

SEDGWICK COUNTY
SOLID WASTE MANAGEMENT PLAN FIVE-YEAR UPDATE

Submitted to:

The Kansas Department of Health and Environment

By:

**The Sedgwick County Board of County Commissioners and
The Sedgwick County Solid Waste Management Committee**

June 2018



Sedgwick County...
working for you

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Contents

INTRODUCTION	1
DEMOGRAPHICS	1
COUNTY DESCRIPTION	2
SOLID WASTE MANAGEMENT COMMITTEE.....	2
MUNICIPAL SOLID WASTE	3
Waste Analysis	3
MSW Collection	4
Solid Waste Trends.....	5
SW Disposal	6
SOLID WASTE REDUCTION	7
Amount recycled in Sedgwick County.....	7
Drop-off recycling.....	8
Curbside recycling	8
Composting in Sedgwick County	8
Management of grass clippings.....	9
MANAGEMENT PROGRAMS FOR SPECIFIC WASTES	9
Household Hazardous Waste	9
Conditionally Exempt Small Quantity Generators	9
Construction & Demolition (C&D) Materials.....	10
Bulky Waste.....	11
Storm Debris.....	11
Christmas Trees.....	11
Special Cleanup Programs.....	11
Electronic Waste	12

Sharps/Medical Waste	12
White Goods.....	12
Waste Tires.....	12
Lead Acid Batteries.....	12
Dead Animals.....	12
KDHE SOLID WASTE PERMITS IN THE LAST 5 Years.....	13
KDHE GRANT APPLICATIONS	13
PUBLIC EDUCATION.....	13
SOLID WASTE FEE	13
SOLID WASTE PROJECTS IN THE LAST 5 YEARS	14
HEARINGS	15
TIMELINE	15

INTRODUCTION

K.S.A. 65-3405 requires the development of county solid waste management plans. This report is a required five-year update to the plan and evaluates the current plan, highlights events and changes to solid waste over the past 5 years and provides direction for solid waste planning for the next 10 years.

DEMOGRAPHICS

Sedgwick County consists of 20 incorporated cities and 26 unincorporated townships. Over 75% of the County's population lives in Wichita. U.S. Census Bureau data shows that Sedgwick County's estimated population in 2016 (the most recent data available) was 511,995. Population is expected to grow 0.4% per year through year 2030, expanding to approximately 531,888 citizens. Table 1 shows census data for Sedgwick County and the cities within Sedgwick County.

City	2015	2016	% change
Andale	992	993	0.1%
Bel Aire	7,435	7,661	3.0%
Bentley	523	517	-1.2%
Cheney	2,159	2,165	0.3%
Clearwater	2,537	2,519	-0.7%
Colwich	1,378	1,398	1.5%
Derby	23,509	23,633	0.5%
Eastborough	768	761	-0.9%
Garden Plain	897	894	-0.3%
Goddard	4,719	4,710	-0.2%
Haysville	11,212	11,245	0.3%
Kechi	1,996	1,995	-0.1%
Maize	4,362	4,438	1.7%
Mt. Hope	813	807	-0.7%
Mulvane	6,314	6,316	0.0%
Park City	7,618	7,632	0.2%
Sedgwick	1,707	1,695	-0.7%
Valley Center	7,222	7,343	1.7%
Viola	131	130	0.8%
Wichita	389,060	389,902	0.2%
Sedgwick County Total	510,360	511,995	0.3%

COUNTY DESCRIPTION

The physical characteristics of Sedgwick County have not changed since the original plan. Appendix A contains the topography and geology of Sedgwick County. Regional growth patterns and local transportation networks information are included in Appendix B, "Community Investments Plan...a framework for the future, 2015-2035". This comprehensive plan was approved by the Sedgwick County Board of Commissioners on January 20, 2016.

SOLID WASTE MANAGEMENT COMMITTEE

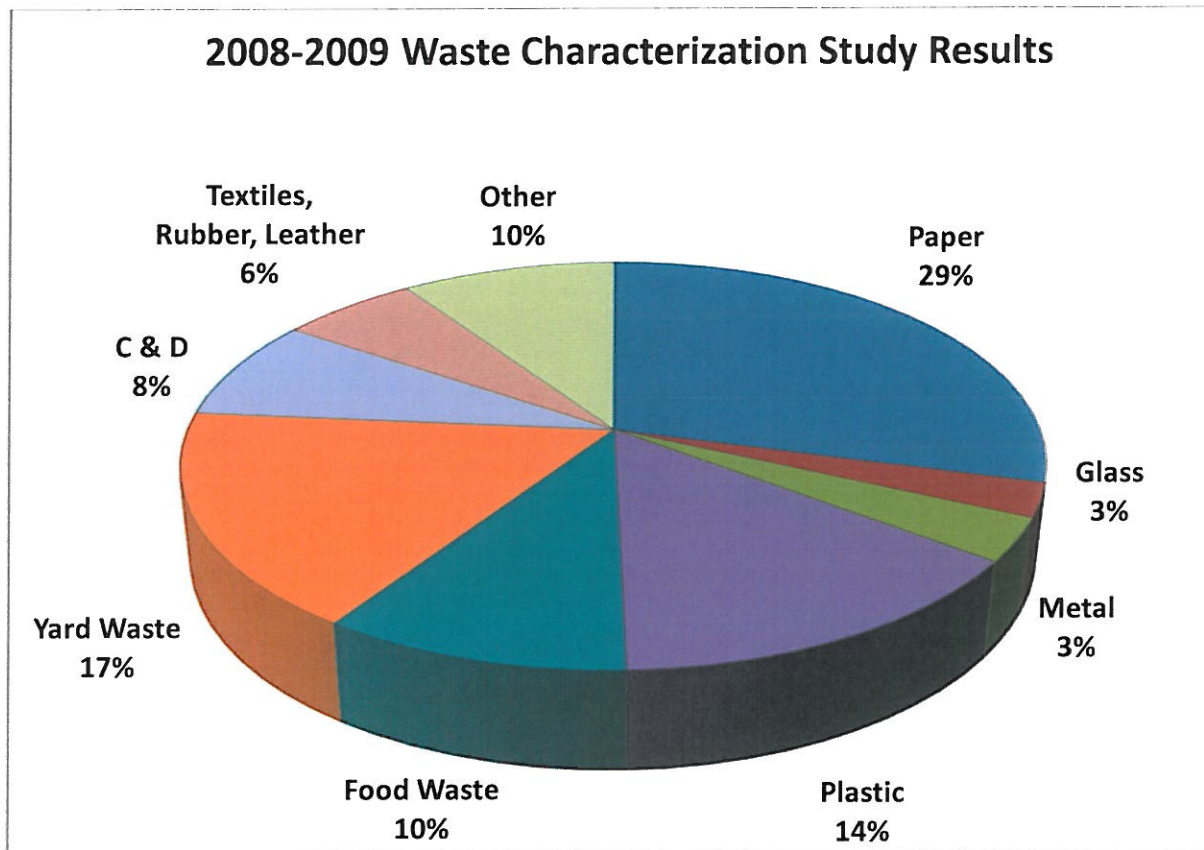
Sedgwick County's Solid Waste Management Committee consists of 16 members, including 10 members that are required by state statute, one appointment by each of the five County Commissioners, and one member to be the non-voting chair of the committee. Table 2 identifies the members of the Sedgwick County Solid Waste Management Committee and their associations. The committee meets as business items dictate.

Table 2 - Sedgwick County Solid Waste Management Committee	
Representing	Member Name
Cities of 1st Class	Joe Pajor
Cities of 2nd Class	Zach McHatton
Cities of 3rd Class	Randy Parker
Unincorporated Areas	Clem Dickerson
General Public	
Citizen's Organizations	Susanne Welshans
Private Industry	
Private Solid Waste Industry	Ryan Gatewood
Private Recycling/Scrap	Roger Lyon
Sedgwick County Recycling	Cindy Le
Commission District #1	Nancy Larson
Commission District #2	Tony Martinez
Commission District #3	
Commission District #4	Kelly Parks
Commission District #5	Jennifer Jantz-McCauley
Chairperson (non-voting)	Nicki Soice

MUNICIPAL SOLID WASTE

Waste Analysis

The Sedgwick County Solid Waste Management Committee deemed a new waste analysis was not necessary at their December 4, 2017 meeting. A discussion stating that since few changes have occurred in the disposal methods and recycling regulations at the local level, a new study is unnecessary. The MSW received at the local transfer stations consists of approximately 50% residential and 50% commercial/industrial waste. A waste analysis performed in 2008-2009 found the following waste composition:



MSW Collection

The solid waste management system in Sedgwick County is private sector driven. Eighteen businesses were licensed to haul non-hazardous waste in 2017. Table 3 lists these businesses.

Table 3 – Businesses licensed to haul non-hazardous waste		
Name	Address	
Air Capital Waste, LLC	3515 N Topeka	Wichita, KS 67219
Allen and Sons Waste Services	600 W MacArthur Rd	Wichita, KS 67217
Ballinger Trash Service	405 N Baehr	Wichita, KS 67212
Best Value Services, LLC	200 W Douglas #600	Wichita, KS 67278
1-800-JUNKPRO	608 S Ramsey Dr	Valley Center, KS 67147
Chadwick Trash Service, LLC	2858 N Vassar St	Wichita, KS 67208
Eagle Trash Service	P.O. Box 129	Sedgwick, KS 67135
Harp Roll-Off Service	19515 W 53 rd St N	Colwich, KS 67030
Junk Boys	P.O. Box 47912	Wichita, KS 67201
Los Llanos Trash Service	1106 N Waco	Wichita, KS 67203
M&M Trash Service	2756 S West St	Wichita, KS 67217
M.T. McCray Sanitation	P.O. Box 8460	Wichita, KS 67208
Moran Trash Service	2847 N Arkansas	Wichita, KS 67204
Nisly Brothers, Inc	5212 S Herren Rd	Hutchinson, KS 67501
Waste Connections Inc. of Kansas	2745 N Ohio	Wichita, KS 67219
Waste Link, Inc	3417 N Emporia	Wichita, KS 67219
Waste Management of Wichita	4330 W 31 st St S	Wichita, KS 67205
WichitaJunk.Com	1408 S Fawnwood	Wichita, KS 67201

Solid Waste Trends

County leaders support and encourage free market efforts. Sedgwick County expects cities in the County to adopt a free market approach to solid waste disposal in lieu of having a contract or franchise for solid waste services. This encourages the entrepreneurial spirit and empowers citizens to make their own decisions in regards to solid waste disposal.

Table 4 shows the solid waste collection details for all cities in Sedgwick County. Approximately 5.6% of the Sedgwick County population live in a city without a solid waste collection contract of some sort.

Table 4 – City Solid Waste Collection/Curbside Recycling Arrangements, June 2017		
City	Solid Waste Collection Details	Curbside Recycling (CSR)
Andale	Contract with Waste Connections	MSVP RecycleBank
Bel Aire	Preferred vendor is Waste Connections, volume based rates	MSVP RecycleBank
Bentley	Contract with Waste Connections	MSVP RecycleBank
Cheney	Contract with Waste Connections	MSVP RecycleBank
Clearwater	Contract with Waste Connections	MSVP RecycleBank
Colwich	Free market	Free market
Derby	Contract with Waste Connections, volume based rates	MSVP RecycleBank
Eastborough	Contract with Waste Connections, volume based rates	RecycleBank
Garden Plain	Free market	Free market
Goddard	Free market	Free market
Haysville	Free market	Free market
Kechi	Preferred vendor is Waste Connections	MSVP RecycleBank
Maize	Free market	Free market
Mount Hope	Contract with Waste Connections	MSVP RecycleBank
Mulvane	Free market	Free market
Park City	Preferred vendor is Waste Connections	MSVP RecycleBank
Sedgwick	Contract with Waste Connections, volume based rates	MSVP RecycleBank
Valley Center	Contract with Waste Management, volume based rates	MSVP single stream CSR
Viola	Contract with Waste Connections	MSVP RecycleBank
Wichita	Contract with all haulers, volume base rates	Hauler must offer single stream CSR
MSVP – mandatory subscription, voluntary participation		

SW Disposal

On March 5, 2018, the Solid Waste Management Committee reaffirmed their commitment to using transfer stations as the disposal option for solid waste. They also reaffirmed their commitment to siting a local, County-owned landfill and exploring the integration of new waste technologies

Waste Connections Transfer Station, located at 4300 W. 37th Street North, handles on average 863 tons per day of MSW plus an additional 1,000 tons of single-stream recycling per month based on their operating days. This transfer station is open to the public and was designed to a capacity of handling 3,000 tons per day. Waste Disposal, LLC Transfer Station, located at 55th Street South and Hoover Road, is currently handling on average 273 tons per day of MSW based on their operating days. This transfer station is open to the public and was designed to a capacity of handling 600 tons per day. The excess capacity available at both transfer stations gives Sedgwick County ample room for population growth and new industry over the next 10 years. The transfer stations are randomly inspected on a weekly basis by Sedgwick County staff to check operational practices.

Waste Connections Transfer Station reported that 312,264 tons of solid waste was received at their facility during 2017. Waste Disposal, LLC Transfer Station reported that 84,638 tons of solid waste was received at their facility during 2017. Totally, 396,902 tons of solid waste was received at these two transfer stations during 2017, which is a 1.3% decrease from the previous year.

The MSW from both transfer stations was transferred to Plumb Thicket Landfill in Harper County for final disposal. The Plumb Thicket Landfill has a site life of 54 years at current volumes. Figure 1 shows Sedgwick County MSW disposal trends for the past five years. A 10-year trend shows a decline:

2007 – 464,110 tons
2012 – 405,059 tons
2017 – 396,902 tons

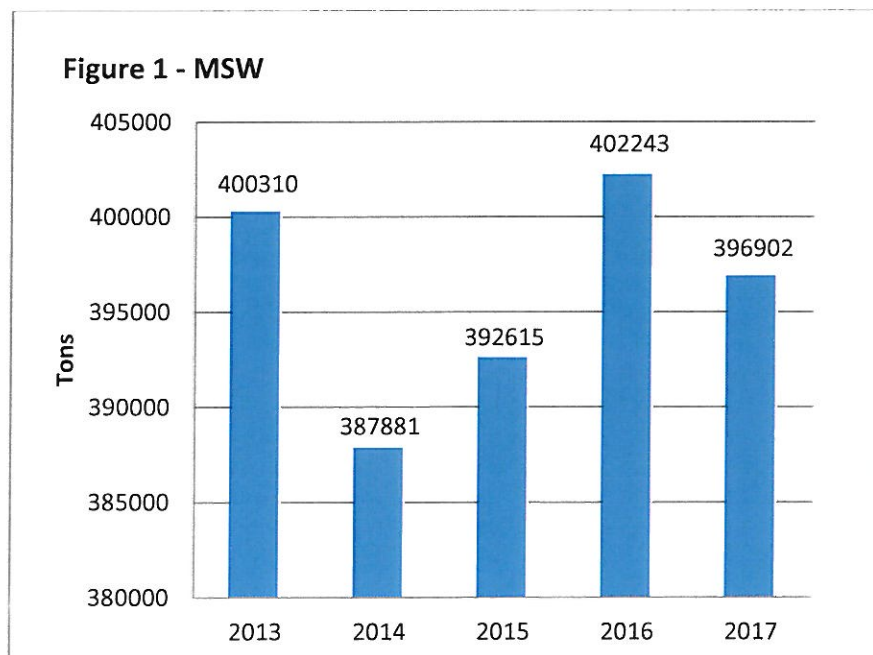
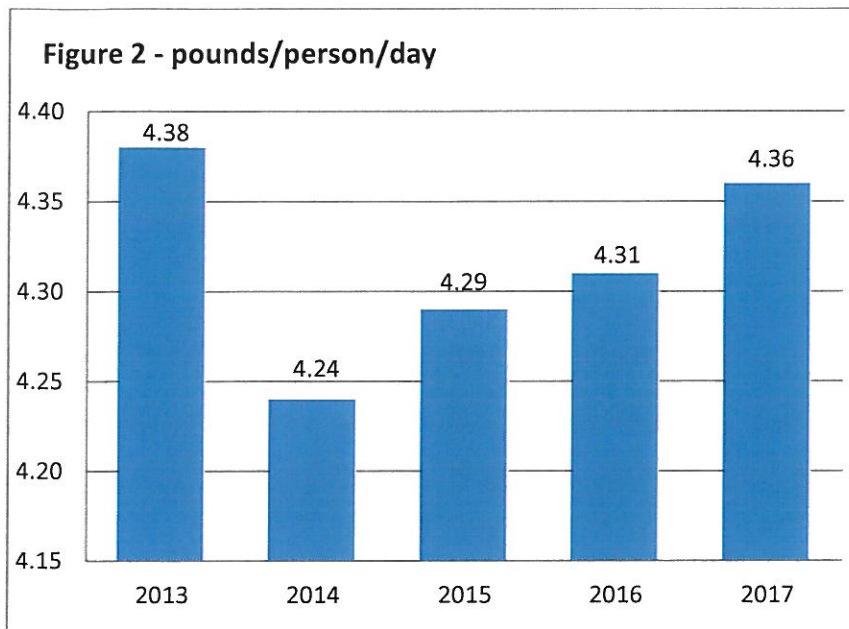


Figure 2 shows the amount of MSW generated per person per day in Sedgwick County for the past 5 years.



SOLID WASTE REDUCTION

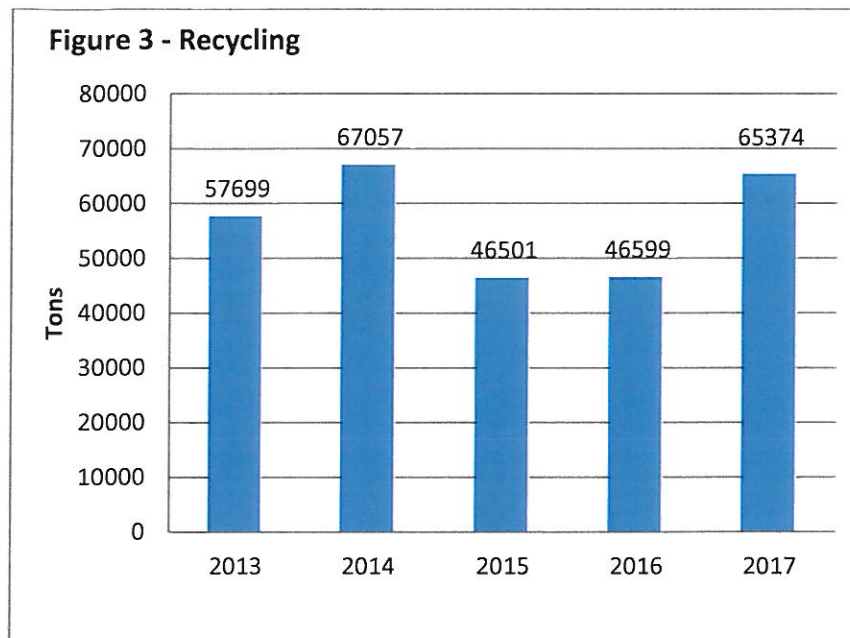
Sedgwick County encourages citizens to recycle and reduce waste.

Amount recycled in Sedgwick County

Tonnage reports for the materials shipped for recycling in 2017 were submitted by four material recovery facilities in the county. Waste Connections Recycling Facility shipped 27,715 tons; International Paper shipped 24,780 tons; Pratt Industries shipped 12,222 tons; and Pro Kansas-Miller Recycling Center shipped 657 tons.

The total reported by the facilities is 65,374 tons, which is a 40.3% increase from the previous year. Sedgwick County's combined commercial and residential recycling trends for the past 5 years are shown in Figure 3. A 10-year trend shows an increase:

2007 – 41,485 tons
2012 – 50,051 tons
2017 – 65,374 tons



Drop-off recycling

Waste Connections continues to provide drop-off recycling bins in 4 small cities around Sedgwick County. These single stream bins collected newspapers, tin and aluminum cans, magazines and catalogs, office papers, corrugated cardboard, chipboard, plastic bottles and containers, and food and beverage glass containers. In addition, International Paper has drop-off boxes for fiber products in their parking lot. These drop-off boxes are for use by the general public. Pro Kansas-Miller Recycling Center accepts some types of plastic containers, plastic bags, mixed paper, metals, books, and glass.

Curbside recycling

In Sedgwick County, single-stream curbside recycling collection is offered by all haulers. The collection is either provided by the individual haulers or contracted through a 2nd party hauler. Obtaining data on the number of residential customers using curbside recycling service is difficult due to the number of haulers in our area.

