinking water is a general concern throughout the entire County, the problem is particularly acute in the unincorporated community of Spokane (south of Nixa along Highway 65). Spokane derives its water from private wells; many wells have become contaminated due to improperly designed and/or failing on-site septic systems. The area's soils have a fragipan, which severely limits the functioning of septic tank systems. Resolution of the drinking water problems in the Spokane area will likely require a combination of actions to establish a public water system and public sewage disposal system.

A second concern noted by County residents is the number of private wells being sunk in the Chadwick area. There is concern that the area's water supply will be depleted due to the sinking of too many wells. Maintenance of adequate water supplies in this area may require controls on minimum lot size to regulate the number of wells permitted.

Sewage

As with the water systems in Christian County, there is no one public sanitary sewer system serving the entire County. Outside of the individual municipal sanitary sewer systems and a few public systems serving mobile home parks and subdivisions, most residents in the County rely on septic tank disposal systems. Until recently the only governance of on-site sewage disposal systems has come under the jurisdiction of the Missouri DNR, which regulates commercial systems and residential developments with more than 14 lots.

As noted in the preceding paragraphs, there has been growing concern in Christian County for the safe disposal of sewage and protection of the area's groundwater supply. In order to address these concerns, Christian County adopted regulations in April 1992 that govern residential, on-site sewage disposal systems. These regulations apply to all new individual systems as well as rehabilitation/replacement of existing failing systems. Funded by user fees, the regulations are administered by the Christian County Health Department. The critical key to the ongoing success of this program will be public education on the benefits of proper sewage disposal and cooperation between public regulatory agencies, advisory boards and the development community to achieve implementation.

Electric Services

Electric services in Christian County are provided by a number of rural electric cooperatives and municipally owned systems. The City of Nixa operates its own electric utility. In May of 1992 Nixa entered into agreement with Springfield City Utilities for the purchase of power that will replace power from other contract sources. This is an agreement that was re-approved in August of 2002. Other utility companies serving Christian County include the Webster Electric Cooperative, White River Valley Cooperative, Empire Electric, Ozark Electric Cooperative, KAMO Electric Cooperative and N.W. Electric Power Cooperative. The electric cooperatives serving the County are not restricted to individual geographic service areas and many companies provide service within the same area.

Natural Gas Services

In 1994 Missouri Gas Energy purchased KPL Gas Service, the only natural gas provider in Christian County. Natural gas is provided to the cities of Nixa, Ozark, Billings and Clever, as well

as, the unincorporated area of the County along Highway 160, between the Greene County line and Nixa. Within Christian County, Missouri Gas Energy serves a total of 10,878 customers, which include both residences and businesses. Supply is rated as good via pipelines from wells in southwestern Kansas and Oklahoma.

Solid Waste Disposal

There are no solid waste disposal sites in Christian County and the County itself provides no services or programs for solid waste disposal. Private trash haulers provide disposal services, with wastes taken to landfills in surrounding counties.

Throughout the rural areas of the County, disposal of solid wastes is becoming a serious concern due to increased dumping along rural County roads, illegal trash dumps on private property and trash dumping in sinkholes. Residents in rural areas of the County have also reported difficulties in securing the services of trash haulers due to travel distances, compounding the problems of on-site trash dumping.

The State of Missouri's recently enacted solid waste disposal law places stringent limitations on wastes that can now be taken to the area's landfills. These restrictions, along with significantly higher landfill tipping fees, are contributing to the illegal roadside dumping problem throughout the County.

State law (RSMo Section 260.305) also requires Missouri's counties to develop plans for solid waste disposal and reduction of the waste stream. In May 1992 the Missouri DNR approved the formation of Solid Waste Management District "O", which includes Christian, Greene, Webster, Polk and Dallas Counties. The district is charged with creating a regional disposal plan and maintaining the provisions.

A countywide recycling program for Christian County was established in 1997. The main location of the recycling center is at 1300 West Hall Street in Ozark. The gates are open Tuesday through Saturday with bins available daily. Mobile recycling bins are placed in the other municipalities throughout the county. A recycling schedule with drop-off dates and locations is published weekly in the local newspaper. Accepted materials include: paper, cardboard, tin cans, aluminum cans, plastic beverage bottles, glass jars and bottles, and window glass. In addition, a compost site is available at the main location for grass clippings.

TRANSPORTATION

Transportation systems provide access to goods and services and to the employment, living and recreation centers that are vital to the social and economic well being of our communities. Roads and highways, which are the primary elements of the transportation system in Christian County, are not only a key determinant of land development patterns, but are also one of the more costly and long-term development components of the public infrastructure system.

There is a reciprocal relationship between land use patterns and transportation. The location, type and quality of roads affect decisions on the development potential of land, such as the site selection of commercial facilities and suburban residential development. Also, public values, norms and desires for land development influence the need for and eventual location of transportation routes.

Although the design and development of transportation routes affects the future development potential and land development patterns of any community, these facilities are costly to build and may take many years to move from the planning stage to actual construction. Christian County's rapid population growth is placing strains on the existing major transportation network in certain areas of the County.

A long term program of structural and systems management improvements will be required to meet current as well as future transportation needs as the population continues to grow. Appropriate maintenance of the existing major street system is essential, along with planning and budgeting for road improvements. The County's transportation system should allow for efficient

access to major residential and employment centers while providing interconnections with the primary transportation routes in the region.

Information on the existing major road and highway system in Christian County is presented in this chapter of the Plan. This information has been derived from materials provided by the Missouri Highway and Transportation Department, Christian County and visual surveys.

Roads and Highways-Responsible Entities

The public roads and highways in Christian County are the responsibility of numerous different public entities and differing levels of government, including city, county, state and special road district entities. In addition to state maintained highways and roads, the Christian County Commission maintains county roads within two districts--Common 1 and Common 2. Ten special road districts also separately maintain numerous roads throughout the County. These special road districts include: Billings, Clever, Garrison, Nixa, Ozark, Selmore, South Sparta, Stoneshire, and Terrell. This multiplicity of entities responsible for road planning and maintenance poses difficulties for assuring countywide planning of an interrelated road system, application of uniform, minimum road standards and equitable levels of road maintenance throughout the County.

The County road districts and the special road districts are funded through a combination of road tax levies, sales tax revenues and county road and bridge gasoline tax revenues. Six of the road districts; Billings, Clever, Nixa, Ozark, Selmore, and South Sparta Special Road Districts have their own road tax levies as established by the voters in the respective districts. Sales tax and gasoline tax revenues finance Common 1 and 2, along with Garrison, Stoneshire and Terrell Creek Special Districts. Each of the special road districts has their own road commissioners, who are responsible for establishment of road standards and maintenance within their districts. Some special districts maintain their own equipment; others contract out for all road services.

Existing Street and Road System

There are several key traffic generators in and in close proximity to Christian County that are connected by the major road system (see Figure 10-1). The City of Springfield, located to the north of Christian County, is a primary traffic generator. U.S. Highways 65 and 160 are the principal north-south traffic routes connecting Springfield with Christian County and the lakes area to the south. The primary east-west traffic route through Christian County is Mo. Highway 14, which connects the cities of Billings, Clever, Nixa, Ozark and Sparta in the northern portion of the County. U.S. Highway 60 runs through the northwestern panhandle section of the County, linking Billings with small communities in southwestern Greene County and Springfield.