Composting in Sedgwick County

Brooks Construction and Demolition Landfill is open to the public and operates a compost site at their location at 4100 North West Street in Wichita, Kansas. They reported receiving 720 tons for composting. Evergreen Recycle at 302 West 53rd Street North is open to the public. They operate a compost site and a pallet refurbishing business. Evergreen reported receiving 3,705 tons for composting and/or pallet construction. The cities of Clearwater, Colwich, Derby, Haysville, Mount Hope, Sedgwick, and Valley Center maintain small brush piles and/or compost sites for their residents' use.

Management of grass clippings

Residents are encouraged to mulch mow or compost their grass clippings. Grass clippings are accepted at numerous compost sites located throughout the county. These sites are listed under the compost section of this report.

MANAGEMENT PROGRAMS FOR SPECIFIC WASTES

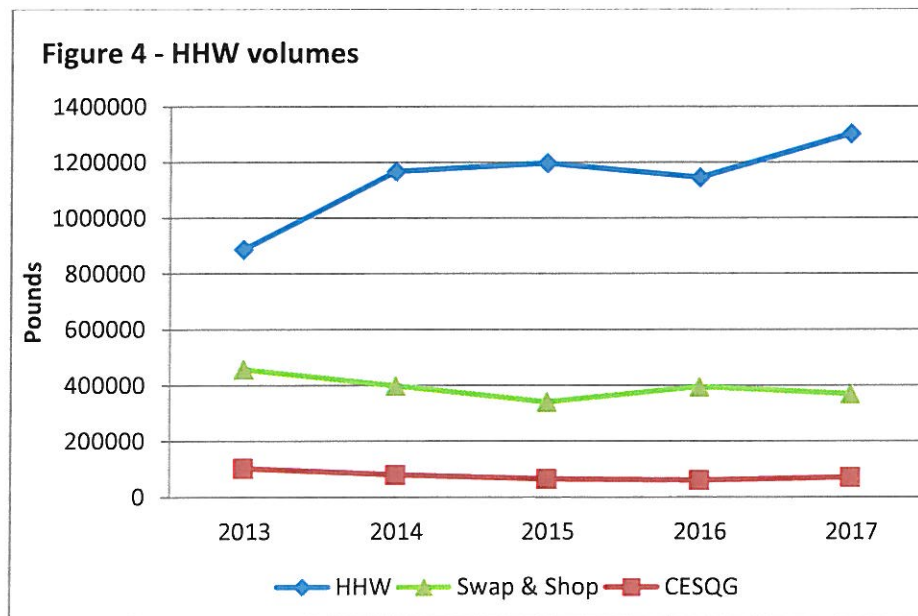
Household Hazardous Waste

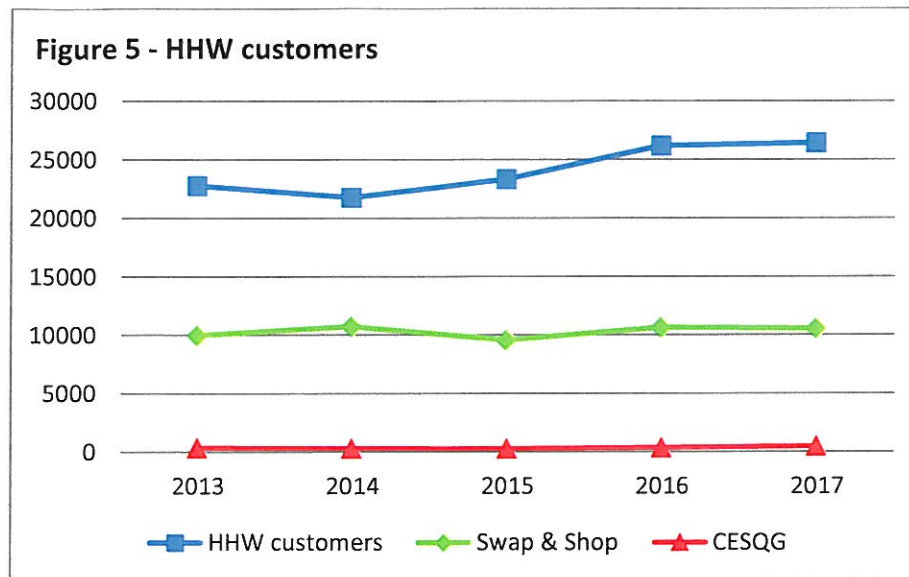
The Sedgwick County Household Hazardous Waste Facility is located at 801 Stillwell in Wichita, Kansas. In 2017, 26,417 participants brought 1,301,076 pounds of materials (excluding solid waste) to the HHW Facility. This is a 14% increase in the amount and a 1% increase in the number of customers when compared to the previous year. Three sites in Sedgwick County collected old or unused pharmaceuticals from citizens by participating in the DEA National Prescription Drug Take-Back Day. Two Wichita Walgreens Stores have installed drug disposal kiosks for the same purpose.

Conditionally Exempt Small Quantity Generators

In 2017, 471 conditionally exempt small quantity generators brought in 70,870 pounds of waste to the Sedgwick County Household Hazardous Waste Facility. This is a 17% increase from the previous year.

Of the total brought to the HHW facility, 368,664 pounds were reclaimed by 10,552 Swap and Shop customers. Sedgwick County provided five remote collection events in 2017. HHW volume and customer trends are shown in Figures 4 and 5.





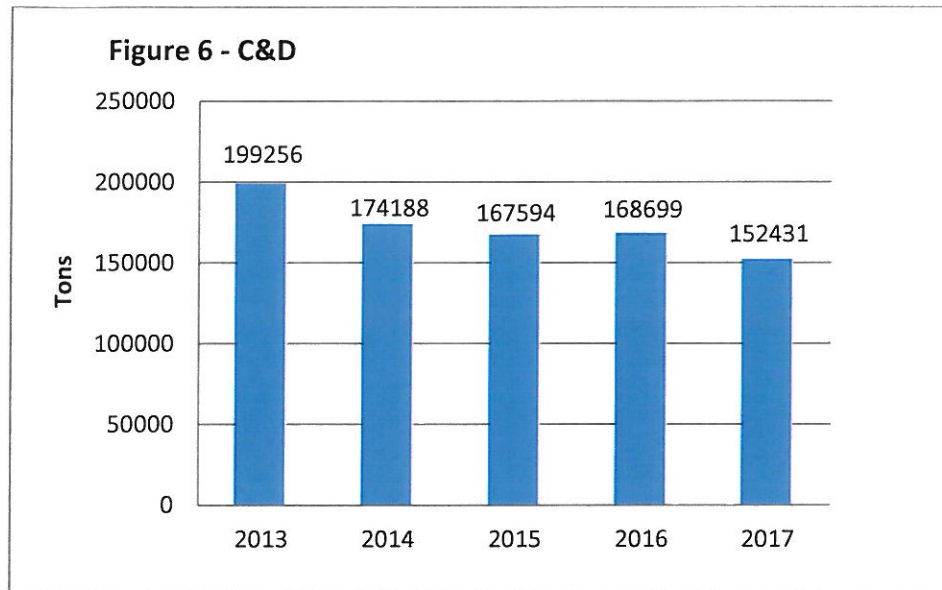
Construction & Demolition (C&D) Materials

Commercially generated construction & demolition materials are banned from the transfer stations in Sedgwick County. There are two Construction & Demolition Landfills in Sedgwick County that accept this waste. Both facilities are open to the public.

During 2017, Brooks C & D Landfill buried 75,904 tons of waste and CDR - North buried 76,527 tons of waste. The total for all C & D waste buried in 2017 is 152,431 tons. This is a 9.6% decrease from the amount reported the previous year.

The City of Wichita Brooks C&D Landfill will finish Phase 2 this year and begin on Phase 3 that may potentially add over 20 years of available space. The estimated life remaining at CDR – North is 15 to 18 years. The C&D landfills are randomly inspected by Sedgwick County staff on a weekly basis to check operational practices.

Figure 6 shows the amount of construction and demolition material disposed of in Sedgwick County in 2017.



Bulky Waste

Sedgwick County started the bulky waste coupon program in 2012. From August 1, 2017 to October 31, 2017, Sedgwick County promoted a bulky waste coupon program. County residents could request a coupon that would pay the disposal fees charged at local transfer stations for loads up to 1,000 pounds. Of the 8,140 coupons that were issued, 3,000 coupons were redeemed. Since 2012, Sedgwick County has issued 38,787 bulky waste coupons that were reclaimed by 14,334 citizens.

Storm Debris

Sedgwick County updated and approved their Debris Management Plan on November 8, 2017. This can be seen as Appendix C of this Solid Waste Plan Update. Sedgwick County purchased a tub grinder and air curtain burner in 2015. These portable units can be used to help clean up storm debris throughout the county.

Christmas Trees

From December 22, 2017 through January 23, 2018, Sedgwick County provided 22 sites throughout the County for residents to drop off Christmas trees. Residents were also invited to take free mulch home with them. The number of trees disposed of through this program for this period was 4,421. This is a decrease of 9.6% from the previous year. In addition, some small cities in Sedgwick County also operate their own Christmas tree disposal program.

Special Cleanup Programs

Since 2002, Sedgwick County has paid for the disposal of 872 tons of illegally dumped waste collected by townships. 'No Dumping' signage is made available to townships for placement on roadways. Sedgwick County also has 2 trail cameras available for usage in areas of known illegal dumping.

Electronic Waste

A list of Sedgwick County businesses that accept electronics for recycling is accessible on the County's website at <http://Sedgwickcounty.org/environment/recyclingguide.asp>. These locations are updated as needed on the County's online recycling guide. Sedgwick County conducted an electronics collection event April 5-7 and April 12-14, 2018 at the Sedgwick County Public Works West Yard. This event was free to all residents and businesses of Sedgwick County, Kansas. The event collected about 522,000 pounds of e-waste from 3,874 vehicles.

Sharps/Medical Waste

Stericycle services the medical waste generators in the area.

White Goods

White goods are accepted for recycling at local metal recycling businesses, Waste Connections Transfer Station, Waste Disposal, LLC Transfer Station, and The City of Wichita Brooks C & D Landfill.

Appliances with CFCs are accepted at local metal recycling businesses, Waste Connections Transfer Station and The City of Wichita Brooks C & D Landfill. These businesses assume responsibility for the removal of the refrigerant before recycling. A list of metal recycling businesses can be found on the County's website recycling guide.

Waste Tires

Waste tires are accepted at numerous retail tire dealers, vehicle maintenance shops, and tire reuse operations throughout the County. Waste tires are accepted at Waste Connections Transfer Station and Waste Disposal, LLC Transfer Station. These locations are updated as needed on the County's online recycling guide.

Sedgwick County has held 5 waste tire collection events since the year 2000. These events collected a total of 835, 533 tire units. The event was held for residents, farmers, businesses, and government agencies. A breakdown of these events is as follows:

2017 – 101,193 tires from 1,307 vehicles
2015 – 137,780 tires from 2,054 vehicles
2011 – 155,878 tires from 1,866 vehicles
2004 – 222,638 tires from 3,569 vehicles
2000 – 218,044 tires from 5,630 vehicles

Lead Acid Batteries

Lead acid batteries are accepted for recycling at numerous automotive supply stores and battery stores in Sedgwick County. They are also accepted at the Household Hazardous Waste Facility. These locations are updated as needed on the County's online recycling guide.

Dead Animals

Disposal of animal carcasses resulting from foreign animal disease will follow KDHE guidelines. The animals would be buried on the owner's land at least ten feet above the water table and ten feet

below the surface of the ground and away from any known wells. This disposal method has been coordinated through the Sedgwick County Animal Control Department.

KDHE SOLID WASTE PERMITS IN THE LAST 5 YEARS

KDHE requires that any solid waste permit must first be approved by the local government as to its consistency with the local Solid Waste Management Plan. There were no solid waste permit applications from June 29, 2017 to June 10, 2018.

In 2014, Custom Wastewater Technologies of Wichita, LLC operates an industrial wastewater treatment facility at 3458 S Hoover in Wichita, KS. Last year, KDHE notified them of a need for a solid waste permit. Their Solid Waste Permit Application was reviewed and approved by the Solid Waste Committee on April 7, 2014. The permit was reviewed and approved by the Board of County Commissioners on April 16, 2014.

In 2014, Stericycle, Inc. relocated their medical waste transfer station facility. The move required a new permit. Their Solid Waste Transfer Station permit was reviewed and approved by the Solid Waste Committee on September 8, 2014. The permit was reviewed and approved by the Board of County Commissioners on November 19, 2014.

KDHE GRANT APPLICATIONS

KDHE requires that all grant applications come before the Solid Waste Management Committee. There were no grant applications from June 29, 2017 to June 10, 2018.

PUBLIC EDUCATION

Sedgwick County continues to make numerous efforts to inform and educate citizens and businesses about issues related to solid waste in Sedgwick County. Staff interacted with the public at trade shows and numerous presentations to civic groups and schools. Information is also conveyed through the Sedgwick County social media pages. Staff made ongoing updates to an online recycling guide. The guide can be found at: <http://Sedgwickcounty.org/environment/recyclingguide.asp>. Numerous promotional items and educational pieces were developed and distributed to the public.

SOLID WASTE FEE

Sedgwick County utilizes a Solid Waste Fee to help fund certain components of the Solid Waste Plan. On June 14, 2017, the Board of County Commissioners voted to keep the Solid Waste Fee. For 2018, the annual residential base rate will increase to \$5.88. The fees for non-residential and commercial properties have five tiered rates. Tier 1 is \$4.44 per parcel. Tier 2 is \$5.58 per parcel. Tier 3 is \$6.73 per parcel. Tier 4 is \$7.87 per parcel. And Tier 5, which is the large malls, is \$5.58 times the number of tenant spaces located on a single parcel. The revenue raised from the increase will help pay for tree debris collections after flooding and other storms, and the electronic waste event.

SOLID WASTE PROJECTS IN THE LAST 5 YEARS

On June 27, 2013, a severe thunderstorm with wind gusts of 70 to 90 mph caused severe damage in Sedgwick County. On July 3, a collection site for wood storm debris was set up on the east side of 63rd Street South and Meridian at the Big Ditch. The site remained open through July 31. An estimated 42,000 cubic yards of wood waste was collected and burned on site as approved by KDHE.

In 2015, Sedgwick County acquired a tub grinder and air curtain burner. When storms occur in Sedgwick County that result in significant tree damage and debris, citizens need some convenient way to get rid of all the tree limbs. Recognizing this problem, Sedgwick County Purchased an Industrial Tub Grinder and Air Curtain Burner to help communities across Sedgwick County with storm-debris damage. Not only does this provide an efficient way to deal with storm debris, but the tub grinder also provides the mulch product for citizens to use. The air curtain burner will reduce the particulate matter from the burning of clean wood waste. Twenty acres of land were set aside in northeast Sedgwick County for the collection of storm related material. However, this mobile equipment can be taken to other appropriate areas near the storm-generated material.

Due to two major storms in 2016, Sedgwick County allowed citizens to dispose of storm-generated tree limbs at the West Public Works facility. The limbs were collected and the County's air curtain burner was used. This helped in the reduction of particulate matter and expedited the process. These storms occurred in July and October.

The County participated in the "Neighborhood Property Cleanup" in the Oaklawn and Sunview Improvement Districts. This occurred from April 17 through April 23, 2016. The County arranged for dumpsters, packer trucks and disposal for this event. A total of 267,680 pounds of material were collected.

In 2016, a new program was implemented. Residents of a selected township had the opportunity to dispose of bulky waste at a township clean-up event. Roll-off containers for the trash, bulky materials, passenger car tires and appliances with refrigerant were provided by Sedgwick County. The containers were placed at 5 different locations during this event. The residents disposed of 203.4 tons of material, along with 13 appliances with refrigerant, 3,691 tires without rims and 205 tires with rims. The County will continue to pay the tipping fees at both transfer stations for illegal dumping materials collected by townships as well.

Sedgwick County held a waste tire collection event on April 13, 14 and 15, 2017. This was the fifth Waste Tire Collection event held by Sedgwick County. The event was held for residents, farmers, businesses, and government agencies. Tire dealers and other businesses that collected fees for tire disposal were not eligible to participate. April 13 was promoted as the day for businesses and government agencies.

Sedgwick County Public Works managed the large tire piles and the flow of traffic through the yard. The vendor, Resource Management Co., Inc., was present during the event and hauled the tires from the site to their facility in Brownell, Kansas. The program was funded by the County's Solid Waste Fee and collected 101,193 tire equivalents from 1,307 vehicles.

Sedgwick County conducted an electronics collection event April 5-7 and April 12-14, 2018. This event was open to all residents and businesses of Sedgwick County, Kansas. The event was held from 9 a.m. to 2 p.m. on these days at the Sedgwick County Public Works West Yard. The vendor, Dynamic Recycling of Onalaska, Wisconsin, was present during the event and collected and processed the electronic waste. Approximately 522,000 pounds of e-waste was collected from 3,874 vehicles.

HEARINGS

The Sedgwick County Solid Waste Management Committee approved a draft of the 5-Year Solid Waste Plan Update on May 7, 2018.

A presentation on Sedgwick County's five-year Solid Waste Update was made to the Metropolitan Area Planning Commission on May 24, 2018. MAPC approved the plan as being consistent with the Comprehensive Plan.

A public hearing on the five-year update to the Solid Waste Plan was held on June 13, 2018 during a regularly scheduled Board of County Commission meeting. The Board of County Commissioners adopted the plan.

TIMELINE

KDHE requires that the five-year review include appropriate information for a ten-year planning period.

Sedgwick County will continue to evaluate current programs and make adjustments as needed to minimize waste, educate the public, offer solid waste projects, and increase the efficiency of the solid waste system.

2019, June Annual Solid Waste Update

2020, June Annual Solid Waste Update

2021, June Annual Solid Waste Update

2022, June Annual Solid Waste Update

2023, June Five-Year Solid Waste Review

2024, June Annual Solid Waste Update

2025, June Annual Solid Waste Update

2026, June Annual Solid Waste Update

2027, June Annual Solid Waste Update

2028, June Five-year Solid Waste Review

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Appendix A

Geographical and Geological Characteristics of Sedgwick County

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E. PHYSICAL CHARACTERISTICS OF SEDGWICK COUNTY

1. TOPOGRAPHY

Sedgwick County is located in south central Kansas and is comprised of 1,008 square miles, or 645,120 acres. The County lies mainly within the Arkansas River Lowlands section of the Central Lowland physiographic province (see Figure 4). The Arkansas River Lowlands section includes the area drained by the Arkansas River and its tributaries. The topography in the Arkansas River Lowlands is characterized by a predominantly flat river valley and gently rising slopes to the uplands areas adjacent to it.

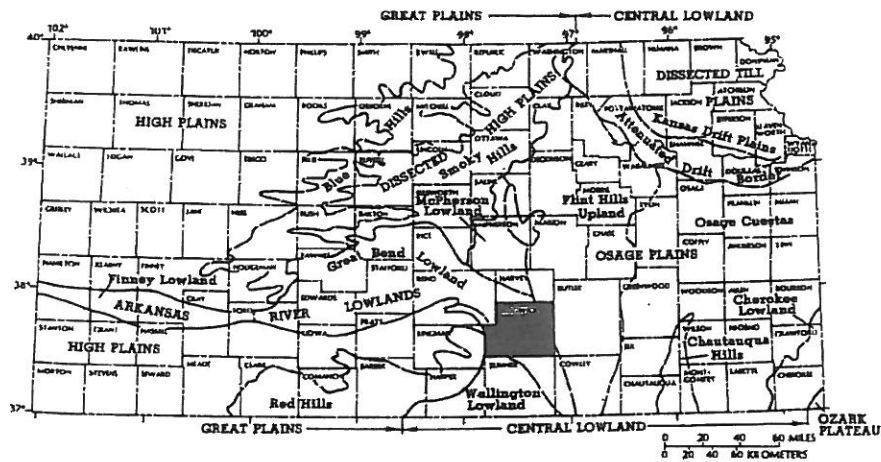


Figure 4

Physiographic Provinces of Kansas

Source: Water Resources of Sedgwick County, Kansas

The northeastern portion of the County is on the western edge of the Flint Hills Upland, a subdivision of the Osage Plains section of the Central Lowlands physiographic province. The topography of this area is irregular with local relief of 20 to 60 feet, and is drained by tributaries of the Walnut River.

The western edge of the County is located within the Wellington Lowlands, a subdivision of the Arkansas River Lowlands. This area is drained by the Ninnescah River and has irregular topography with local relief ranging from 20 to 100 feet.

The highest point in Sedgwick County is approximately 1,545 feet above sea level, and is located about 5 miles southwest of Andale in Section 31, Township 26 South, Range 3 West of the Sixth Principal Meridian. The lowest point in the County has an altitude of less than 1,220 feet above sea level. This occurs where the Arkansas flows out of the County to the south at Section 36, Township 29 South, Range 1 East, of the Sixth Principal Meridian.

2. GEOLOGY

a) SUBSURFACE GEOLOGY

Sedimentary rocks are occasionally exposed at the surface in Sedgwick County. Most of the bedrock is Permian shale which is easily eroded, and overlain by unconsolidated eolian, colluvial, and fluvial deposits over most of the County. The Wellington Formation of the Permian System is the oldest rock unit that outcrops in the County. This formation occurs at or near the surface east of the Arkansas River Valley. These rocks comprise the bedrock surface for the eastern two-thirds of the County. The Wellington Formation consists of gray shale, limestone, gypsum, anhydrite, and thin beds of maroon shale. As erosion degrades the Wellington Formation, water infiltration results in solution removal of soluble materials. The solution activity has created "boxwork" limestone indicative of reprecipitated carbonate and small-scale settlement structures. A thick salt bed, the Hutchinson Salt member of the Wellington Formation, is present in the subsurface. This member is easily eroded and occurs near the surface in the Arkansas River Valley.

The Wellington Formation dips at approximately 10 feet per mile toward the west. This formation outcrops in the eastern part of the county and occurs at a depth of approximately 180 feet along the western edge of the County. The thickness of the Wellington Formation ranges from a minimum of 80 feet thick along the eastern edge of the County to a 550 foot maximum along the western edge.

The western one-third of Sedgwick County has a bedrock surface consisting of the Ninnescah Shale of the Permian System. The Ninnescah Shale consists of brownish-red silty shale and siltstone, with thin beds of dolomite, grayish-green shale, and fine-grained sandstone. The Ninnescah Shale outcrops at its geologic

contact with the Wellington Formation. The Ninnescah Shale ranges in thickness from a feather-edge in the east to approximately 180 feet in the western edge of the County.

Most of Sedgwick County is covered with unconsolidated deposits overlying the bedrock. As much as 160 feet of undifferentiated Pliocene and lower Pleistocene deposits occur in the basal part of the Arkansas River Valley north of Wichita. South of Wichita, lower Pleistocene deposits reach a thickness of 70 feet in the basal part of the Arkansas River Valley and 20 feet on the uplands north of the Ninnescah River. The Pliocene deposits consist mainly of calcareous, gray-to-tan silt and clay, fine-to-coarse sand, and fine-to-coarse gravel.

Along the western side of the Arkansas River Valley, Illinoian terrace deposits occur over Permian and lower Pleistocene deposits at a thickness of as much as 75 feet. These deposits are primarily fine-to-coarse gravel and fine-to-coarse sand with clay and silt lenses. On both sides of the Ninnescah River valley, colluvium occurs at thickness' of as much as 30 feet over the Permian bedrock. The colluvium is of Illinoian to Holocene age and occurs as a heterogeneous mixture of clay, silt, sand, gravel and bedrock fragments. In most upland areas, loess deposits occur at thickness' up to 75 feet. The loess consists of tan calcareous silt with zones of caliche nodules and sand. These deposits are of Illinoian to Holocene age and occur over bedrock and lower Pleistocene deposits.

In the Arkansas River valley and the Ninnescah River Valley as much as 50 to 60 feet of alluvium and terrace deposits of Wisconsin to Holocene age occur over the Permian bedrock and undifferentiated Pliocene and lower Pleistocene deposits. The deposits consist mainly of fine-to-coarse sand and gravel. The total thickness' of unconsolidated deposits range from near zero in the upland areas to as much as 250 feet in the Arkansas River Valley. Deposits associated with the Equus beds aquifer occur in the northwestern part of Sedgwick County, consisting of unconsolidated deposits of clay, silt, sand, and gravel, ranging in age from Pliocene to Pleistocene.

Figure 5 shows a geologic map and Figure 6 shows corresponding geologic cross sections of Sedgwick County.

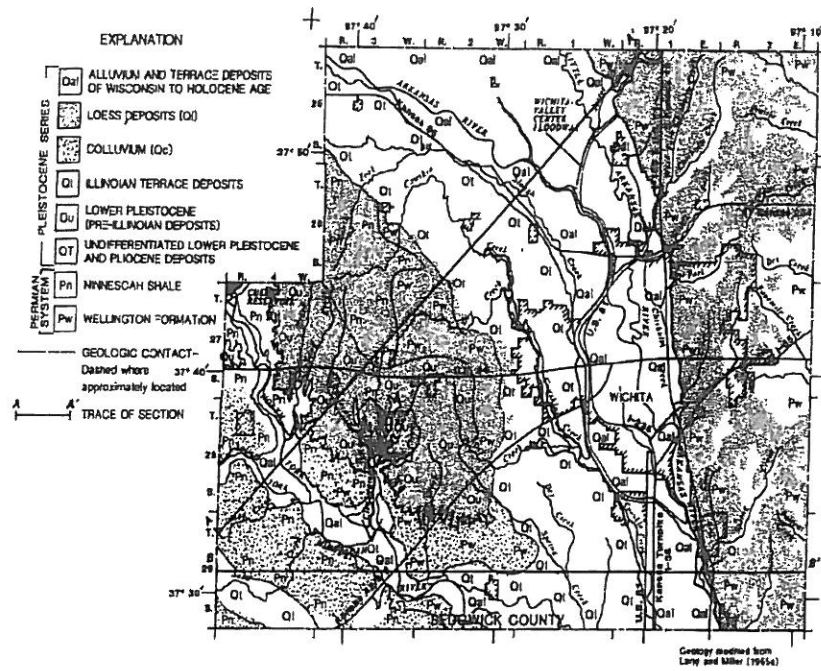


Figure 5

Geologic Map of Sedgwick County

Source: Water Resources of Sedgwick County, Kansas

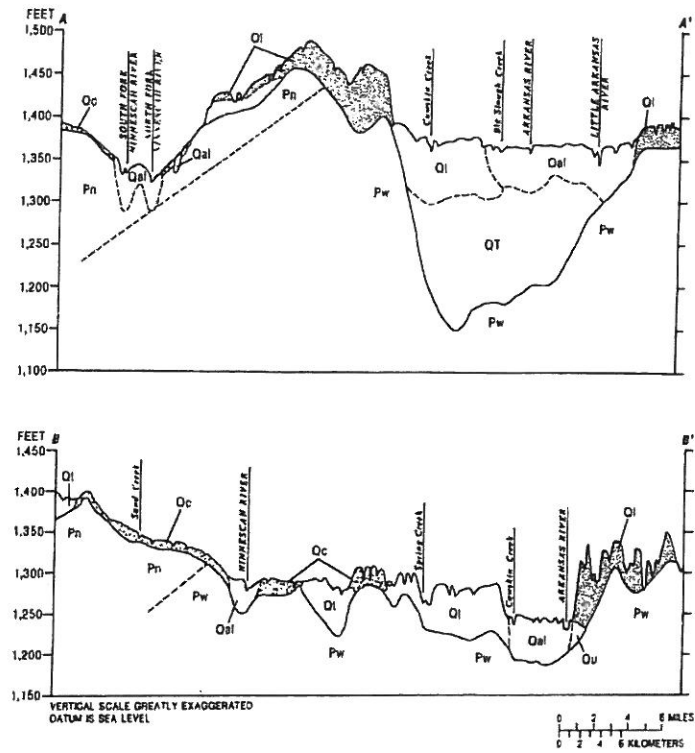


Figure 6
Geologic Cross Sections of Sedgwick County
 Source: Water Resources of Sedgwick County, Kansas

b) GEOLOGIC STRUCTURES AND STABILITY

Sedgwick County is located within the Sedgwick Basin Structural feature (see Figure 7). This Basin is a major pre-Desmoinesian, post-Mississippian structural feature. It is bound on the east by the Nemaha Anticline and on the west by the Pratt Anticline. The Salina Basin lies to the north. The Sedgwick Basin is a shelf-like-southerly plunging area with strata characterized by facies changes and an increased thickness regionally to the south. The surface rocks are Permian and Tertiary in age. The Basin has an extensive cover of unconsolidated deposits which includes the Equus Beds.

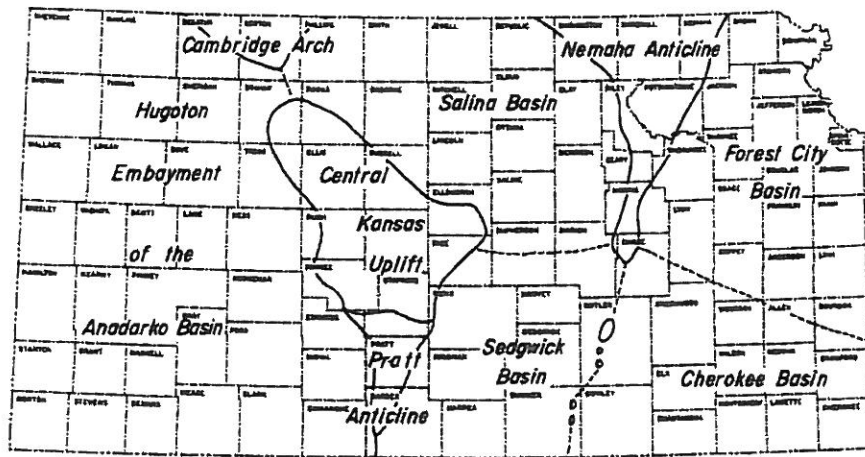


Figure 7

Sedgwick County Within Sedgwick Basin Structural Feature

Source: The Geologic History of Kansas

The Sedgwick Basin contains several minor structures. Two of those structures are located within Sedgwick County (see Figure 8). The Greenwich Anticline is located in the northeastern part of the County and the Bluff City-Valley Center-Elbing Anticline trends northeast to southwest across the center of Sedgwick County into Sumner County to the south. These are minor, south-plunging anticlines that interrupt the regional westward dip of the Nemaha Anticline into the Sedgwick Basin.

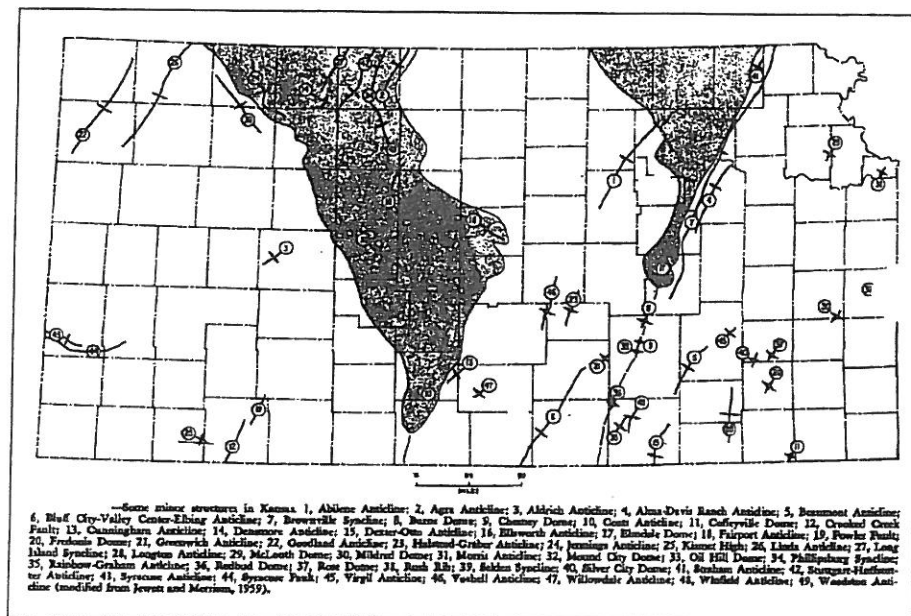


Figure 8

Minor Structures Within Sedgwick County

Source: The Geologic History of Kansas

The Nemaha Anticline is a major pre-Desmoinesian, post-Mississippian structure that crosses Kansas from Nemaha County on the north to Sumner County on the south. A major zone of faulting occurs along the entire length of the Nemaha Anticline (See Figure 9). Frequency of earthquakes along the Nemaha Anticline indicate that it is mildly tectonically active. At least ten earthquakes had epicenters located west of the Nemaha anticlinal axis (in Riley, Pottawatomie, Geary, Sedgwick, and Sumner Counties. Figure 9 also shows the relationship of earthquake epicenters to structural features. Sedgwick County lies within a region which is classified by the U.S. Geological Survey as a Seismic Impact Zone within the 10% probability area (see Figure 10). Seismic impact zones are areas with at least a 10% probability that the maximum horizontal acceleration (expressed as % of gravity (g) in rock) will exceed 0.10g in 250 years. These areas have a greater probability of exhibiting the earth's movement through shaking ground. The immediate Wichita area has reported two earthquakes in 1919 and one in 1948. The 1948 earthquake was located 5 miles east of Wichita and contained six tremors which resulted in the trembling of house walls. Since the majority of the rock movement is deep-seated, there is usually no observable fault displacement of the surface rocks.

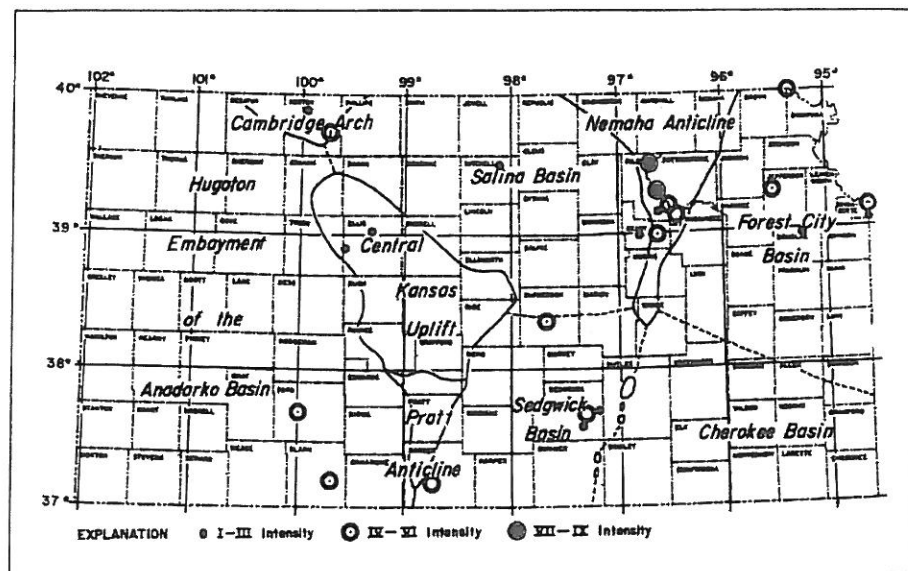


Figure 9

Nemaha Anticline and Earthquake Epicenters

Source: The Geologic History of Kansas

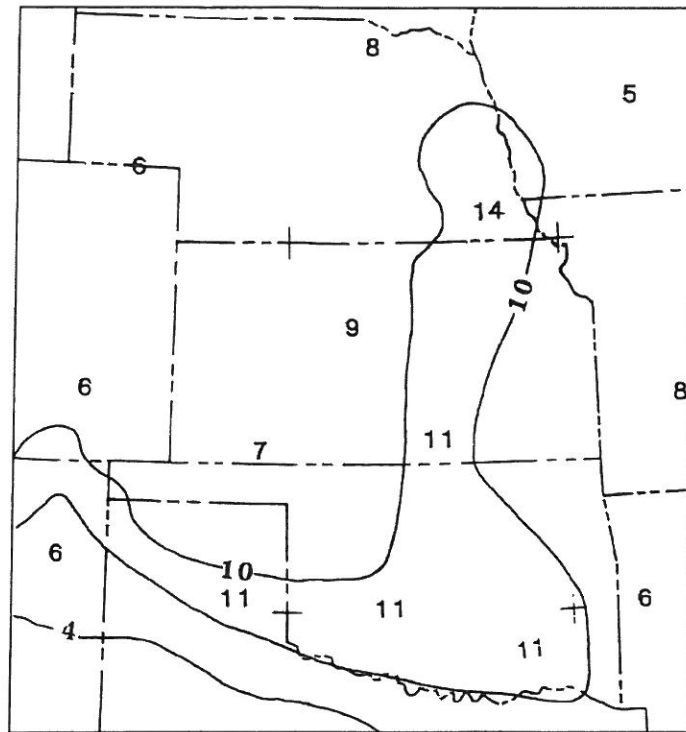


Figure 10

Seismic Impact Zone Locations

Source: USGS , Probabilistic Estimates of Maximum Acceleration and
Velocity in Rock in the Contiguous United States

Another type of structural feature found in Sedgwick County is due to solution-subsidence or solution-collapse. Sinkholes and slump structures have occurred in Sedgwick County along the eastern limit of the Hutchinson Salt of the Wellington Formation. Solution removal of gypsum and halite has resulted in numerous small-scale settlement structures such as gentle folds and undulations in the overlying rock strata. The amplitude of these settlement structures ranges from a few feet to greater than ten feet in vertical settlement. Examples of these irregularities and folds can be seen in outcrops along Interstate 35 east of Wichita, at the junction of I-35 and Andover Road, and at the junction of Hillside Avenue north and the east fork of Chisholm Creek.

c) SOILS

The type of soils in Sedgwick County and their characteristics are influenced by the type of sedimentary rock from which they were derived (see Section II E 2). Sandy soil is typically found along the river valleys and a clayey soil is typically associated with weathering from the local shales. Figure 11 shows the eight general soil associations of the County. These map units have a distinct pattern of soils, relief and drainage. Due to the map scale, the map provides a broad perspective of the soils in the area, but does not precisely show the kind of soil for a specific site.

The eight general soil associations of Sedgwick County are:

- Lesho-Lincoln-Canadian: Occupies ~ 8% of County; nearly level; poorly (Lesho) to excessively (Lincoln) drained; soils are shallow to deep over sand; have a sandy substratum; formed in alluvial sediments; on flood plains
- Naron-Farnum-Carwile: Occupies ~ 9% of County; nearly level; poorly drained; deep soils that have a loamy subsoil formed in old alluvial sediments; in terrace positions above flood plains and below upland soils
- Elandco-Canadian: Occupies ~ 8% of County; nearly level; well drained; deep soils have a loamy subsoil; formed in alluvial sediments; occasionally flooded
- Goessel-Tabler-Farnum: Occupies ~ 9% of County; nearly level to gently sloping; moderately to well drained; deep soils have a clayey or loamy subsoil; formed in old alluvial sediments; on terraces and uplands
- Irwin-Goessel-Rosehill: Occupies ~ 17% of County; nearly level to sloping; moderately to well drained; deep soils that have a clayey subsoil; formed in old alluvial sediments and shale residuum; uplands and slopes
- Shellabarger-Milan-Renfrow: Occupies ~ 9% of County; gently sloping and sloping; well drained; deep soils that have a loamy or clayey subsoil; formed in old alluvial sediments and shaly clay residuum; on uplands

- Renfrow-Blanket-Owens: Occupies ~ 5% of County; nearly level to strongly sloping; well drained; deep and shallow soils that have a clayey subsoil; formed in clay shale residuum and old clayey alluvial sediments; on uplands
- Blanket-Farnum-Vanoss: Occupies ~ 35% of County; nearly level to sloping; well drained; deep soils that have a loamy or clayey subsoil; formed in old clayey, silty, and loamy sediments; on uplands

3. HYDROLOGY

a) SURFACE WATER

Sedgwick County is mainly drained by the Arkansas River and its tributaries. The Arkansas River, a navigable stream, flows from the northwest corner of the County in a southeast direction toward Wichita where it turns south and exits the County near the southeast corner. Within Sedgwick County the main tributary to the Arkansas River is the Little Arkansas River, which enters Sedgwick County near the center of the north border and joins the Arkansas River in Wichita. To help alleviate recurrent flooding of the Wichita area, an extensive flood diversion system was constructed around the west side of Wichita.

The eastern part of Sedgwick County is drained by east-flowing tributaries of the Walnut River. The Ninescaw River and its tributaries drain the southwestern portion of the County. Drainage to the south also occurs through smaller creeks such as the Big Slough, Cowskin Creek, and Spring Creek. Within Sedgwick County, the Arkansas, Little Arkansas, and Ninescaw Rivers are all gaining streams. Minor flooding can occur along all of the creeks and rivers in Sedgwick County. The U.S. Army Corps of Engineers and the Federal Emergency Management Agency have developed maps indicating areas adjacent to water bodies that are subject to the 100-year floods.

There are numerous lakes and ponds within Sedgwick County. Cheney Reservoir is located approximately 17 miles west of Wichita and 7 miles north of the town of Cheney along the Sedgwick County border with Kingman and Reno Counties. Cheney Reservoir is located on the North Fork of the Ninescaw River and lies primarily in southeastern Reno County. The dam was completed in 1964 and controls runoff from 901 square miles. Cheney Reservoir has a total storage capacity of 566,300 acre-feet of water. When it is filled to the top of the conservation pool, the reservoir has a surface area of 9,540 acres. The City of Wichita owns all of the surface-water rights for public supplies (\$2,600 acre-feet per year) from Cheney Reservoir. This supplies Wichita and adjacent communities with approximately half of their water needs.