TABLE 10-1

MILEAGE OF ROADS BY SURFACE TYPE
 -----DATE-----

Surface Type	County Road Miles	State Road Miles
Gravel or Stone	295.8	0.0
Low Type Bituminous	420.6	387.2
High Type Bituminous	12.8	144.1
P.C. Concrete	1.1	38.1
Retread Surface	---	---
Total Surfaced	730.3	569.4
Graded and Drained	0.0	---
Unimproved	0.3	---
Total Miles Roads	730.6	569.4

Source: Missouri Highway and Transportation Department, Division of Planning, 2002

The greatest levels of urban development and new development pressures are occurring along these primary U.S. and State Highway routes, particularly in the northern and central sections of the County. In addition to the growing internal traffic generated between the cities in Christian County and the Springfield area, Highways 65 and 160 are experiencing increased through traffic levels. These routes connect the Ozarks lakes area region with the Kansas City and St. Louis metropolitan areas. The upgrading of U.S. Highway 65 to four-lane status to Branson in Taney County has resulted in increased traffic levels and increased land development pressures along this route in Christian County.

There are approximately 938 miles of County and State maintained roads in Christian County. As noted in Table 10-1, the County maintains 730.6 miles of roads and 40% of these roads are surfaced with gravel or stone. The majority of the county roads are paved with low type bituminous, which covers 57.6% of the county's roads.

In general, the hard surfaced roads in Christian County are in good to excellent condition. Road conditions decline on many of the County's gravel and stone-surfaced roads, however. Overall, roads with poorer surface conditions are located in the lowland valleys of the hilly terrain in the southern parts of the County. Several country roads are often impassable during heavy rains due to flooding or washout of surface gravel/stone.

Special road districts and the County road districts require a minimum 50' right-of-way. Pavement widths requirements vary from as little as 20 feet for rural residential roads to 24 feet for urban residential, commercial, and industrial roads. In general, the narrower roads are found in the more rural sections of the County.

MAJOR ROAD SYSTEM

As previously noted, roads maintained by Christian County and the special road districts are subject to the individual standards adopted by each maintenance entity. *In many instances, the special road districts do not have uniform standards for all roads within their particular jurisdiction. Road construction requirements (bedding and paving) are determined on an individual basis.* Christian County Common 1 and 2 do require all roads dedicated for County maintenance to have a hard paved surface.

Traffic Volumes

State Highway Department traffic counts indicate the greatest travel demands on the County's road system are on these primary roads, particularly in the northern half of the County (see Appendix D for traffic counts on all state roads in Christian County). The 2001 estimated average daily traffic (ADT) count along U.S. Highway 65 from the Christian County line to Highway CC north of Ozark was 30,383 (15,309 vehicles southbound and 15,074 northbound). The traffic levels decrease somewhat along Highway 65 to approximately 21,595 vehicles per day at Highway F.

Daily traffic counts along Missouri Highway 14 are the greatest between the cities of Nixa and Ozark. Highway 14 traffic volumes at Highway 160 in Nixa are 11,574 ADT, at Business 65 in Ozark, it is 16,554 ADT and between Highways W and JJ it's 7,744 ADT west of Ozark. Traffic volumes on this route at the extreme west and east ends of the County are considerably less with an actual daily traffic count of 1,718 vehicles at Billings and U.S. Highway 60 and 1,564 vehicles per day along Highway 14 between Highway Z and the Webster County line.

Highway 160 also shows the greatest levels of daily traffic flow between the Greene County line to the north and south of the City of Nixa where the pavement narrows to two lanes. The estimated average daily traffic count along Highway 160, between Highway CC and Highway 14 is 19,272. South of the city limits of Nixa, the actual traffic count declines to 10,776 vehicles per day.

The traffic counts for highway 160 are anticipated to decrease with the possible addition of an arterial highway connecting Nicholas Road with Greene County.

These daily traffic counts reflect the rapid population growth that is focused in and around the cities of Nixa and Ozark in the north central portion of the County. Traffic flow along Mo. Highway 14 is of particular concern as this road functions as a primary arterial yet is not designed to modern arterial standards. Existing land development patterns along significant segments of Highway 14, particularly in the Nixa-Ozark area, leave little opportunity to secure additional right-of-way for any future highway widening without extensive costs.

The lack of adequate right-of-way for future road improvements is the most critical concern for transportation planning in Christian County. While 40-feet of right-of-way was once the standard on most County roads allowing only minimal space for utility lines and road widening, 50-feet is now the required minimum width. As development continues in Christian County, the demands placed on the major road system will necessitate improvements to the system. Although right-of-way standards have improved, consideration of acquiring right-of-way in land subdivision and development process should be made as cost effectively as possible.

Also of concern is the lack of uniform pavement width and surface materials standards among the various special road districts in the County. The County and the special road districts should be encouraged to establish uniform minimum road standards. This would significantly help to streamline the land subdivision review and approval process for both the development community and local officials charged with road maintenance. It would also help to ensure that roads throughout the County are developed to standards necessary to accommodate current and anticipated traffic increases as development proceeds.

The adoption of uniform road standards would also considerably ease the potential inequities perceived by Christian County citizens if any of the special road districts dissolve and come under the maintenance responsibility of the County Commission.

Future transportation improvements planning should also give attention to the needs for bridge replacement and repair at various locations throughout the County. Of particular concern are low water bridges which pose a hazard to vehicles being swept off during heavy rainfall periods, such as the bridge on Road Z24 south of Wilson's Creek National Battlefield.

The Transportation Plan element of the Comprehensive Plan details the recommended transportation improvements, minimum road development standards and priorities for Christian County.

EXISTING CONDITIONS AND NEEDS SUMMARY

The preceding sections of this document have detailed current conditions and needs in Christian County, determined through the processes of several public information forums, primary and secondary data collection and analysis, and monthly discussion meetings with the Christian County Planning and Zoning Commission. An understanding of the man-made and natural environment has been essential to the development of goals and objectives for the future of Christian County and the formulation of action strategies, policies and priorities for achieving the goals and quality of life desired by the residents of Christian County.

The following summary notes the primary conditions, needs and issues affecting future development and growth in Christian County:

Demography and Population Growth

1. Christian County has grown over the past two decades at extremely rapid rates of growth, with in-migration of population being the primary component of population change. Continued in-migration is expected at similar growth rates over the coming decade.
 2. Youth and younger, working-aged persons dominate the County's population. The immediate implications of the population structure are the needs for expanded public education facilities, family housing and related community/public services, such as parks and recreation opportunities and day care.
 3. Over the next twenty years, the baby boom population will enter retirement years. The focus on community services will shift to meeting the needs of an aging population, such as health care and alternative housing types.
-
1. Christian County has a varied natural environment, ranging from relatively flat lowland areas to rugged hills and valleys. The County is characterized by karst topography. The geologic features of karst, such as sinkholes, lineaments, caves and losing streams, place limitations on development due to the potential for surface contaminants to enter the groundwater supply.

2. Maintenance of groundwater quality is a critical environmental concern as development proceeds in the County. This concern is reflected in the need for the appropriate disposal of sewage and solid waste materials.

1. Christian County is undergoing rapid urbanization, with the focus of growth occurring in the northern portion of the County and along the Highway 65 and Highway 160 corridors. These growth corridor areas are expected to continue to be the focus of future development over the next decade.

2. Although experiencing rapid urban development, agriculture continues to be the primary land use in the County. The greatest levels of urbanization are occurring in many of the prime farmland soils areas. As urban development encroaches on agricultural operations, particularly the animal husbandry industry, there is significant potential for problems arising from incompatible land use activities.

3. Outside of the incorporated cities, very low-density residential development is the norm throughout the County. Single family residential, mobile homes and mobile home parks are the dominant residential structure types in the County.

1. Maintaining an adequate level of public facilities and services for a rapidly growing population will be a primary concern over the next decade.

2. Although several school districts have new or expanded facility projects underway, there is a need for facility development in some districts to keep up with current and anticipated school enrollment levels.

3. County law enforcement needs have increased, including manpower, equipment and training, due to the growing population and rising criminal activity.

4. Many of the area's fire protection districts are in need of additional revenues for upgrading equipment and training. There is also a need for fire wells, particularly in the more rural parts of the County, and improved field communications.