Lake Afton is located on the Middle Branch of Clearwater Creek approximately 8 miles west of Wichita. This is a 258-acre recreational lake.

There are over 2,000 ponds or lakes in Sedgwick County. The larger ponds (10 acres or greater) are shown in Figure 12.

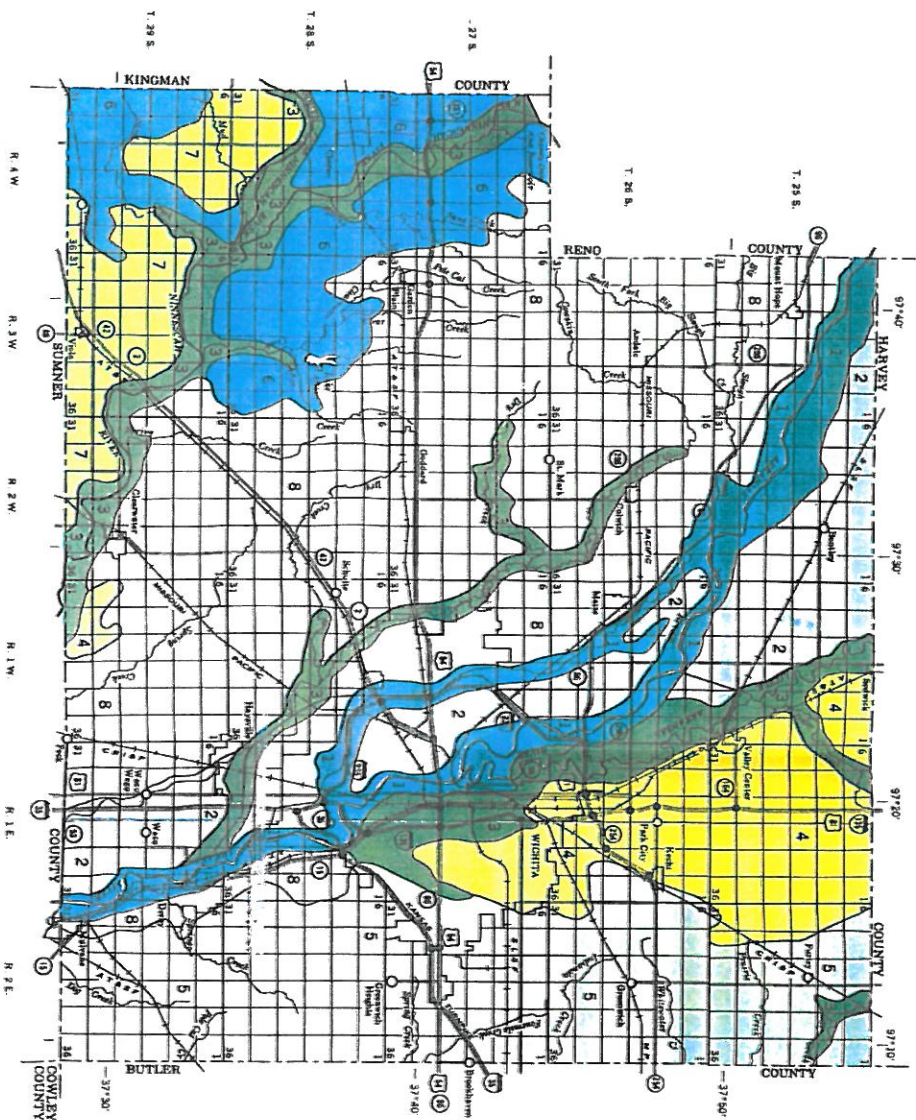
b) WETLANDS

An area is classified as a wetland if it displays three criteria: Hydric soils; hydrophytic vegetation; and wetlands hydrology. Sedgwick County has two soils that have been designated as hydric soils (soils that typically hold water). Plevna soils are almost always wetlands and are also indicated in Figure 12. Carwile Soils can also be wetlands. Additionally, the Natural Resource Conservation Service has determined 10,357 acres of wetlands exist on 497 agricultural tracts in the County. These wetlands generally exist on Plevna or Carwile soils.

Investigation into additional wetland locations is ongoing. Sedgwick County has soils that contain small areas of inclusions which may be wetlands. Soils which may have inclusions are: Blanket Silt Loam (Ba), Elandco Silt Loam (Ea), Elandco Silt Loam, frequently flooded (Ec), Farnum Loam (Fa), Farnum Loam, 1-3% Slope (Fb), Lesho Loam (La), Lincoln (Lb), Pratt Loamy Fine Sand (Pc), Tabler-Drummond Complex (Tb), Vanoss Silt Loam (Va), Waldeck Sandy Loam (Wa), and Waurika Silt Loam (Wb).

Some of the larger historic wetlands are easily identified and are listed in Table 10. Their locations are shown in Figure 12.

Each area outlined on this map consists of more than one kind of soil. The map is thus intended for general planning rather than a basis for decisions on the use of specific areas.



SOIL LEGEND

- 1. Lesto-Lincoln-Coadman: Soils that are shallow to deep over sand, are nearly level and somewhat poorly drained, well drained, and somewhat excessively drained; have a sandy substratum; and formed in alluvial sediments.
- 2. Marion-Farmington-Carroll: Deep, nearly level, well drained and somewhat poorly drained soils that have a loamy substratum; formed in old alluvial sediments.
- 3. Elmdale-Cimarron: Deep, nearly level, well drained and somewhat poorly drained soils that have a loamy substratum; formed in old alluvial sediments.
- 4. Elmdale-Cimarron: Deep, nearly level, well drained and somewhat poorly drained soils that have a loamy substratum; formed in old alluvial sediments.
- 5. Marion-Coadman-Roadkill: Deep and moderately deep, nearly level to sloping, in old alluvial sediments and shale residuum.
- 6. Shiloh-Cimarron-Roadkill: Deep, gently sloping and sloping, well drained and moderately well drained soils that have a clayey or loamy substratum; formed in old alluvial sediments.
- 7. Marion-Coadman-Roadkill: Deep and shallow, nearly level to sloping, well drained soils that have a clayey substratum; formed in clay shale residuum and old clayey alluvial sediments.
- 8. Marion-Cimarron-Vanhook: Deep, nearly level to sloping, well drained soils that have a loamy or clayey substratum; formed in old clayey, silty, and loamy sediments.

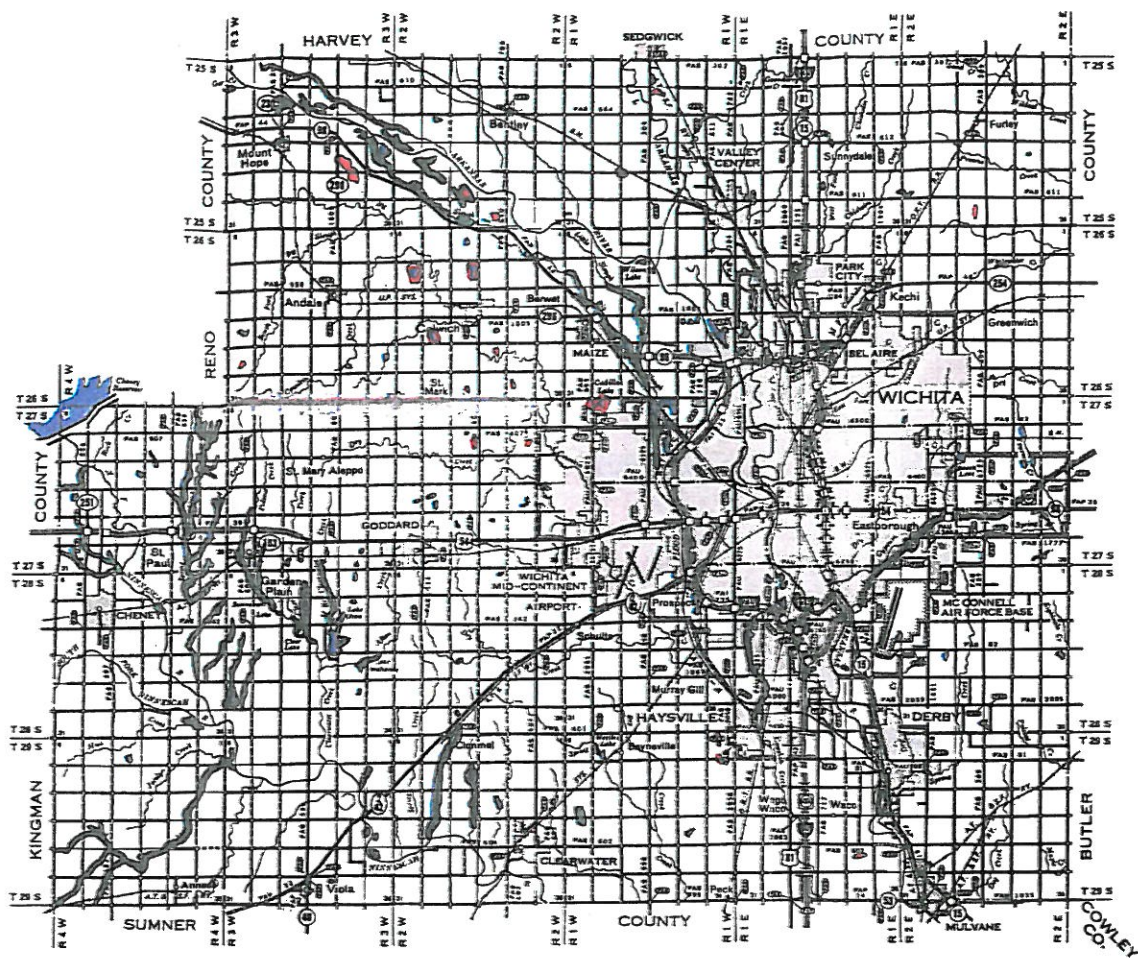
Compiled 1978

Scale 1:533,440
1 0 1 2 3 4 Miles

Figure 11
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
KANSAS AGRICULTURAL EXPERIMENT STATION
GENERAL SOIL MAP
SEDDWICK COUNTY, KANSAS

SECTIONALIZED

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36



LEGEND

BODIES OF WATER OVER 10 ACRES.....

KNOWN WETLANDS.....

PLEVNA SOIL.....

Source: Sedgwick County Conservation District

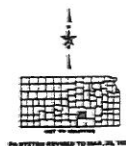


Figure 12

SEDGWICK COUNTY
KANSAS

KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION PLANNING

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

1988

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Appendix B

Regional growth patterns and local transportation networks

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CommunityInvestmentsPlan

...a framework for the future, 2015-2035

A New Comprehensive Plan for Wichita-Sedgwick County

Adopted by the Wichita-Sedgwick County Metropolitan Area Planning Commission
on November 19, 2015

Approved by the Wichita City Council on December 8, 2015

Approved by the Sedgwick County Board of Commissioners on January 20, 2016



Sedgwick County...
working for you



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CommunityInvestmentsPlan

...a framework for the future, 2015-2035

A New Comprehensive Plan for Wichita-Sedgwick County

Table of Contents

Plan Introduction and Overview	1
Plan Vision, Community Values and Guiding Principles	9
Future Land Use Policies	15
2035 Urban Growth Areas Map	19
2035 Wichita Future Growth Concept Map	20
Locational Guidelines	22
Wichita Urban Infill Strategy	25
Plan Elements	27
Funding and Financing	29
Transportation	30
Water, Sewer & Stormwater	31
Arts, Culture and Recreation	33
Public Safety	34
Priority Enhancement Areas for Wichita Public Infrastructure Projects Map	35
Plan Implementation	37
Part 1. Infrastructure Investment Decision-making Framework	39
Part 2. Plan Monitoring, Review and Amendment	42





Plan Steering Committee Members

Name	Representing
Mitch Coffman	Sedgwick County Board of Commissioners
Richard Ranzau	Sedgwick County Board of Commissioners
James Roseboro	Wichita City Council
Gary Schmitt	Wichita City Council
David Foster	Metropolitan Area Planning Commission
Matt Goolsby	Metropolitan Area Planning Commission
Joe Johnson	Metropolitan Area Planning Commission
John McKay	Metropolitan Area Planning Commission
Mitch Mitchell	Metropolitan Area Planning Commission
Bill Ramsey	Metropolitan Area Planning Commission
Debra Miller Stevens	Metropolitan Area Planning Commission
Ken Lee	Sedgwick County Association of Cities
Randy Oliver	Sedgwick County Association of Cities
Stacy Christie	Community-at-Large
Susan Estes (Co-Chair)	Community-at-Large
Bryan Frye	Community-at-Large
Julie Hedrick	Community-at-Large
Cindy Miles (Co-Chair)	Community-at-Large

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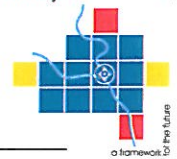


Plan Introduction and Overview





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Plan Introduction

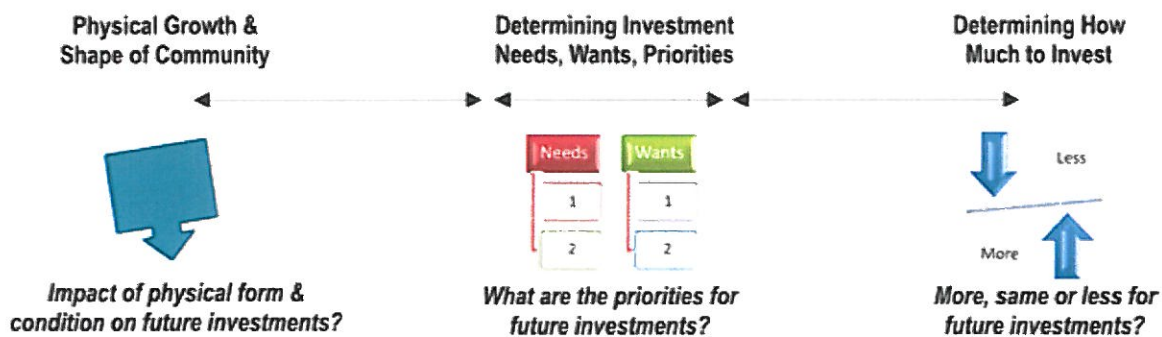
Why This Plan

- The State of Kansas requires cities and counties to have a comprehensive plan in order to exercise authorized development reviews, and to guide spending decisions on public infrastructure and facilities.
- The current joint comprehensive plan for Wichita and Sedgwick County dates back to 1993. A new plan is needed in an era of diminishing revenues and fiscal constraint.
- A new joint comprehensive plan is needed to guide the future growth, development and public infrastructure investment decisions of Wichita and Sedgwick County (our community) over the next 20 years. Accordingly, this new plan is called the Community Investments Plan ... a framework for the future.
- This Plan will better guide the long-term capital improvement programs for Wichita and Sedgwick County in the overall Plan context of:
 - > Promoting economic growth and job creation
 - > Advancing community quality of life and safety
 - > Creating a community that will attract and retain future generations

Setting Our Public Infrastructure Investment Priorities

- Over many decades, investment in public infrastructure has shaped our community's economy and quality of life. This investment has also influenced private investment decisions in Wichita and Sedgwick County.
- Current and future generations in Wichita and Sedgwick County will live with the infrastructure investment decisions we make today, just as we live with those decisions of past generations.
- The primary public infrastructure investment challenges our community faces over the next 20 years are determining:
 - > How best for the City of Wichita to grow
 - > How much and where best to spend or not spend in terms of future City and County public infrastructure and facility investment
 - > How to close the long-term gap between our future investment needs and wants and our projected revenues (ability to pay)
- The following graphic illustrates three key inter-related elements that ultimately shape our public infrastructure and facility investment decisions.

Community Investment Plan Development – Key Interrelated Elements





Developing the Plan

This Plan has been developed by an 18-member Plan Steering Committee jointly appointed by the City and County, with technical support provided by staff from the Wichita-Sedgwick County Metropolitan Area Planning Department, the City of Wichita and Sedgwick County. The Plan is reflective of the following considerations:

Existing Infrastructure Conditions Assessment (see Appendix for details)

- A comprehensive assessment of all Wichita and Sedgwick County infrastructure and facilities in 2011-12 revealed that 38% of Wichita's infrastructure is in a 'deficient/fair' condition (about 11% of the County's infrastructure is in a 'deficient/fair' condition).
- Costs of bringing existing deficient Wichita infrastructure (primarily local streets, aging water and sewer lines) up to standards is estimated at an additional \$45-55 million annually.
- Ongoing existing infrastructure replacement costs are estimated to require an additional \$102 million annually for Wichita.
- This situation is due in part to decades of under-investment in maintaining Wichita's local road, water and sewer infrastructure.

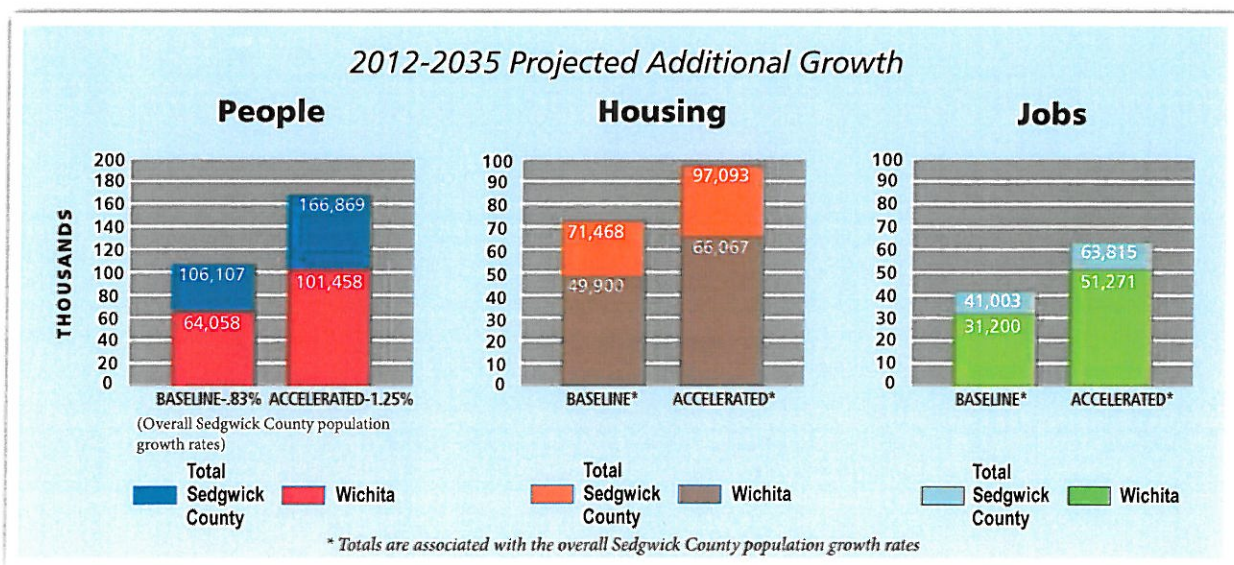
Community Trends and Challenges Ahead

(see Appendix for details)

- Our infrastructure investment decisions and future growth will be influenced by the following fiscal/economic shifts:
 - > Diminishing state and federal funding for local infrastructure;
 - > Slowing locally generated revenues for Wichita and Sedgwick County;
 - > Rising costs of maintaining existing infrastructure and facilities; and,
 - > Slowing new job creation and employment growth rates.

Population and Employment Growth Projections: 2012 to 2035 (see Appendix for details)

This Plan has been developed with a baseline growth rate (0.83%) and an accelerated growth rate (1.25%) for annual population growth and associated employment growth projections in Wichita and Sedgwick County. The accelerated growth rate is reflected in the 2035 Urban Growth Areas Map and the 2035 Wichita Future Growth Concept Map.





Preferred Wichita 2035 Growth Scenario Development (see Appendix for details)

- Three 2035 growth scenarios were developed for Wichita to illustrate a range of possible growth patterns and associated infrastructure investment impacts. These scenarios were called *Current Trends*; *Constrained Suburban Growth*; and *Suburban and Infill Growth Mix*.
- Growth and development patterns depicted in the *Suburban and Infill Growth Mix* scenario reflected a more constrained suburban growth pattern combined with increased urban infill growth in Wichita's mature urban neighborhoods (the Established Central Area). This scenario required the least amount of expansion to Wichita's existing system of infrastructure, and placed greater investment priority on maintaining our existing infrastructure and transit system. This scenario became the basis for the development of the 2035 *Wichita Future Growth Concept Map*.
- There is currently a \$9-10 billion gap over the next 20 years between Wichita's planned future infrastructure and facility expenditures and its projected revenues. Different growth scenarios alone won't close this gap ... a combination of new revenues, shifting project priorities and reducing project expenditures will be necessary.