5. Federal and State agencies maintain several recreation and cultural facilities in Christian County, including the Mark Twain National Forest, Busiek State Park and Wilson's Creek National Battlefield. There are, however, no park and recreation facilities operated by the County. As the population continues to grow and urban densities increase, there will be a need for parks and recreation facility development.

1. Christian County derives its water from the ground. Outside of municipal water systems and public water systems serving scattered subdivisions and mobile home parks, most residents use private wells. Many wells throughout the County have been contaminated by effluent from improperly designed/installed septic tank systems. Maintaining groundwater quality is a priority concern.
 2. The cities in Christian County and a few private developments have their own sewage disposal systems. Most development in rural areas utilize on-site sewage disposal. Implementation of the County's recently adopted on-site sewage disposal regulations is an essential priority.
-
1. Increasing population growth and urbanization is placing strains on the many of the primary roads in the County, such as Highway 14. There is the need to establish upgraded standards for securing sufficient right-of-way for road improvements as development proceeds.
 2. Road maintenance responsibility is shared by the State, the County and several special road districts. There is a need to establish uniform standards for surface materials and right-of-way for the County level road system.

GOALS AND OBJECTIVES

General Development Philosophy

One of the most pressing challenges for Christian County over the next decade is how to maintain a quality of life desired by its residents in the face of rapid urbanization. Historically a rural-based, agricultural community, Christian County continues to attract residents desiring to live in a more rural environment--an environment with limited governmental control over lifestyle choices and activities. However, rapid growth is changing the physical and cultural landscape of Christian County. More people means greater and often conflicting demands on the County's resources. Christian County's resources are finite, whether they are natural resources such as land, water and forests, or man-made resources, such as roads, schools and money. What actions will best serve the public good is a central question in the formulation of strategies to guide future growth and resource allocation in Christian County. The general development philosophy of the Christian County Comprehensive Plan, which sets the framework for strategies and programs to implement the County's goals, is to provide for future development that is compatible with and preserves the best qualities of rural life and to maintain the integrity of the County's physical resource base.

The allocation of resources and implementation of programs and projects should ultimately be based on the desires and expressed needs of the population. Desires and needs are translated into goals and objectives which set the framework for actions to be undertaken in the guidance of future development in the County. Goals are general statements of desired intent to be achieved. Objectives are shorter-range actions to be undertaken to achieve the community's desired goals.

The goals and objectives for Christian County are based on evaluation of existing conditions and desires of the population expressed through the public information meetings process.

The Physical Environment

1. Protect and enhance the quality of the groundwater supply.

- a. Support the implementation and enforcement of the County's recently adopted individual sewage disposal system regulations.
- b. Make the use of individual septic tank systems and individual well systems contingent on adequate site size and soil conditions. Lot size requirements should be incorporated in land development codes.
- c. Encourage all new well construction to meet state installation and casing standards.
- d. Encourage all private and public water wells not in use to be capped to acceptable engineering standards.
- e. Encourage and work with residents to establish special water districts in areas affected by groundwater contamination.
- f. Work with local governments and community organizations to develop a county-wide communication and public awareness program on techniques for waste reduction, recycling and proper disposal of household hazardous wastes.
- g. Encourage the clean-up of trash dumped in sinkholes. The County should work with the Health Department and other public agencies and organizations to educate the public on the adverse impacts of waste disposal in sinkholes on the groundwater supply.
- h. Work with local governments and appropriate state agencies to identify underground storage tanks in the County.
- i. Support programs regulating the use of insecticides and herbicides, which may contaminate the water supply.

2. Encourage the coordination of public and private agencies to address environmental issues and concerns.

- a. Coordinate efforts of local, state and federal agencies to gain access to information on potential environmental concerns.
- b. Work with the Missouri Department of Natural Resources (DNR) to identify and eliminate illegal solid waste disposal sites within the County.

- c. Require all development to conform to the Missouri Clean Water Law and the National Pollutant Discharge Elimination System (NPDES) permit requirements for storm water discharge.

3. Develop plans and programs for pollution prevention, solid waste management and reduction of the waste stream.

- a. Work with local governments to establish a county-wide recycling program(s) and sites for yard waste disposal and composting.
- b. In order to reduce illegal roadside trash dumping, the County should consider the establishment of solid waste drop-off sites at locations throughout the rural areas of the County.
- c. A program of voluntary solid waste drop-off sites should be enforced through adoption of regulations prohibiting illegal dumping on roadsides, private land or state and federal properties.
- d. Identify the location of abandoned solid waste disposal sites. Development on abandoned sites should be discouraged.
- e. Prohibit the disposal of toxic and hazardous wastes in Christian County.

4. Protect and preserve the quality of the natural landscape.

- a. Encourage the preservation of stream drainage ways, heavy vegetation, prominent rock outcrops and other special topographic features. Work with developers in the initial stages of the development review process to incorporate design elements that will preserve unique natural features and environmentally sensitive areas.
- b. Development in flood plains, floodways and drainage ways should be discouraged. If development is permitted in flood prone areas, the development should be required to be elevated above the 100 year flood level.
- c. Surface grading, filling, construction or other alteration of sinkhole drainage systems should not be permitted.
- d. If development is proposed in areas of known or suspected sinkhole occurrence, the developer should be required to submit engineering reports indicating that the sinkhole system will not be affected and that any permanent structures will not be affected by potential sinkhole collapse.
- e. Require that all development have soil erosion controls.

5. Encourage appropriate methods of storm water management.

- a. Require developers to submit engineering evidence that sediment erosion and storm water runoff will be properly accommodated.
- b. Incorporate storm water regulations as an element of land development controls for the County. Such regulations should require a zero net increase in storm water discharge rate resulting from development.
- c. Development shall be designed so as to utilize natural drainage systems for storm water runoff and management where possible.

Land Use

1. Promote a land development pattern that is consistent and compatible with existing development and the environment.

- a. Ensure that incompatible, non-residential uses are not located adjacent to residential neighborhoods.
- b. Encourage a land development pattern that provides for a gradual rather than an abrupt change in density and intensity of use. For example, moderate density residential development, is a preferred land use buffer between low density residential and commercial uses.
- c. Development in environmentally sensitive areas should not be permitted.
- d. Adopt land development regulations which govern the use of land, subdivision design, storm water management and sediment/erosion control.
- e. To protect and maintain rural landscapes, locate commercial development in compact, clustered areas along major arterial and collector roads.
- f. Protect areas designated for industrial and commercial activity from encroachment by incompatible uses through the use of land development controls.
- g. Encourage the use of vegetative and/or open space buffer strips between areas of differing densities or permitted land uses.
- h. Land uses which result in off-site nuisances such as noise, vibration, dust, smoke and glare should not be permitted unless such nuisances can be adequately mitigated.

2. **Protect and preserve agricultural uses from encroachment from incompatible urban development.**
 - a. Require vegetative buffers or other appropriate screening and site development distance requirements between residential uses and working agricultural lands to mitigate adverse complaints against legitimate agricultural practices.
 - b. Utilize land development controls to maintain prime farmland soils in agricultural use where feasible and desirable.

3. **Require appropriate land development design standards based on the intensity of development and proximity to urban areas.**
 - a. Development occurring adjacent or in close proximity to incorporated communities shall be required to meet development standards for subdivision design compatible with the adjacent community. This policy is designed to protect incorporated communities from the adverse financial burden of upgrading infrastructure in annexation areas to higher urban standards.
 - b. All new development must meet appropriate State and County regulations governing sewage disposal.
 - c. Mobile home parks should be required to meet the same minimum standards established for conventional subdivision development, including lot size, streets, storm water management, sediment/erosion control and any buffering requirements.
 - d. Provide for development review processes which include evaluation of environmental constraints, availability of community services and adequacy of transportation infrastructure and water/sewer utilities.
 - e. Through flexible development regulations, encourage developers to incorporate open space and recreation areas within their developments that will be under continual maintenance by the development or a property owners association.