Listening to the Community (see Appendix for details)

- Most City and County residents may not be aware of the current condition of our public assets, nor may they be aware of current City and County spending plans for the maintenance and expansion of these assets. During the development of this Plan, ongoing efforts have been made to better inform and educate the community on these important issues.
- Public outreach initiatives have included a community-wide survey, eight informal public open house meetings, nine community discussion meetings and over 40 presentations to community/neighborhood groups, business organizations and service clubs. The web-based Activate Wichita engagement tool has also been utilized.

Plan Overview

Within the broader context of the 2035 Plan Vision Statement, Plan Guiding Policy Principles and the Future Land Use Policies, this Plan provides an Infrastructure Investment Decision-making Framework to guide future public investment decisions that best reflect our community's highest priority needs and wants, and "willingness to spend" on public infrastructure. This Plan is comprised of the following components:

1. 2035 Plan Vision Statement and Core Community Values

A general statement describing what we envision our community will be 20 years from now in terms of employment and quality of life opportunities:



"Building on our rich aviation and entrepreneurial heritage, Wichita-Sedgwick County is a global center of advanced manufacturing and high-tech industry and a premier service, education, health and retail center for South Central Kansas. People feel safe and enjoy affordable housing choices in diverse, vibrant neighborhoods offering unique quality living environments and active, healthy lifestyles with access to arts, culture and recreation."





Seven core community values also collectively define our community approach and beliefs for the purposes of this Plan:

- *Common-sense Approach*
- *Fiscal Responsibility*
- *Growth-oriented*
- *Inclusiveness and Connectivity*
- *Cultural Richness*
- *Vibrant Neighborhoods*
- *Quality Design*

2. Plan Guiding Policy Principles

Five overarching themes and aspirations for our community's future. They help set relative priorities at the broadest and highest levels for future public infrastructure and facility investment decisions:

1. Support an Innovative, Vibrant and Diverse Economy

2. Invest in the Quality of Our Community Life

3. Take Better Care of What We Already Have

4. Make Strategic, Value-added Investment Decisions

5. Provide for Balanced Growth but with Added Focus on Our Established Neighborhoods

3. Future Land Use Policies

2035 Urban Growth Areas Map - Depicts the anticipated growth pattern and extension of city limits for the cities of Sedgwick County.

2035 Wichita Future Growth Concept Map - Depicts the preferred 2035 growth concept for Wichita based on projected population/employment growth rates.

Locational Guidelines - Encourages compatible and appropriate future land use change in Wichita and unincorporated Sedgwick County.

Wichita Urban Infill Strategy - Encourages appropriate infill development in Wichita's Established Central Area.

Neighborhood and area plans adopted as elements of the Wichita-Sedgwick County Comprehensive Plan will provide additional land use policy guidance as applicable.

4. Plan Elements

A set of Plan Goals and Strategies to guide public infrastructure and facility investment decisions pertaining to each of the following Plan elements:

Funding and Financing - Guidance on how we should best fund and finance our public infrastructure and facilities.

Transportation - Guidance on how we should best invest in our transportation infrastructure and facilities.

Water, Sewer and Stormwater - Guidance on how we should best invest in our water, sewer and stormwater infrastructure and facilities.

Arts, Culture and Recreation - Guidance on how we should best invest in our arts, culture and recreation facilities.

Public Safety - Guidance on how we should best invest in our public safety facilities.

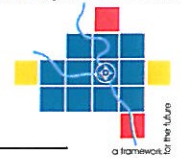
Priority Enhancement Areas for Wichita Public Infrastructure Projects Map - Guidance on priority areas for aesthetic enhancements to planned City of Wichita public improvements.

5. Plan Implementation

Part 1. Infrastructure Investment Decision-making Framework

This framework is intended to help close the long-term cost/revenue gap between our currently planned future infrastructure expenditures and our projected revenues. Three different levels of evaluation are recommended for both new and replacement infrastructure projects. This encourages best practices for public infrastructure investment decision-makers. It also enables strategic investment decision-making by aligning funding priorities with community priorities as reflected in the 2035 Plan Vision Statement, Core Community Values and Plan Guiding Policy Principles.





Part 2. Plan Monitoring, Review and Amendment

An ongoing, systematic approach to monitor community change, and review and amend the Plan so that it remains relevant and appropriate for our community.

Plan Appendix

Under separate documentation, the Plan Appendix contains important and relevant background information listed below that has been helpful in shaping the development of this Plan:

- *Wichita 2035 Growth Scenarios*
- *Community Trends & Challenges Ahead*
- *Existing Conditions & Community Infrastructure Assessment*
- *Community Engagement*





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Plan Vision, Community Values and Guiding Principles





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2035 Plan Vision Statement

The 2035 Plan Vision Statement below describes what kind of future we want to help make for our community over the next twenty years based on our public infrastructure and facility investment decisions.

“Building on our rich aviation and entrepreneurial heritage, Wichita-Sedgwick County is a global center of advanced manufacturing and high-tech industry and a premier service, education, health and retail center for South Central Kansas. People feel safe and enjoy affordable housing choices in diverse, vibrant neighborhoods offering unique quality living environments and active, healthy lifestyles with access to arts, culture and recreation.”

Core Community Values

Listed below are important Core Community Values that define our community approach and beliefs for the purposes of this Plan. These core values collectively provide the context in which the Plan Guiding Policy Principles will be accomplished:

- **Common-sense Approach** – pragmatic; market-driven; competitive; low tax burden; appropriate/simplified regulations only as necessary; strong belief in personal rights and property rights.
- **Fiscal Responsibility** – don’t spend more than you have; spend and invest wisely; take care of what you have; build on what you have; maximize ‘return-on-investment’.

- **Growth-oriented** – innovate; re-invent; diversify; entrepreneurial; positive ‘can-do’ attitude; the future holds hope and promise.
- **Inclusiveness and Connectivity** – easy to get around; social and technological accessibility.
- **Cultural Richness** – visual and performing arts; educational achievement; diversity of cuisine; strong community events and celebrations; philanthropy; community service; value racial diversity; community pride and heritage.
- **Vibrant Neighborhoods** – care about neighbors, value condition of property, take pride in quality of place and where we live.
- **Quality Design** – value public art, attractive and sustainable design, and community aesthetics.

Plan Guiding Policy Principles

The following Plan Guiding Policy Principles:

- Represent the overarching themes, aspirations and actions for our community’s future,
- Reflect the 2035 plan vision statement and our core community values,
- Guide future land use policies and the plan element goals and strategies,
- Help set relative priorities at the broadest and highest levels for future investment decisions and funding/expenditure reductions.

1. Support an Innovative, Vibrant and Diverse Economy

Without good jobs and opportunities for all to prosper, our vision and aspirations as a community cannot be achieved.

Core Community Value Elements

Common-sense Approach: Promote an environment of low taxes and reasonable regulation





Fiscal Responsibility: Target economic development investments in areas with the greatest public return

Growth-oriented: Focus on innovation and diversification for start-ups, entrepreneurship and growing existing businesses

Inclusiveness and Connectivity: Improve transportation connections to businesses for employees and customers of all incomes and abilities

Cultural Richness: Encourage a culture of corporate philanthropy and encourage culturally-diverse business areas

Vibrant Neighborhoods: Support neighborhood-scale business development

Quality Design: Utilize aesthetic and cohesive treatments in major business areas to encourage compatibility with adjacent businesses and residential areas

2. Invest in the Quality of Our Community Life

Quality of life is important to both current and future residents of our community and is essential to support job growth and a strong economy.

Core Community Value Elements

Common-sense Approach: Ensure that basic services are delivered efficiently and effectively

Fiscal Responsibility: Make strategic investments in public resources and facilities that will benefit current and future residents

Growth-oriented: Foster quality of life amenities that attract and retain talented workers

Inclusiveness and Connectivity: Provide equitable access to arts, culture and recreation

Cultural Richness: Support broad-based diversity in quality of life opportunities, events and facilities

Vibrant Neighborhoods: Provide safe, active and healthy living environments in all neighborhoods

Quality Design: Make strategic investments in iconic facilities that create a community of distinction

3. Take Better Care of What We Already Have

Maintaining and preserving existing infrastructure and community facilities is a high priority for citizens, supports economic growth and quality of life/place, and makes sound fiscal sense.

Core Community Value Elements

Common-sense Approach: Invest in maintenance first

Fiscal Responsibility: Establish long-term maintenance programs based on asset life-cycle

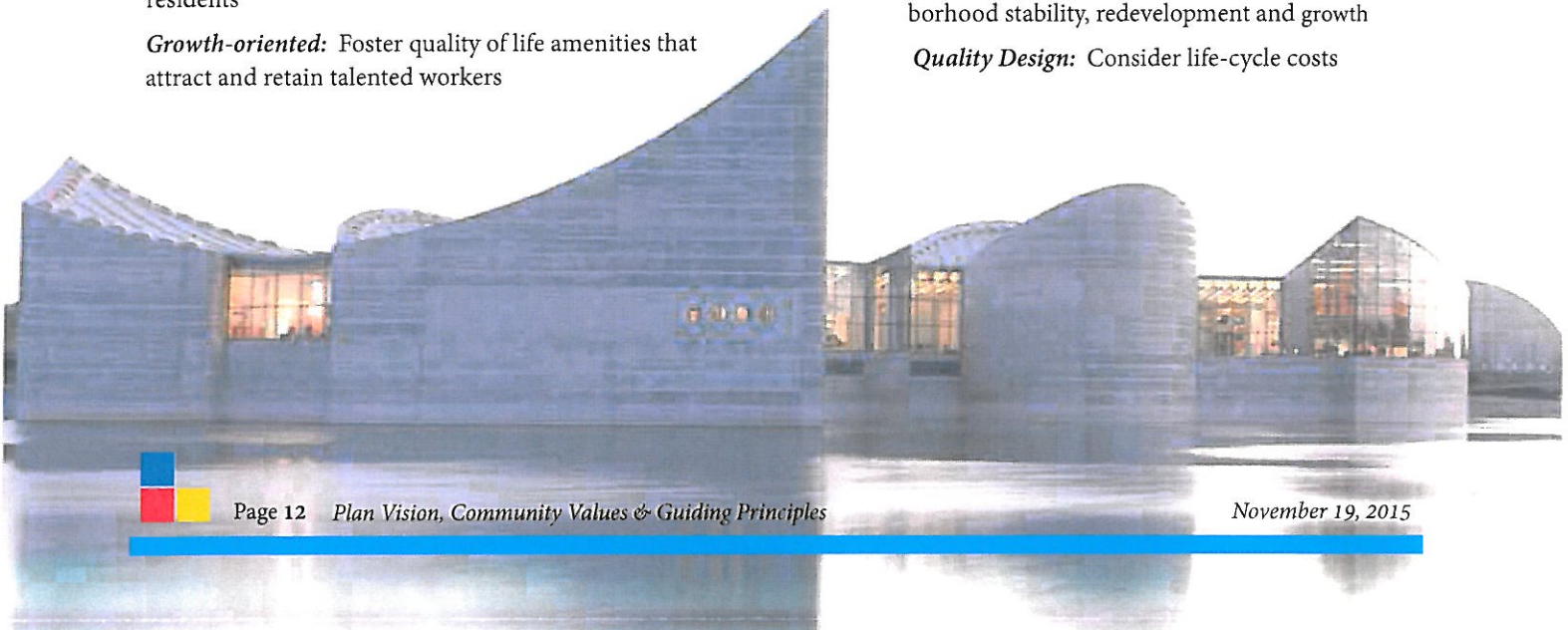
Growth-oriented: Leverage maintenance investments to promote infill development

Inclusiveness and Connectivity: Take a systems and networks-based approach

Cultural Richness: Re-invest in public facilities and infrastructure throughout our community

Vibrant Neighborhoods: Invest in existing neighborhood stability, redevelopment and growth

Quality Design: Consider life-cycle costs





4. Make Strategic, Value-added Investment Decisions

Our limited public resources must be focused on infrastructure and community facility investments that best support the vision for our future. Priority will be given to projects that support economic growth and job diversification, are multi-purposed and have multiple impacts for the greatest benefit to our community.

Core Community Value Elements

Common-sense Approach: Use the comprehensive plan to guide capital improvement programming

Fiscal Responsibility: Ensure that our investments are scale-appropriate and maximize economic and social returns that are measurable

Growth-oriented: Tie major infrastructure investments to economic development

Inclusiveness and Connectivity: Focus major transportation investments on critical community-wide connections

Cultural Richness: Make strategic long-term investments in cultural facilities

Vibrant Neighborhoods: Use multi-faceted and strategic approaches

Quality Design: Use context-sensitive design for infrastructure projects



5. Provide for Balanced Growth but with Added Focus on Our Established Neighborhoods

Growth can be expected to occur in all parts of our community and should be supported. Established neighborhoods will receive more attention than has been given in previous comprehensive plans in order to promote growth and maintain vibrancy/quality of place.

Core Community Value Elements

Common-sense Approach: Target areas of greatest opportunity

Fiscal Responsibility: Establish a funding mechanism for the additional maintenance costs of existing and new infrastructure

Growth-oriented: Support growth in all areas of our community

Inclusiveness and Connectivity: Promote physical, social and economic accessibility and connectivity for all

Cultural Richness: Enhance existing cultural facilities

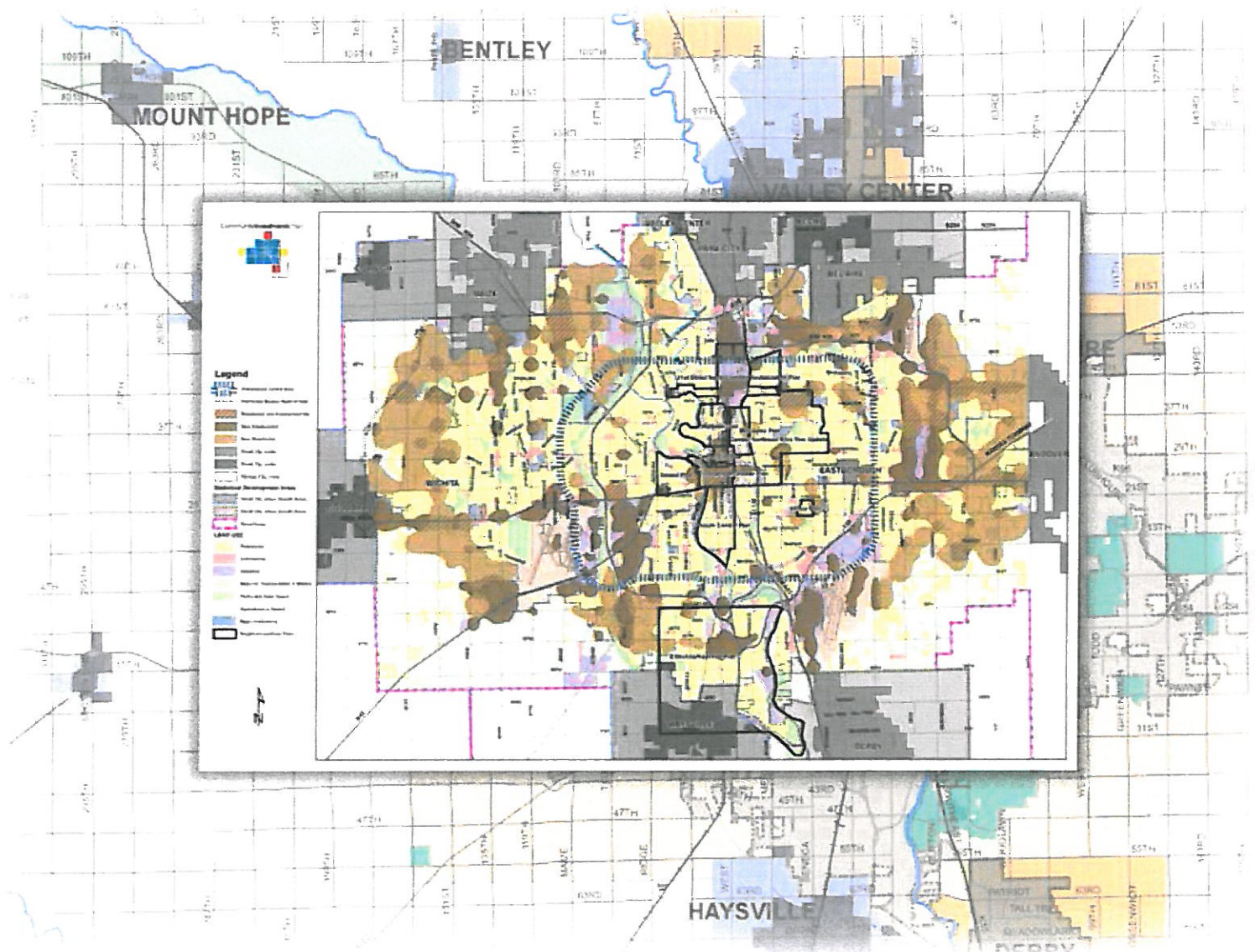
Vibrant Neighborhoods: Focus growth in established neighborhoods and encourage infill development programs

Quality Design: Support infill project designs that enhance value in existing neighborhoods





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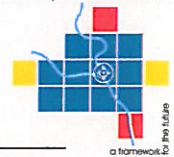


Future Land Use Policies





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Future Land Use Policies

Introduction

The purpose of the Future Land Use Policies is to encourage orderly growth that meets future market demand while considering impacts to taxpayers, developers, the environment, and the community as a whole while protecting individual property rights. These policies reflect the 2035 Plan Vision Statement, Core Community Values, and Plan Guiding Policy Principles and guide future land use through the ongoing comprehensive planning process.

The Future Land Use Policies are comprised of the following four components which are described in this section of the Plan:

1. 2035 Urban Growth Areas Map

Depicts anticipated long-term growth patterns for the cities of Sedgwick County. These areas are not prescriptive or binding in nature but serve as a reasonable indication as to where the future efficient and fiscally responsible extension of public infrastructure, services, and corporate limits could occur by 2035.

2. 2035 Wichita Future Growth Concept Map

Depicts the preferred 2035 future growth concept for Wichita. This concept is based upon projected population and employment growth rates, reflects the Plan Guiding Policy Principles, and strategically guides future public investment that supports the growth of Wichita.

3. Locational Guidelines

Provide a framework for decision-making regarding land use changes so as to: encourage patterns of development that efficiently and effectively use land, public infrastructure, and services; strive for compatibility among various land uses; and, promote quality of place through design.

4. Wichita Urban Infill Strategy

Focuses on Wichita's Established Central Area (comprised of the downtown core and the mature neighborhoods surround-

ing it in a roughly three mile radius) and 'areas of opportunity' within it that have the most vacant/underutilized parcels where infill development can reverse patterns of abandonment and decline. The strategy provides a framework for addressing: regulatory barriers; infrastructure in need of modernization; neighborhood concerns about different housing types or incompatible uses; difficulties with land assembly and financing; and, preserving areas of stability.

These four components constitute the Future Land Use Policies. To ensure needed flexibility in the application of the Future Land Use Policies, it is important to continue to modify land use implementation tools such as the zoning and subdivision regulations to maintain consistency with the Plan as it is amended in the future.

Adopted Neighborhood and Area Plans

Neighborhood and area plans adopted as elements of the Wichita-Sedgwick County Comprehensive Plan will provide additional land use policy guidance as applicable, to supplement the overall guidance provided by the Future Land Use Policies.





1. 2035 Urban Growth Areas Map

(Refer to fold-out map on page 19)

2. 2035 Wichita Future Growth Concept Map

(Refer to fold-out map on page 20) The *2035 Wichita Future Growth Concept Map* visually portrays the goals and policies of the Wichita-Sedgwick County Comprehensive Plan. It generally illustrates anticipated development patterns and provides a generalized guide to future land use, development and rezoning decisions within the City of Wichita and its 2035 urban growth area. **The categories shown are intended to provide a generalized guide to land use based upon functional use classifications, rather than by type of facility or type of ownership.** The small-scale nature of the map does not allow for detailed assessment on an individual parcel basis. Suitability of future development **at the site-specific, facility level needs to be determined** based upon existing land uses and zoning, along with the *Locational Guidelines and Wichita Urban Infill Strategy*, as applicable. Development proposals that do not exactly **match these guides but reflect market place demand** should be given reasonable consideration, if they do not present extraordinary new public infrastructure or service burdens on the community.

Established Central Area: Comprised of the downtown core and the mature neighborhoods surrounding it in a roughly three mile radius, the Established Central Area is **the focus area for the Wichita Urban Infill Strategy.**

New Residential: Encompasses areas of land that likely will be developed or redeveloped by 2035 with uses predominately found in the Residential category. Pockets of Major Institutional and Commercial uses likely will be developed within this area as well, based upon market-driven location factors. In certain areas, especially those in proximity to existing industrial uses, highways, rail lines, and airports, pockets of Industrial Uses likely will be developed.