Public Facilities and Services

1. **Support governmental programs and regulations designed to protect the public's health, safety and welfare.**
 - a. Promote intergovernmental cooperation among State, County and municipal law enforcement agencies.
 - b. Provide for sufficient funding resources to maintain an adequate level of law enforcement in the County.

- c. Work with local governments to implement the County's recently approved 911 emergency communication system.
 - d. Encourage and work with local governments to develop plans and programs for County-wide storm warning systems.
 - e. Work with area fire protection districts to meet needs identified for adequate levels of fire protection throughout all areas of the County.
 - f. The County and the fire protection districts should evaluate the feasibility of a County-wide fire protection district as a method of reducing costs and improving service levels through the coordination and sharing of resources and funding support.
2. **Promote the development and preservation of historic and cultural resources in the County.**
- a. Develop an inventory of County historic sites.
 - b. Encourage rehabilitation and preservation of historic sites through coordination of efforts with the Missouri DNR and participation in the Missouri Historic Preservation Revolving Fund.
 - c. Incorporate historic site review as a review element of the subdivision and site development regulations.
 - d. Encourage coordination of efforts between historic societies in the County.
 - e. Promote the designation of sites identified as having historical/archeological significance on the National Register of Historic Places.
 - f. Encourage compatible, lower density land use development patterns around Wilson's Creek National Battlefield that minimize intrusions to the historic ambience and visitor enjoyment of this cultural resource.
 - g. Support adequate funding levels to ensure continued quality delivery of educational and leisure resources through the Christian County Library.
 - h. Develop plans for bringing public buildings and services into compliance with the Americans with Disabilities Act. Encourage an adequate level of tax support for public facilities, such as the Christian County Library, in order to meet ADA requirements as well as increased public service needs.
 - i. Take into consideration the needs of the elderly, the disabled and special needs groups of the population in the design of public facilities and programs.

3. **Encourage the conservation of the environment and the development of parks and recreation opportunities within Christian County.**
 - a. Preserve to the greatest extent possible, scenic vistas, forested slopes, wildlife habitats, environmentally sensitive areas and unique natural features through the site development review process.
 - b. Evaluate the feasibility of providing incentives, through flexible land development controls, to encourage developers to establish park and recreational areas within their developments.
 - c. Identify areas for possible parks and recreation in the County and develop a long range parks plan for future implementation as resources permit.
 - d. Work with area school districts to evaluate the feasibility of utilization of school recreational areas by County residents during non-school hours.

4. **Encourage cooperation and coordination between area school districts, local and county government and agencies/boards charged with land development responsibilities.**
 - a. Promote the sharing of information between planning staffs and school district boards to ensure adequate understanding of respective needs and the diverse criteria utilized in planning to evaluate development potential.
 - b. Support cooperation between school districts, the County and its cities to help maximize the utilization of community facilities.
 - c. Work with local school districts to encourage support for adequate funding levels to maintain a high quality of education for Christian County's residents.
 - d. Encourage the provision of incentives for developers to donate land for future school facilities.

Transportation

1. **Provide for a major transportation system that will efficiently and safely move traffic throughout the County and into adjacent regions.**
 - a. Establish a street and road functional classification system for existing and programmed roads.
 - b. Enforce adherence to appropriate design guidelines established for the street and road functional classification system as development occurs.

- c. Encourage the coordination of County and local transportation planning with State transportation plans in order to ensure timely improvements to the County's major road system.
2. **Require new development to be compatible with the street and road functional classification system and existing and programmed improvements.**
 - a. Development should not be permitted in areas where the existing and planned road capacity is inadequate.
 - b. Encourage the location of high traffic generators along arterials and major collectors.
 - c. Require development to assume an appropriate cost burden for improvements to existing roads and construction of new roads as specified in the road classification system and the transportation improvement policies of the Transportation Plan.
3. **Continue to maintain and improve the County road system.**
 - a. Plan for the upgrading of substandard County roads to acceptable standards for future traffic volumes as growth occurs.
 - b. The County and special road districts should coordinate efforts and work together to establish uniform standards for road construction, right-of-way for functional classification of roads and maintenance.
 - c. As development proceeds, require developers to dedicate appropriate right-of-way for future road improvements.
 - d. Adopt upgraded standards for right-of-way to ensure adequate space for construction and improvement of roads to modern traffic requirements.
 - e. Encourage private sector participation in the funding of transportation improvements through on-site and potential off-site transportation improvement requirements incorporated in the land development regulations.
 - f. Work with the special road districts to establish capital improvements plans for hard surface paving of roads in the County.
4. **Promote and coordinate transportation safety standards, programs and improvements.**
 - a. Incorporate traffic safety considerations as review elements in the land development regulations and development approval process.