New Employment: Encompasses areas that likely will be developed or redeveloped by 2035 with uses that constitute centers or concentrations of employment primarily in manufacturing, warehousing, distribution, construction, research, technology, business services, or corporate of-

fices. Major shopping centers and office parks likely will be developed within this area as well, based upon market driven location factors. In certain areas, especially those in proximity to existing residential uses, higher density housing and convenience retail centers likely will be developed. In areas where the uses are already established, pockets of industrial uses associated with extraction, processing or **refinement of natural resources or recycling of waste materials** likely will be developed.



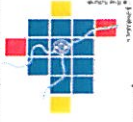
New Residential/Employment Mix: Encompasses areas of land that likely will be developed or redeveloped by 2035 with uses predominately of a mixed nature. Due to the proximity of higher intensity businesses uses, residential housing types within this area likely will be higher density. Due to the proximity of residential uses, employment uses likely will have limited negative impacts associated with noise, hazardous emissions, visual blight, and odor.



2035 Urban Growth Areas Map

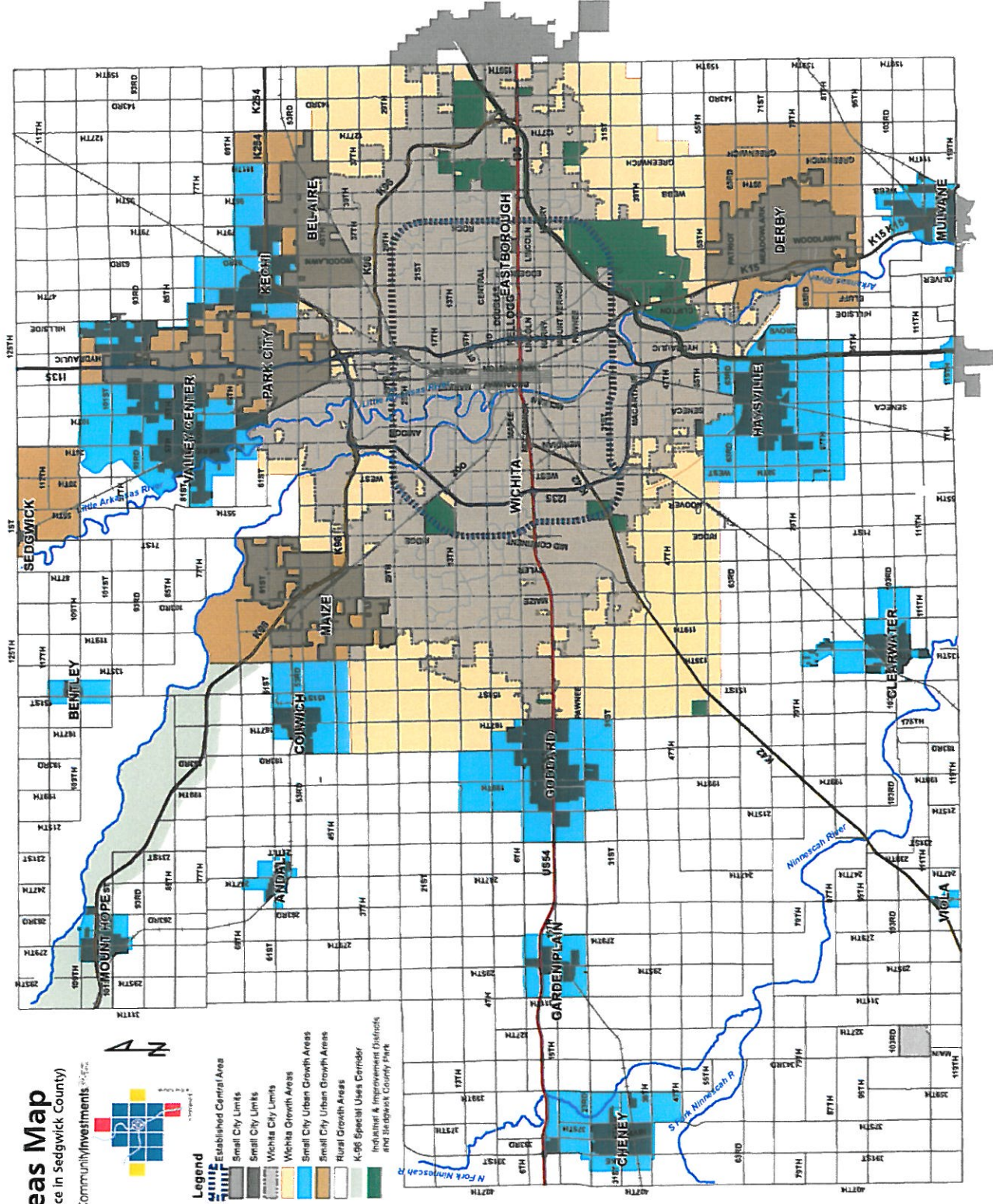
(This map is not reflective of any Zoning Areas of Influence in Sedgwick County)

Community Investments



Legend

- Established Central Area
- Small City Limits
- Wichita City Limits
- Wichita Growth Areas
- Small City Urban Growth Areas
- Rural Growth Areas
- K-96 Special Uses Corridor
- Industrial & Improvement Districts and Sedgwick County Park



The 2035 Urban Growth Areas Map visually portrays the anticipated growth patterns for the cities of Sedgwick County. Municipal growth patterns that do not exactly match this guide but reflect marketplace demands should be given reasonable consideration, if they do not present extraordinary new public service burdens on the community. It is also important to note that the 2035 urban growth areas depicted are not prescriptive or binding in nature. They serve only as a reasonable indication as to where the future efficient extension of public municipal services and corporate limits could occur by the year 2035.

Small City Urban Growth Areas: Generally located adjacent to existing municipal boundaries, these areas indicate the likely direction and magnitude of growth these communities can expect to experience out to the year 2035. Determination of growth direction and amount is based upon municipal political considerations, anticipated municipal population growth, efficient patterns of municipal growth, current infrastructure limitations, cost effective delivery of future municipal services and environmental factors.

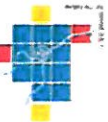
Wichita Urban Growth Areas: Areas adjacent to Wichita that are primarily undeveloped but have the potential to be developed by the year 2035, based upon Wichita population growth projections and current market trends. This is the area in which City expansion and extension of municipal services and infrastructure should be focused. Determination of growth direction and amount is based upon municipal political considerations, anticipated population growth, efficient patterns of growth, current infrastructure limitations, cost effective delivery of future municipal services and environmental factors.

Established Central Area: Comprised of the downtown core and the mature neighborhoods surrounding it in a roughly three mile radius, the Established Central Area is the focus area for the Wichita Urban Infill Strategy.

K-96 Special Uses Corridor: Encompasses areas identified in the K-96 Corridor Economic Development Plan that require special land use controls in order to ensure appropriate patterns of commercial redevelopment within the K-96 corridor. The K-96 Corridor Economic Development Plan should be consulted for more specific future land use direction.

Industrial and Improvement Districts and Sedgwick County Parks: Encompasses areas within the Wichita Urban Growth Area where various legal agreements have been established to restrict Wichita city limits expansion and provide for shared delivery of municipal services by the City of Wichita, Sedgwick County, and townships.

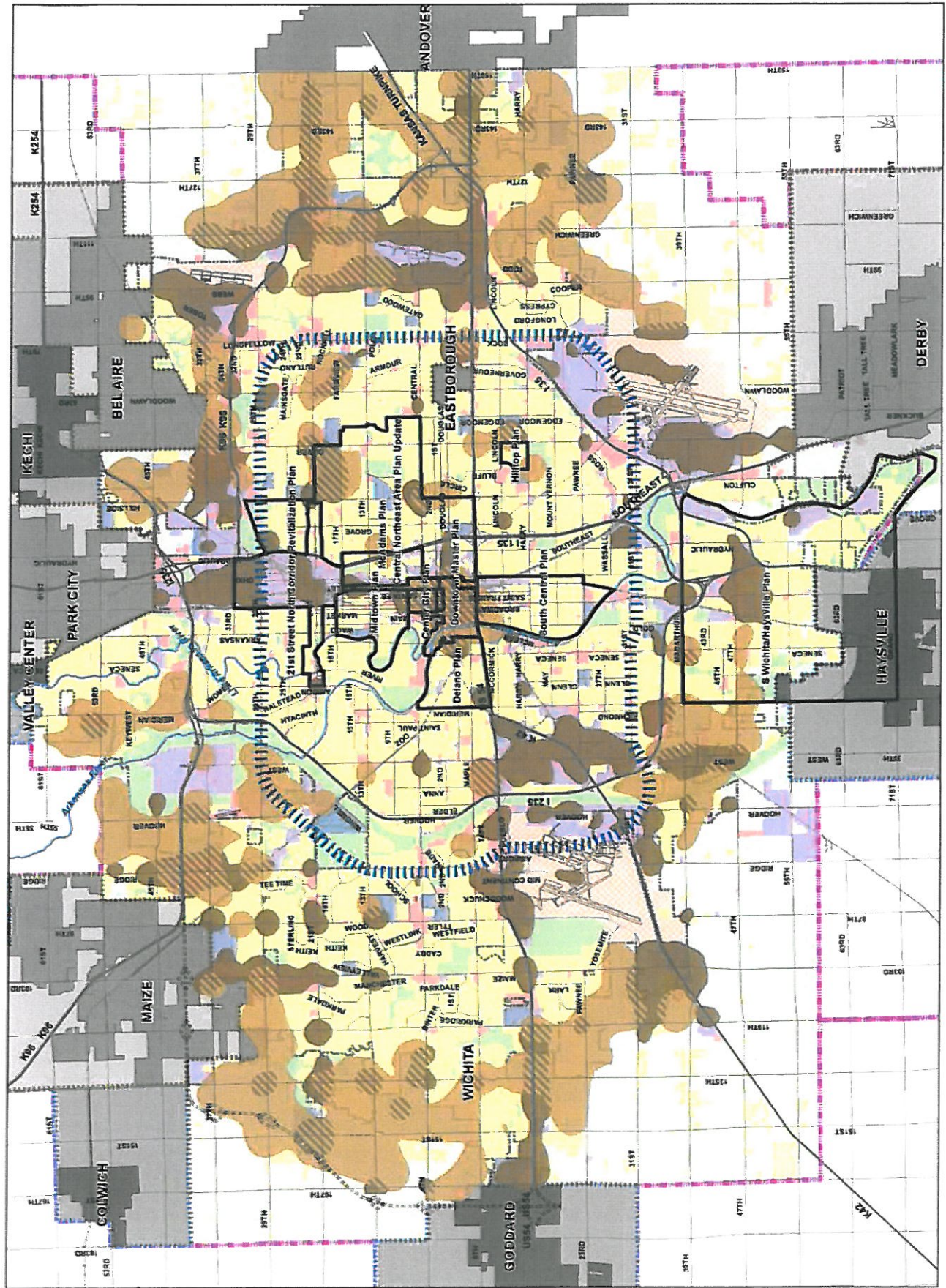
Rural: This category encompasses land outside the 2035 urban growth areas for Wichita and the small cities. Agricultural uses, rural-based businesses, and larger lot residential suburban subdivisions likely will be developed in this area. Such development should occur in accordance with the Urban Fringe Development Standards for Wichita and Sedgwick County.



2035 Wichita Future Growth Concept Map

Legend

- Established Central Area
- Northwest Bypass Right-of-Way
- Residential and Employment Mix
- New Employment
- New Residential
- Small City Limits
- Small City Limits
- Wichita City Limits
- Statistical Development Areas
- Small City Urban Growth Areas
- Small City Urban Growth Areas
- Rural Areas
- LAND USE
- Residential
- Commercial
- Industrial
- Major Arterial Transportation & Mobility
- Parks and Open Space
- Agricultural or Vacant
- Major Institutional
- Neighborhood Area Plans





Residential: Encompasses areas that reflect the full diversity of residential development densities and types typically found in a large urban municipality. The range of housing densities and types includes, but is not limited to, single-family detached homes, semi-detached homes, zero lot line units, patio homes, duplexes, townhouses, apartments and multi-family units, condominiums, mobile home parks, and special residential accommodations for the elderly (assisted living, congregate care and nursing homes). Elementary and middle schools, churches, playgrounds, small parks and other similar residential-serving uses are located in these areas.

Commercial: Encompasses areas that reflect the full diversity of commercial development intensities and types typically found in a large urban municipality. Convenience retail, restaurants, small offices, and personal service uses are located in close proximity to, and potentially mixed with, Residential Uses. Major destination areas (centers and corridors) containing concentrations of commercial and office uses that have regional market areas and generate high volumes of traffic are located in close proximity to major arterials or highways and typically are buffered from lower density residential areas by higher density housing types.

Industrial: Encompasses areas that reflect the full diversity of industrial development intensities and types typically found in a large urban municipality. Centers or concentrations of manufacturing, warehousing, distribution, construction, research, and technology are located in close proximity to highways and airports and may have rail service. Industrial uses associated with the extraction, processing or refinement of natural resources or recycling of waste materials typically are located along rail lines. Businesses with negative impacts associated with noise, hazardous emissions, visual blight, and odor typically are buffered from Residential Uses by Commercial Uses.

Major Air Transportation & Military: Encompasses areas that are developed with airports, airfields, and military installations. The areas surrounding these areas, particularly immediately in proximity to areas used for take-off and

approach to runways, should be protected from encroachment by uses that are negatively impacted by high levels of noise.

Parks and Open Space: Includes major parks, golf courses, public open space, private development reserves and recreational facilities/corridors (including floodplain, natural drainage channels, easements, abandoned railway corridors, etc.). More detailed maps and policies are contained in the *Wichita Parks, Recreation, and Open Space Plan*.



Agricultural or Vacant: Encompasses areas that are undeveloped or used for agricultural production. Agricultural land is an important natural resource. Pockets of low-density residential uses without the full range of municipal services likely will be developed in areas of the urban fringe that primarily are used for agriculture. Such development should occur in accordance with the *Urban Fringe Development Standards for Wichita and Sedgwick County* and should be developed in a manner that facilitates future connection to municipal services when they become available.

Major Institutional: Includes institutional facilities of a significant size and scale of operation and could include a range of such uses as government facilities, libraries, high schools, colleges, universities, cemeteries, and hospitals.



Neighborhood/Area Plan: Adopted neighborhood and area plans have been designated on the map. These plans should be consulted for specific future land use direction.

3. Locational Guidelines

The Locational Guidelines provide a decision-making framework regarding land use changes. This decision-making framework is comprised of three key elements - Development Pattern, Land Use Compatibility, and Design. These elements encourage patterns of development that efficiently and effectively use land, public infrastructure, and services; strive for compatibility among various land uses; and, promote quality of place through design. Within each of these elements, guidance is provided according to the following geographic areas:

“...strive for compatibility among various land uses; and, promote quality of place through design...”

1. **General** (applicable throughout the entire Plan area)
2. **Established Central Area** (specific to the downtown core and the mature neighborhoods surrounding it in a roughly three mile radius)
3. **Outside Established Central Area** (specific to the remaining incorporated areas of Wichita outside the *Established Central Area*, and also including Wichita's 2035 Urban Growth Area)
4. **Rural Area** (specific to the unincorporated areas of Sedgwick County located outside the 2035 Urban Growth Areas)

Geographic Area	Development Pattern	Land Use Compatibility	Design
General	p. 22	p. 23	p. 24
Established Central Area	p. 22	p. 24	p. 25
Outside Established Central Area	p. 23	p. 24	p. 25
Rural Area	p. 23	p. 24	p. 25

These Locational Guidelines should be used with a sense of flexibility supplemented by guidance contained in neigh-

borhood and area plans adopted as elements of this Plan; small city comprehensive plans; and other state-of-the-art planning principles and practices as circumstances warrant.

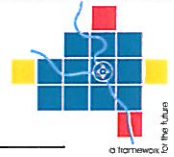
Development Pattern

1. General

- a. Development should occur where necessary supporting infrastructure and services exist or are planned for extension concurrently with the development.
- b. Discourage development from occurring in aquifer recharge, flood prone, high ground water, wetland, and unsuitable soil areas.
- c. Major commercial and employment centers should be located at intersections of arterial streets and along highways and commercial corridors.
- d. Industrial uses should be located in areas with good access to highways, rail lines, and airports.
- e. Higher-density residential uses and neighborhood-serving retail and office uses should buffer lower-density residential uses from major commercial and employment centers and industrial uses.
- f. Primary outdoor sales uses should be located along highway corridors or in areas where the uses have already been established.
- g. Support expansion of existing uses to adjacent areas.
- h. Development near primary and secondary gateways identified on the *Priority Enhancement Areas for Wichita Public Infrastructure Projects Map* should be oriented primarily towards destination retail (such as: regional shopping centers, entertainment complexes, national retailers with limited locations) and hospitality.

2. Established Central Area

- a. Encourage infill development that maximizes public investment in existing and planned infrastructure and services.
- b. Promote mixed-use redevelopment of existing commercial centers and along arterial streets.
- c. Promote downtown as the region's preeminent walk-



ports additional development on surrounding sites.

f. New development in areas where city growth areas abut should be coordinated **among the affected cities**, particularly as it relates to street connectivity and land use compatibility.

4. Rural Area

a. Outside the 2035 Urban Growth Areas, commercial/industrial development should be limited to

the following: agricultural-oriented uses; rural home occupations; natural resource dependent; convenience services; highway-oriented services at interchange areas; **or uses that need significant buffering from residential areas** (to mitigate nuisance or hazard impacts).

b. Urban-density development is discouraged from locating in rural areas, and rural-density development should be located in accordance to the *Urban Fringe Development Standards for Wichita and Sedgwick County*.

Land Use Compatibility

1. General

a. Higher-intensity development should be discouraged from locating in areas of existing lower-intensity development, particularly established low-density residential areas.

b. Industrial and major commercial land uses that generate pollution, odor, noise, light, safety hazards, and high **levels of traffic should be located away from residential areas and developed with screening, buffering, and site design features sufficient to mitigate adverse impacts.**

c. Residential development should not encroach upon existing or planned **heavy industry, airfields, and military installations.**

d. Manufactured home parks (as distinguished from manufactured home subdivisions) should be located on large

able, mixed-use development area **with a focus on office, retail, hospitality, government services, high-density residential, and entertainment, cultural, and civic facilities and activities.**

3. Outside Established Central Area

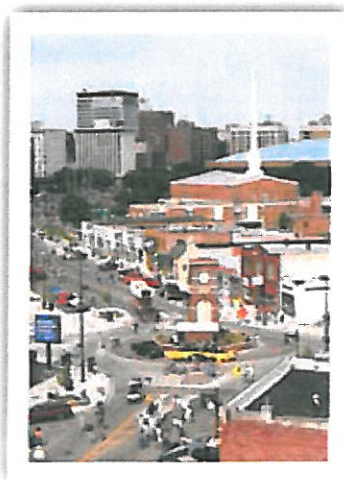
a. Strip commercial development along arterials should be discouraged except along established commercial corridors and highways.

b. Major commercial development should be guided to the intersection of two arterial streets.

c. **Small, neighborhood-serving retail and offices uses** and high-density residential uses not located at arterial intersections should be limited to the intersection of an arterial and a collector street.

d. **Low-density residential uses should be buffered from commercial and industrial areas** by open space, water bodies, changes in topography, or major barriers such as arterial streets or highways.

e. New development areas separated from existing developed areas by major barriers (such as: highways, railroads, waterways, and airports) **or by significant open space** or undeveloped areas should be discouraged unless the scale of the **development is sufficient to support the cost of extending infrastructure and services in a manner that sup-**





tracts and buffered from lower-density residential areas by physical barriers (e.g., freeways, drainage ways, railway, etc.).

2. Established Central Area

- a. Neighborhood-serving retail and office uses and high-density residential uses can be appropriate along arterial streets on small infill sites near residential uses or through conversions of residential structures if appropriate site design features that limit traffic, noise, lighting, and adverse impacts on surrounding residential are provided and the scale of the development is appropriate for its context.
- b. Accessory dwelling units, duplexes, and small-scale multi-family developments can be appropriate in existing residential areas if appropriate site design limits adverse impacts on surrounding residential uses, the design of the buildings is compatible with existing residences, and the scale of the development is compatible with the intensity of the surrounding area.

3. Outside Established Central Area

- a. Except in mixed-use developments, residential and non-residential development areas generally should be separate and distinct with appropriate screening and buffering to ensure compatibility among land uses while maintaining connectivity among uses.



- b. Mixed-use developments should provide appropriate screening and buffering to ensure compatibility with surrounding lower-intensity land uses while maintaining connectivity among uses.

4. Rural Area

- a. Discourage encroachment of land uses such as residential and recreation that would be negatively impacted by noise, dust, odor, light, and other impacts of agricultural operations into primarily agricultural areas outside the 2035 Urban Growth Areas.
- b. Industrial and commercial uses located in rural areas should be separate and distinct from lower-intensity

land uses and should provide appropriate screening and buffering to ensure compatibility among land uses.

Design

1. General

- a. Commercial centers, office parks, and mixed-use developments should be designed with shared internal vehicular and pedestrian circulation, combined signage, coordinated landscaping and building design, and combined ingress/egress locations.
- b. Ingress/egress locations to non-residential uses generally should not access residential streets unless such access will not negatively impact nearby residential areas, **except that industrial traffic should not feed directly into local streets in residential areas.**
- c. Driveways and intersections along major thoroughfares **should be limited to maintain safe and efficient mobility.** Medians should be used when appropriate to limit turning conflicts, **particularly near arterial intersections.** Pedestrian crossings of arterial streets should be provided between arterial intersections.
- d. Except in mixed-use development areas, non-residential uses **should provide appropriate screening and buffering** from residential uses.
- e. Non-residential uses should have site design features **that limit traffic, noise, lighting, and adverse impacts on** surrounding residential land uses.
- f. Major commercial and employment centers and institutional and government services should be designed to accommodate convenient transit service, particularly for those with mobility challenges.
- g. Building entrances should be oriented to the street or internal circulation drives that connect to the street and designated pedestrian connections should be provided from building entrances to the street.
- h. Development abutting the targeted arterials, Kellogg freeway, gateways, and landmarks identified on the





Priority Enhancement Areas for Wichita Infrastructure Projects Map should consider the inclusion of site design features that increase the sense of quality of life through emphasis of visual character and aesthetic improvements.

2. Established Central Area

- a. Support development of a variety of lot sizes and housing types.
- b. Buildings are encouraged to be located close to the street with parking areas located beside or behind buildings.
- c. Commercial and mixed-used developments are encouraged to have building entrances, transparent facades, and outdoor patios adjacent to the sidewalk.

3. Outside Established Central Area

- a. Low-density residential lots should not front directly onto arterial streets.
- b. Layout of blocks within neighborhoods should promote direct pedestrian connectivity within the neighborhood and to adjacent neighborhoods and surrounding commercial centers and institutional uses.

4. Rural Area

- a. Layout of blocks that provide a single point of access to a neighborhood should be discouraged.

4. Wichita Urban Infill Strategy

Infill refers to developing vacant or underutilized land in existing developed areas. By absorbing growth in existing developed areas, residential and employment-based infill development can reduce growth pressure on rural areas; provide for efficient use of land; utilize existing infrastructure and services; and improve the quality of life in areas experiencing abandonment and decline. However, infill development can be inhibited by regulatory barriers, infrastructure in need of modernization, neighborhood concerns about different housing types or incompatible uses, and difficulties with land assembly and financing.

The Wichita Urban Infill Strategy is focused on the Established Central Area – comprised of the downtown core and the mature neighborhoods surrounding it in a roughly three mile radius (see 2035 Wichita Future Growth Concept Map). Increased levels of residential infill/redevelopment

throughout the Established Central Area will represent 12% of total new dwelling units forecasted for Wichita by 2035 (a threefold increase from current trends).

The strategy focuses on ‘areas of opportunity’ that have the most vacant and underutilized parcels where infill development can reverse patterns of abandonment and decline. The strategy also is intended to preserve ‘areas of stability’ where few vacant and underutilized parcels exist and a pattern of continued reinvestment is evident. Neighborhood and area plans adopted as elements of the Wichita-Sedgwick County Comprehensive Plan will provide additional land use policy guidance as applicable.

Areas of Opportunity

Defining Characteristics: Areas of opportunity are areas in the community where focused efforts on infill development can have the most success. The defining characteristics of areas of opportunity are generally higher than average and increasing:

- Vacant parcels
- Vacancy rates
- Renter-occupied dwelling units
- Structures in fair or worse condition
- Nuisance complaints
- Building demolitions
- Infrastructure below standard





Guiding Principle: Larger-scale, multi-property infill projects should be guided to areas of opportunity to maximize public investment in existing and planned infrastructure and services.

Areas of Stability

Defining Characteristics: Areas of stability are areas in the community where infill development opportunities are limited by the lack of available land. Areas of stability have few vacant parcels and higher than average occupancy rates. A majority of the structures are in average or better condition and owner-occupied. There are few nuisance complaints and building demolitions, and much of the infrastructure is at or above standard.

Guiding Principle: Infill development should be limited to projects on individual or small sites with a scale of development appropriate for its context. Infill projects should complement existing neighborhood development and incorporate site design features that limit traffic, noise, lighting, and adverse impacts on surrounding properties.

Neighborhood Concerns

Issue: Infill development changes a neighborhood. While redevelopment projects can be of the appropriate scale and have the necessary design features to mitigate adverse impacts on surrounding properties, current processes make it difficult for neighborhoods to visualize the proposed changes and have meaningful input into project design.

Strategy: Establish a participatory neighborhood planning program to prepare neighborhood design guidelines for areas of opportunity prior to construction of large-scale, multi-property infill projects. Also develop basic infill development guidelines that would be applicable throughout the Established Central Area.

Regulatory Issues

Issue: Our traditional development regulations are geared toward suburban-scale, auto-oriented development requirements (such as: parking, setbacks, density, landscaping, screening, etc.). To promote greater levels of more

walkable, urban-scale infill projects, regulatory changes are required.

Strategy: Amend development regulations to better encourage by-right infill development projects.

Infrastructure Modernization

Issue: Many of the areas where the opportunity for infill development exist are also the areas with the most sub-standard infrastructure. While infrastructure may be in place, it often cannot support additional development, and the layout and design of the infrastructure often must be changed to support the configuration of infill.

“...infill development projects often do not qualify for conventional financing because the appraised value of a project is less than the cost of development...”

Strategy: Develop and implement a long-range plan for major infrastructure maintenance projects that focuses infrastructure investment in areas of opportunity in a manner supportive of infill development efforts.

Land Assembly and Financing

Issue: Profitable infill development opportunities are difficult to find. Once an area experiences a few successful projects, the remaining available land often increases in value beyond a level at which additional projects can be profitable. Additionally, infill development projects often do not qualify for conventional financing because the appraised value of project is less than the cost of development.

Strategy: Establish a public-private relationship to support infill development through market research, design assistance, and financing opportunities.

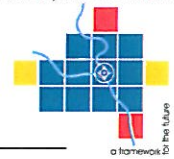


Plan Elements





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Plan Element- Funding and Financing

Plan Context & Perspective - According to Kansas statutes, a specific requirement of a city and county comprehensive plan is to identify major sources and expenditures of public revenue including long range financial plans for the financing of public facilities and capital improvements. For the purposes of this Plan, the term 'funding' is used to describe the various sources of revenue available for spending/investing. The term 'financing' is used to describe the various means by which funding is leveraged, combined and utilized for spending/investing purposes.

One of the Core Community Values of this Plan is fiscal responsibility.

This value embodies the following principles ... don't spend more than you have; spend and invest wisely; take care of what you have; and maximize the 'return-on-investment'.

Presently, there is an estimated \$9-10 billion gap over the next 20 years between Wichita's planned future infrastructure and facility expenditures and its projected revenues. A key challenge of this Plan is how to close that gap over the long-term. Our choices are essentially increasing revenues (through taxes and fees), decreasing expenditures (utilizing alternate approaches or standards; reducing scope and scale of projects; deferring or eliminating projects), and learning to live within the funding and financing resources available to local government.

From a public infrastructure funding and financing perspective, the preferred option of closing the projected expenditure and revenue gap over the long term is to **better align expenditures with available funding and financing resources**. While opportunities to increase revenues may present themselves in the future, there are more opportunities to improve how budget allocations are made for capital improvements.

"...there is an estimated \$9-10 billion gap over the next 20 years between Wichita's planned future infrastructure and facility expenditures and its projected revenues..."

"...better align expenditures with available funding and financing resources..."

Our Funding and Financing Goals & Strategies

Goal 1 - Close the long-term cost/revenue gap between our planned future infrastructure and facility expenditures and our projected revenues.

Strategies:

- A. Strategically leverage public and private funding where possible.
- B. Decrease project costs through a combination of reduced or alternate project approaches or standards; reduced project scale and scope; and, project deferral or elimination.
- C. Identify long-term maintenance and replacement costs for all capital improvement program projects. Include ongoing maintenance and operations budgets as part of the overall project cost.

- D. Align infrastructure and facility funding to reflect the maintenance and replacement costs associated with that infrastructure or facility.

Goal 2 - Maintain a responsible and appropriate taxing level to address our community's needs.

Strategies:

- A. Align utility fees, user fees and taxes to reflect the cost of providing facilities and services at standards acceptable to our community.
- B. Align our public infrastructure and facility investments with the willingness of our community to pay for them.
- C. In 1985, Sedgwick County voters approved a county-wide one-cent sales tax to help maintain or construct road projects as well as reduce property tax. The one-cent sales tax revenue distribution formula is determined by statute and is based on local jurisdiction property tax mill levy rates as well as population.

Goal 3 - Establish funding priorities which reflect community priorities.

Strategies:

- A. Fund public infrastructure and facilities based upon the following overall ranking of spending and investment priorities:





1. Maintain and replace what we currently have;
2. Make enhancements to what we currently have;
3. Expand our current system of infrastructure and facility assets.

- B. Focus funding on infrastructure and facilities that will advance our community quality of life, create a place that will retain future generations, and promote economic growth and job creation.
- C. Focus funding on infrastructure and facilities that will maintain vibrancy, promote growth and secure quality of place in the Established Central Area of Wichita.
- D. Review existing public infrastructure and facility assets to determine those assets which should no longer be retained by the City or County due to duplication/redundancies with private sector facilities, functional obsolescence, and/or changing community investment priorities.

tion infrastructure constitutes a basic yet essential, community-sustaining investment.

“...additional expenditures are needed to maintain Wichita’s local road system...”

Wichita’s freeway and bridge infrastructure are in good condition overall with adequate system capacity. The County’s road and bridge infrastructure are in very good repair and condition. However, decades of under-investment and deferred maintenance in Wichita’s local road system has required the City to develop an enhanced maintenance strategy for its local road infrastructure. Additional expenditures are needed to maintain Wichita’s local road system.

Decades of under-investment in Wichita’s long-established public transit system have resulted in minimal service levels, low ridership and future financial instability. Additional investment in Wichita’s public transit system would be needed in order to achieve the system’s financial stability and retain public transit service. Opportunities for alternate, innovative solutions must be pursued.

Plan Element -

Transportation

Plan Context & Perspective -

The realization of the 2035 Plan Vision Statement is dependent upon our community having a safe, reliable and well-connected transportation system that strategically supports economic growth and community quality of life.

The term “transportation” refers to the movement of goods, people and information. Our transporta-

For Wichita, the level of investment priority over the next 20 years varies across the major transportation infrastructure categories as follows:

- Very high priority* - local streets and bridges
- Medium-high priority* - public transit
- Low-medium priority* - freeway enhancements
- Low priority* - new bypasses

For Sedgwick County, the level of investment priority over the next 20 years varies across the major transportation infrastructure categories as follows:

- Very high priority* - local streets and bridges
- Medium-high priority* - freeway enhancements
- Medium priority* - new bypasses
- Low priority* - public transit

Our Transportation Goals & Strategies

Goal 1 - Preserve and maintain a safe, cost-effective and reliable transportation system that strategically supports the economic growth, vitality and quality of life aspirations of our community.





Strategies:

- A. Develop and implement a transportation asset management system that effectively uses available funds.
- B. Make transportation infrastructure investments, particularly integrated transportation technology enhancements, that support and reflect Wichita's 2035 Future Growth Concept and Urban Infill Strategy.
- C. Allocate additional funding for the long-term maintenance and replacement of Wichita's existing local road and bridge infrastructure.
- D. Invest in new or existing transportation infrastructure that directly supports additional job growth, especially of an advanced manufacturing or high-tech nature.

Goal 2 - Improve and increase the movement of goods, people and information with better connectivity and mobility options in our community.

Strategies:

- A. Develop and implement a community-wide, public and/or private broadband infrastructure and high-speed internet access plan to support future job and employment growth.
- B. Develop and implement a long-term transit system plan that reflects the needs of our community.
- C. Improve our community connectivity and safety through the implementation of *Wichita's Bicycle Master Plan* and *Pedestrian Master Plan*, and promoting linkages to surrounding cities in the County.
- D. Coordinate and integrate local transportation infrastructure plans with the Wichita Area Metropolitan Area Organization (WAMPO) long-range regional transportation infrastructure plan.

Plan Element -

Water, Sewer and Stormwater

Plan Context & Perspective - The realization of the 2035 Plan Vision Statement is predicated upon our community securing a long-term water supply, and having well-maintained

water treatment/distribution, sewer collection/treatment and stormwater/flood management systems. These constitute essential, community-sustaining services. They represent a basic yet essential public investment that supports future job growth and a strong economy.

Decades of under-investment and deferred maintenance in Wichita's water, sewer and stormwater infrastructure requires the City to be aggressive in protecting what assets it already has (especially replacing aging pipe infrastructure) and making future water and sewer facility enhancements to meet required treatment and discharge standards. Additional investment in our community water, sewer and stormwater infrastructure and facilities is necessary ... securing a long-term water supply is critical to the future of our community.

The funding/financing, maintenance, replacement and enhancement of our public water, sewer and stormwater infrastructure and facilities is a *high-very high investment need* for our community over the long term.

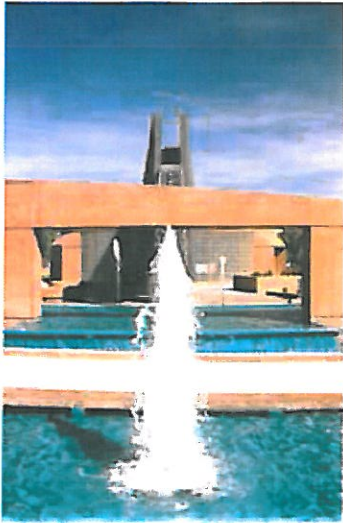


Our Water, Sewer and Stormwater Goals & Strategies

Goal 1 - Provide a well-maintained long-term water supply, treatment and distribution system that supports the economic growth, vitality and quality of life aspirations of our community.

Strategies:

- A. Develop and implement Wichita's long-term water sup-



ply, treatment and distribution plans to reflect and accommodate Wichita's 2035 Future Growth Concept and Urban Infill Strategy (including long-term population and employment growth projections).

B. Develop and implement a Wichita water supply funding/financing plan that enables our community to make those investments necessary to secure an affordable, long-term water supply.

C. Develop and implement a Wichita water funding/financing plan that identifies appropriate water rate

adjustments necessary to properly maintain Wichita's water infrastructure over the long-term.

D. Place a very high investment priority on properly maintaining and replacing Wichita's aging, existing water distribution system.

E. Develop and implement a Wichita water conservation and drought-response plan that is relevant to our community's need and supported by our community.

F. Create a task force comprised of appropriate representatives from the City of Wichita and other affected cities, the local land development community, and the rural water districts to identify workable long-term solutions to compensatory and logistical issues associated with continued urban growth and development within the rural water districts in Sedgwick County.

Goal 2 - Provide a well-maintained Wichita sanitary sewer treatment and collection system that supports the economic growth, vitality and quality of life aspirations of our community.

Strategies:

A. Develop and implement Wichita's long-term sewer collection and treatment plans to reflect and accommodate Wichita's 2035 Future Growth Concept and Urban Infill Strategy (including long-term population and employment growth projections).

B. Develop and implement a Wichita sewer funding/financing plan that identifies appropriate sewer rate adjustments necessary to properly maintain Wichita's sewer infrastructure over the long-term.

C. Place a very high investment priority on properly maintaining and replacing Wichita's aging, existing sewer collection system.

D. Invest to ensure that Wichita's sewer collection and treatment infrastructure and facilities meet required standards and long-term community needs.

E. Ensure that appropriate local regulations are in place that provide for the compatible, long-term co-existence of city water and sewer infrastructure systems with self-contained, independent sewer collection and water distribution systems.

“...invest in
maintaining and
replacing
our aging water and
sewer distribution
systems...”

Goal 3 - Provide a well-maintained stormwater management system and approach that adequately serves and protects our community while meeting state and federal mandates.

Strategies:

A. Develop and implement long-term stormwater management plans that reflect and accommodate Wichita's 2035 Future Growth Concept and Urban Infill Strategy (including long-term population and employment growth projections), and address county-wide stormwater and flooding issues.

B. Develop and implement a county-wide stormwater funding/financing plan that will raise sufficient revenues needed to plan and construct stormwater project improvements with regional, county-wide or multi-jurisdiction benefits.





- C. Develop and implement a Wichita stormwater funding/financing plan that determines appropriate ERU (equivalent residential unit) rate adjustments necessary to properly fund the maintenance and repair of Wichita's stormwater infrastructure over the long-term.
- D. Make the investments necessary to properly maintain and replace our existing stormwater infrastructure and facilities.
- E. Maintain and implement stormwater management standards that meet mandated requirements but do not place undue burdens on development or redevelopment.
- F. Integrate park and open space improvements where appropriate and cost-effective as part of stormwater management system infrastructure improvements.

Plan Element -

Arts, Culture and Recreation

Plan Context & Perspective - Having a "quality living environment and active, healthy lifestyles with access to arts, culture and recreation" is specifically referenced in the 2035 Plan Vision Statement. One of the five Plan Guiding Policy Principles is to Invest in the Quality of Our Community Life. It is evident that community quality of life investments are important to residents of our community and are an essential means of supporting future job growth and a strong economy.

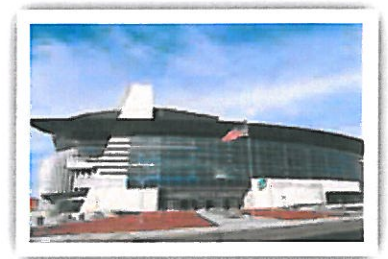
Arts, culture and recreation quality of life investments refer to capital, maintenance and operational spending in the general categories of parks and open space; recreation facilities; libraries; and, arts, culture and entertainment. From a public infrastructure perspective, appropriately funding, maintaining and expanding our arts, culture and recreation quality of life investments is an overall *medium-high priority investment need* for our community over the long term.

Our Arts, Culture and Recreation Goals & Strategies

Goal 1 - Improve quality of life and healthy lifestyles for all through an accessible system of arts, culture, library, recreation and open space facilities.

Strategies:

- A. Review and update the *Wichita Parks, Recreation and Open Space Plan* to ensure that future planned parks/open space and recreation facility investments (capital, maintenance, operations) strategically integrate with County regional parks and open space investments, and remain consistent with our community priorities and willingness to pay.
- B. Develop and implement a joint City/County integrated cultural arts/quality of life facilities investment plan to achieve better planning, coordination, integration and maximization of City and County quality of life community investments.
- C. Utilize relationships with private and not-for-profit organizations and secure dedicated funding sources for the construction, maintenance and operation of our quality of life investments (includes park/open space, recreation, library and cultural arts facilities).
- D. Employ best management practices/systems to properly maintain our existing quality of life facilities.



“...quality of life investments are important to residents of our community...”

- E. Review and update the Wichita Public Library System Master Plan to ensure our city-wide system of library facilities and associated technologies remain relevant to the evolving library needs of our community.

- F. Develop and implement a “built environment” strategic plan that better promotes healthy community

lifestyles, neighborhood and community connectivity, resource conservation, protecting the City's urban forest in public spaces, and multiple-use integration of our parks, open space and stormwater management systems.

- G. Identify opportunity areas and regulatory adjustments necessary to support agritourism in the unincorporated areas of Sedgwick County.



Plan Element - Public Safety

Plan Context & Perspective - Having a “safe community” is specifically referenced in the 2035 Plan Vision Statement. From a public infrastructure perspective, appropriately maintaining and expanding our fire, police and EMS facilities is a *high priority investment need* for our community over the long term.

Our Public Safety Goals & Strategies

Goal 1 - Provide efficient and effective police, fire and EMS public safety service facilities that meet current and future community needs.