- b. Utilize accident information to identify traffic hazard locations and work with appropriate governmental agencies to mitigate hazards through speed controls, signage and possible realignment of roadbeds where necessary.
 - c. Require adequate, minimum sight distance clearances at intersections of roads and at property access points along roads in the County. This policy should apply to the location of permanent structures, infrastructure, vegetation and storage of agricultural products and equipment.
 - d. Encourage developers to provide sidewalks in residential areas developed at urban densities.
 - e. Require sidewalks along major collectors and arterials in urbanized areas of the County.
5. **Support and encourage increased efforts and resource allocation from the Missouri Highway and Transportation Department to meet the current and projected transportation system needs of the County.**
- a. Support the timely implementation of planned improvements to the County's U.S. Highway system, including widening of Highway 65 to four-lanes into the Branson area and the realignment of Highway 160.
 - b. Establish a timetable and priority list for repair and replacement of bridges in the County. Work with the Missouri Highway and Transportation Department and other appropriate governmental agencies to identify potential funding sources for bridge improvements.

Utilities Infrastructure

1. **Ensure adequate water and sewage disposal for all development in Christian County.**
- a. Support and enforce the individual sewage disposal system regulations.
 - b. Provide assistance to the County Health Department in establishing a public awareness program on the goals and requirements of the sewage disposal regulations.
 - c. No development should be permitted unless it can be demonstrated that the development is in compliance with appropriate County and State regulations governing safe sewage disposal.
 - d. Encourage the establishment of special water districts in rural areas of the County impacted by problems of groundwater contamination.

- e. Regulate the intensity of development to ensure that land absorption capacities for disposal of sewage and maintenance of water table levels for well water production are not exceeded. Establish minimum lot sizes, based on water and sewage capacities, in the land development regulations for the County.
- f. Support efforts to rehabilitate, replace and/or upgrade failing individual and public sewage systems and water systems.
- g. Research the possibility of establishing a County-wide public sewer district.
- h. Support efforts to obtain State and Federal funding to construct and upgrade existing sewage facilities.

Growth Management

1. **Encourage an orderly rate of growth that preserves the desirable qualities of life in Christian County and that is within the financial capabilities of the County to provide necessary public services and infrastructure.**
 - a. Encourage development to locate near existing development, community facilities and services in order to promote maximum utilization of resources.
 - b. Establish appropriate development regulations to ensure compatible land uses in appropriate areas, to ensure an acceptable level of infrastructure improvements and to maintain the quality of the natural environment.
 - c. Development that exceeds the existing and programmed capacity of community services, facilities and infrastructure should not be permitted.
2. **Provide for quality future development in a manner that takes into consideration cost factors, community value and desires and changes in the resource base.**
 - a. Incorporate public participation and conflict resolution processes in the early stages of the land development control regulations in order to mitigate potential problems and to help keep preliminary development costs down.
 - b. All development regulations should be sensitive to costs; regulations should specify acceptable standards to achieve quality development and the development approval process should be carried out within a timely period to assist developers in holding down costs.
 - c. Provide for flexibility in the land development regulations which allow developers the potential to mitigate problems or community concerns through special design techniques.

- d. Provide for public information and education on the goals and objectives of the Comprehensive Plan and the relationship between the Comprehensive Plan and various land development regulations and voluntary actions to be undertaken to implement the Plan.