Strategies:

- A. Identify opportunities for collaborative partnerships, joint-funding and joint-use agreements, and sharing of facilities between public safety government agencies.
- B. Evaluate the merits of City/County public safety services consolidation as an option to provide for more

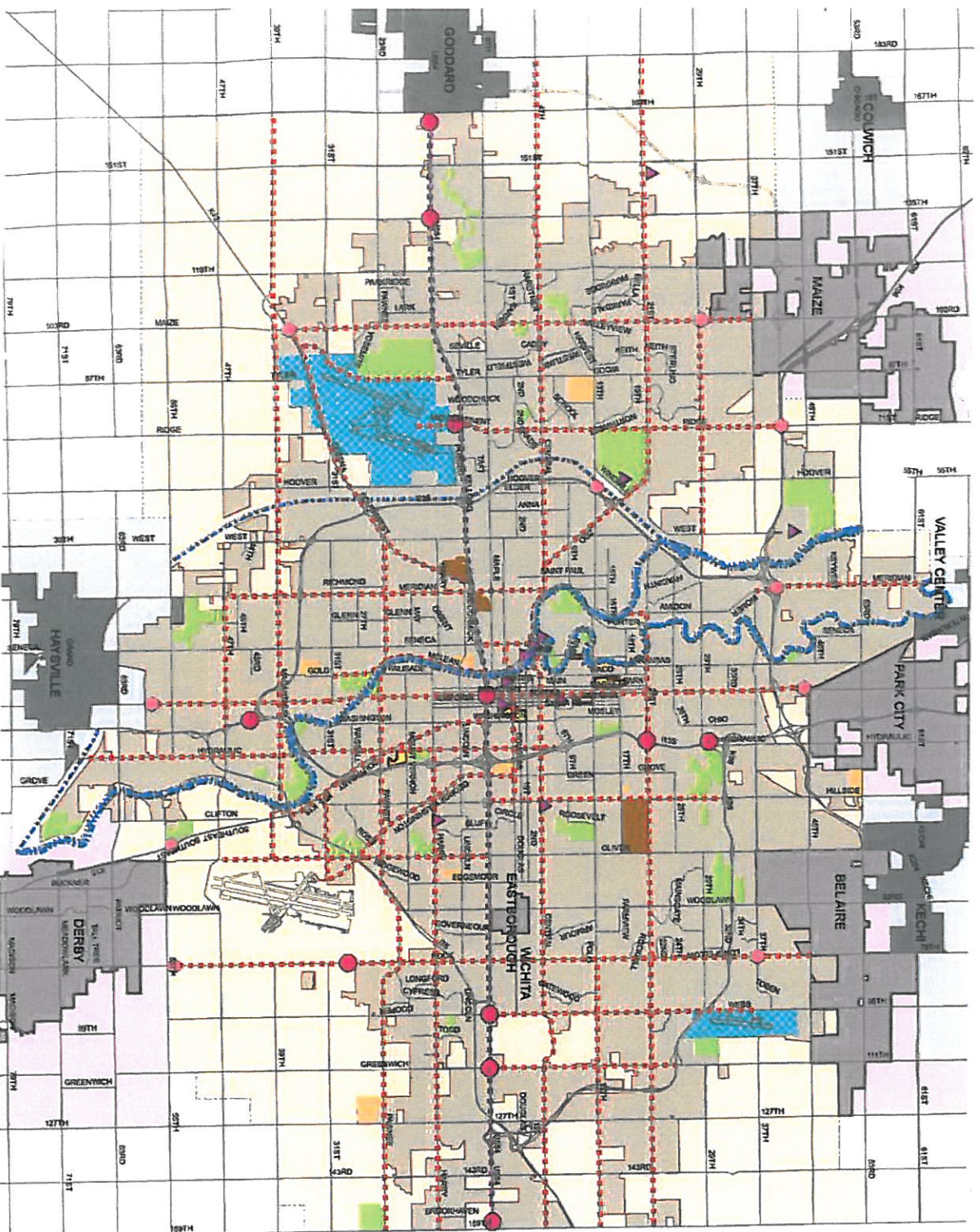
coordinated and cost-effective public safety facility operations and service delivery.

- C. Ensure that service and facility planning for police, fire and EMS service delivery addresses current and future community needs, adapts to future patterns of growth, and supports neighborhood-based safety initiatives within the City of Wichita.
- D. Establish performance measures that evaluate functional relevancy, need and effective utilization of our public safety service facilities.

“...maintaining and
expanding our fire,
police, and EMS facilities
is a
high priority
investment need...”



Priority Enhancement Areas for Wichita Public Infrastructure Projects



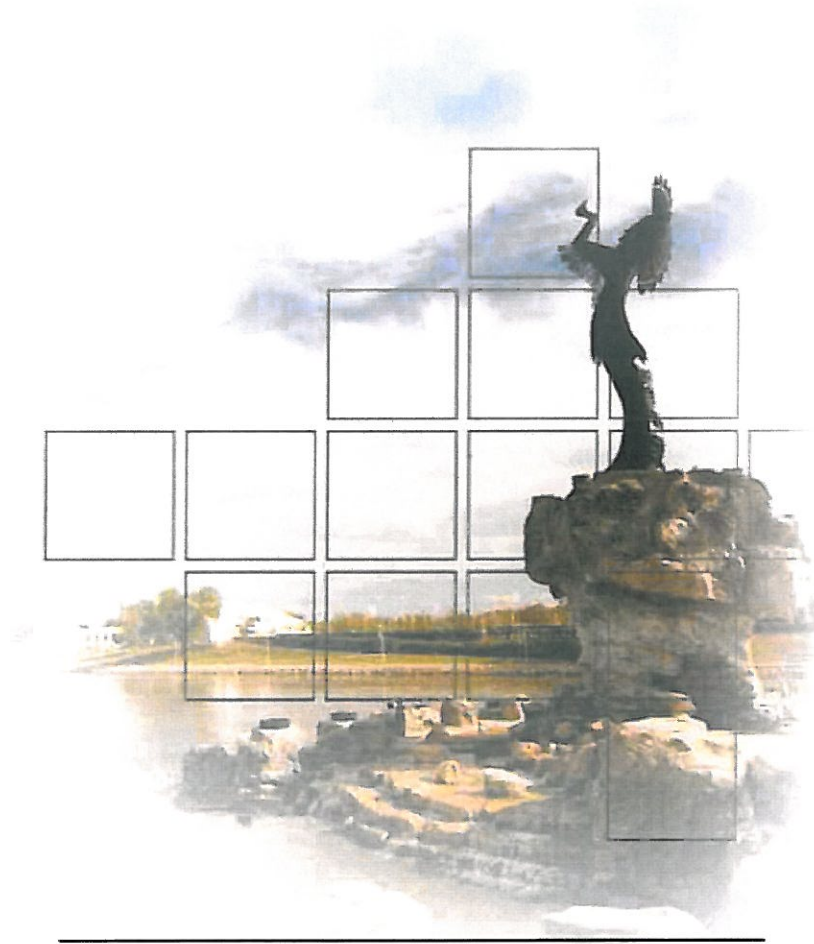
- Legend**
- Targeted Arterials
 - Kellogg
 - Proposed Northwest Bypass Corridor
 - Big Arkansas River
 - Little Arkansas River
 - Big Ditch Flood Control
 - Gateways & Landmarks
 - Wichita Primary Gateway
 - Wichita Secondary Gateway
 - Landmark/Regional Destination
 - Historic Districts
 - Universities
 - High School Sites
 - Publicly Operated Airports
 - Wichita Area Parks Over 20 Acres
 - City Limits
 - Wichita City Limits
 - Small City Limits
 - Wichita 2035 Growth Areas
 - Small City 2035 Urban Growth Areas
 - Small City 2035 Urban Growth Areas
 - Rural Areas

Intent and Purpose:

This map replaces the 1993 Visual Form map and is intended to foster efforts to improve community perception and increase the sense of quality of life in Wichita through emphasis of the visual character of public facilities and open spaces.

Its purpose is to help the City with prioritizing City of Wichita public works projects along specified corridors, at gateways, and at other selected locations for aesthetic improvements including landscaping, public art, and other visual enhancements to public facilities and right-of-way.



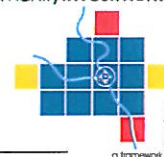


Plan Implementation





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Plan Implementation

Part 1. Infrastructure Investment Decision-making Framework

Plan Context & Perspective - The infrastructure investment decision-making framework is a tool to systematically guide future public spending in a manner that supports community priorities, reflects willingness to pay, and is coordinated with market-driven growth. This framework is also intended to help close the gap over the next 20 years between our forecasted revenues and the costs of our proposed capital project needs and wants associated with the 2035 Wichita Future Growth Concept. The forecasted revenues and proposed capital project costs have been aggregated and summarized below for planning-level purposes:

Project Costs

▪ Maintaining and replacing existing infrastructure	\$4.9 billion
▪ Making enhancements to what we currently have	\$6.4 billion
▪ Expanding our current system of infrastructure & facilities	\$2.1 billion
Total	\$13.4 billion

Forecasted Revenues

Total	\$3.9 billion
<i>Projected Gap</i>	<i>\$9.5 billion</i>

The infrastructure investment decision-making framework is comprised of various components, criteria and considerations. This framework is intended to encourage long-term continuity and best practices for decision-makers as they implement the Guiding Principles, Goals and Strategies set forth in this Plan, for the intent of ...

- Promoting economic growth and job creation
- Advancing community quality of life and safety
- Creating a community that will attract and retain future generations

For the purposes of this Plan, the term 'spending/investing' is used to describe *where* and for *what purposes* funding and financing will be utilized. The term 'decision-making' is the process of deciding *how* to spend/invest.

The Framework ...

The components and accompanying criteria listed below represent different levels of evaluation for both new and replacement infrastructure and facility projects. There will be interplay between these three levels of evaluation during the project decision-making process.

Level 1 Evaluation - Detailed Project Analysis

(determining individual project merits)

- To what extent is this project right for our community in terms of:
 - a) Scope and scale (cost effectiveness)
 - b) Timing
- Is this project recommended in a plan approved or endorsed by the City Council or the County Board of Commissioners?
- To what extent does this project build upon prior investments or generate multiple benefits to our community?



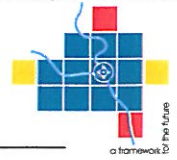


- Is there a legal mandate or requirement to do this project?
- To what extent does this project reduce or offset costs to the community?
- Project economic and quality of life assessments – will this project:
 - a) Increase wealth for our local economy
 - b) Generate job growth for our community
 - c) Secure or protect important natural resources (soil, water and air quality)
 - d) Retain current residents and attract future residents - help create a community that is desirable and attractive to future generations
- Is this a project that impacts infrastructure or facility assets that should no longer be retained by the City or County due to duplication/redundancies with private sector facilities, functional obsolescence, and/or changing community investment priorities?
- Project funding and financing assessments:
 - a) How will this project be funded and financed
 - b) Is this project identified for funding in the Capital Improvement Program for Wichita or Sedgwick County
 - c) What is the project's impact on the City of Wichita or Sedgwick County budget
 - d) Have sufficient operating and maintenance funds been secured for this project once construction is completed
 - e) Has a benefit/cost or 'return-on-investment' analysis been done for this project
 - f) What are the 'trade-offs' if this project is approved (e.g. what other projects do not get built, or are deferred or reduced in scope)

Level 2 Evaluation - Project Selection & Funding

(determining project priorities)

- To what extent is this project consistent with the five Plan Guiding Policy Principles:
 1. Support an Innovative, Vibrant and Diverse Economy
 2. Invest in the Quality of Our Community Life
 3. Take Better Care of What We Already Have
 4. Make Strategic, Value-added Investment Decisions
 5. Provide for Balanced Growth but with Added Focus on Existing Neighborhoods
- What is the priority of this project in relation to the 'Infrastructure & Facility Investment Category Priorities':
 - Priority 1 - Maintain and replace what we currently have
 - Priority 2 - Make enhancements to what we currently have
 - Priority 3 - Expand our current system of infrastructure and facility assets



- To what extent is this project consistent with the Plan Element Goals for:
 - * Public Safety
 - * Transportation
 - * Water, Sewer, Stormwater
 - * Arts, Culture, Recreation
 - * Funding and Financing
- Does this project allocate funding to those categories of infrastructure that have the highest need for additional investment?

Level 3 Evaluation - Capital Improvement Programming

(appropriate project timing, phasing & sequencing)

- To what extent do the capital projects programmed for Wichita or Sedgwick County reflect the project initiation and completion sequencing principles of: 'plan', 'design', 'fund/finance', 'construct'?
- To what extent are the capital projects programmed for funding over the next three to five years properly and logically timed, coordinated and integrated (geographically and fiscally)?
- To what extent are the capital projects programmed for funding critically and strategically timed and synchronized with external mandates and/or external funding and financing considerations?
- To what extent are the capital projects coordinated with market-driven development?





Part 2. Plan Monitoring, Review and Amendment

Plan Context & Perspective - In a new era of social and economic uncertainty, it is imperative that a systematic and ongoing approach be developed to monitor change and to review and evaluate this Plan. This will allow the Plan to be adjusted and updated annually as necessary so as to remain relevant and appropriate for our community. The ultimate measure of the Plan's success is whether it helps our community to become what we wish it to be over the next 20 years.

a) Plan Monitoring Approach

2035 Plan Vision Statement - Reflects Desired Plan Outcomes:

- > Global center of advanced manufacturing and high-tech industries
- > Premier regional service, education and retail center
- > **Affordable housing opportunities**
- > Vibrant neighborhoods
- > Active, healthy lifestyles
- > Safe community

Plan Guiding Policy Principles - Represent Key Areas to Measure Plan Performance:

1. Support an Innovative, Vibrant and Diverse Economy.

Hi-tech, advanced manufacturing and business start-up job-growth indicators

- a) Center for Economic Development and Business Research data:
 - Bureau of Labor Statistics
 - County Business Patterns
 - GDP data (total and per capita growth rates)
 - Small Business Innovation Research Grants
 - Small Business Technical Transformation Grants
- b) Greater Wichita Economic Development Coalition data:
 - Annual projects announcement report data

Regional service, education and retail job growth indicators

- a) Center for Economic Development and Business Research data:
 - Bureau of Labor Statistics

- County Business Patterns

b) GWEDC data:

- Annual projects announcement report data

c) American Community Survey data:

- Annual education attainment levels for Wichita and Sedgwick County

Economic opportunities & growth indicators

a) National Citizen Survey Benchmark Results for Wichita* - 'Wichita average rating' & 'comparison to benchmark' for the following survey questions:

- Employment opportunities
- Shopping opportunities
- Economic development services
- Educational opportunities
- Wichita as a place to work

b) American Community Survey data:

- Annual median income for Wichita and Sedgwick County
- Annual percentage change in the 25-40 age cohort for Wichita and Sedgwick County
- Wichita and Sedgwick County unemployment rates

2. Invest in the Quality of Our Community Life.

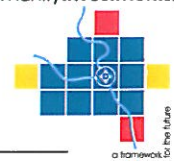
Quality of life indicators

a) National Citizen Survey Benchmark Results for Wichita* - 'Wichita average rating' & 'comparison to benchmark' for the following survey questions:

- Overall quality of life in Wichita
- Sense of community
- Your neighborhood as a place to live
- Wichita as a place to live
- Wichita as a place to raise kids
- Wichita as a place to retire
- Recommend living in Wichita
- **Will remain in Wichita for the next five years**
- Opportunities to attend cultural activities
- Air quality
- Public safety – violent crimes
- Public safety – property crimes

*assumes continued future participation





3. Take Better Care of What We Already Have.

Plan Element: Public Safety

Building Facility Condition Indicators

- a) Wichita Public Works and Utilities Dept. (under development)
 - Building asset value (\$ million)
 - Building remaining service life (sq. footage yrs.)
 - Buildings with no remaining service life (sq. footage)
- b) Sedgwick County Information & Operations - Facilities Division
 - Building roof useful life remaining
 - Building HVAC useful life remaining

Plan Element: Transportation

Street and Bridge Infrastructure Condition Indicators

- a) Wichita Public Works and Utilities Dept. (under development)
 - Paved road network service value (\$ million)
 - Paved road network remaining service life (lane mile yrs.)
 - Paved road lane miles with no remaining service life (lane miles)
 - Bridge network service value (\$ million)
 - Bridge network remaining service life (lane mile yrs.)
 - Bridge network remaining service life (lane miles)
- b) Sedgwick County Public Works Division
 - Percentage of paved lane miles receiving preventative maintenance
 - Percentage of all lane miles with permanent pavement
 - Percentage of all lane miles with temporary pavement
 - Bridge average sufficiency rating (scale of 0 to 100)
 - Bridge percentage of inventory with sufficiency rating below 50
 - Number of bridges requiring special inspections
- c) National Citizen Survey Benchmark Results for Wichita* - 'Wichita average rating' & 'comparison to benchmark' for the following survey questions:
 - County Business Patterns
 - Street repair
 - Sidewalk maintenance

- Ease of car travel
- Ease of bus travel
- Ease of bicycle travel
- Ease of walking

Plan Element: Water, Sewer, Stormwater

Water, Sewer and Stormwater Infrastructure Condition Indicators

- a) Wichita Public Works and Utilities Dept. (under development)
 - Water, sewer, stormwater line and main network service value (\$ million)
 - Water, sewer, stormwater line and main network remaining service life (pipe inches/feet yrs.)
 - Water, sewer, stormwater line and main network with no remaining service life (pipe inches/feet)
 - Long-term water supply (mg/day/years)
 - Water treatment plant asset value (\$ million)
 - Water treatment plant capacity (million gallons/day years)
 - Wastewater treatment plant asset value (\$ million)
 - Wastewater treatment plant capacity (million gallons/day years)
- b) Sedgwick County Public Works Division
 - Number of homes and businesses in the 100 year floodplain
- c) National Citizen Survey Benchmark Results for Wichita* - 'Wichita average rating' & 'comparison to benchmark' for the following survey questions:
 - Sewer services
 - Drinking water
 - Storm drainage

Plan Element: Arts, Culture, Recreation

Building Facility Condition Indicators

- a) Wichita Public Works and Utilities Dept. (under development)
 - Building asset value (\$ million)
 - Building remaining service life (sq. footage yrs.)
 - Buildings with no remaining service life (sq. footage)

*assumes continued future participation





b) Sedgwick County Information & Operations - Facilities Division

- Building roof useful life remaining
- Building HVAC useful life remaining

c) National Citizen Survey Benchmark Results for Wichita*
- 'Wichita average rating' & 'comparison to benchmark'
for the following survey questions:

- Recreation opportunities
- City park services
- City recreation center facilities
- Public library services

4. Make Strategic, Value-added Investment Decisions.

Key Value-added Investment Indicators

- a) National Citizen Survey Benchmark Results for Wichita
'Wichita average rating' & 'comparison to benchmark'
for the following survey questions:
- Value of services for the taxes paid to Wichita
- b) Metropolitan Area Planning Department (MAPD),
Wichita and Sedgwick County Finance Departments
- An annual report prepared by MAPD with input from the City and County Finance Departments and a survey of the Metropolitan Area Planning Commission (MAPC) members that assesses the consistency level of capital projects funded in the city and county capital improvement programs with the investment decision-making framework components and criteria set forth in the Community Investments Plan.

5. Provide for Balanced Growth but with Added Focus on Our Established Neighborhoods.

Key Resource Allocation Indicators

- a) Wichita Finance Dept.
- % of total annual capital investments in infrastructure/facilities projects located within and/or benefiting Wichita's Established Central Area and the Suburban Area

Key Growth Indicators

- a) American Community Survey
- Annual net population growth in Sedgwick County, Wichita and the Established Central Area

b) County Appraiser's Office

- Annual number of net new dwelling units in Sedgwick County, Wichita and the Established Central Area
- Annual net new commercial square footage in Sedgwick County, Wichita and the Established Central Area

b) Plan Review & Amendment

- Prepare an annual plan monitoring report containing a summary of the key performance indicators data **associated with the five Plan Guiding Principles**. The report would also document progress on the implementing the Plan Element Goals and Strategies
- Review the annual monitoring report with City and County Department Heads, the Advance Plans Committee, the MAPC as well as the Wichita City Council and the Board of Sedgwick County Commissioners
- Prepare list of recommendations regarding any appropriate Plan amendments
- **Staff initiative Plan amendments as appropriate for consideration by the MAPC**

*assumes continued future participation



Appendix C

Sedgwick County Debris Management Plan

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SEDGWICK COUNTY DEBRIS MANAGEMENT PLAN

Approved:

November 8, 2017

File No. 17-836

Created by:

Sedgwick County Emergency Management
And
Sedgwick County Public Works

TABLE OF CONTENTS

SECTION	TITLE	PAGE
I.	INTRODUCTION	1
	Purpose	1
	Scope	1
	Enforcement	1
II.	STAFF ROLES AND RESPONSIBILITIES	1
	Debris Project Manager (DPM)	2
	Operations	2
	Planning	2
	Finance & Administration	3
	Administration	3
	Contracts & Procurement	3
	Legal	4
	Public Information	4
	Operational Safety Officer	4
	Support Staff	5
	Staff Organizational Chart	5
	Suggested Personnel	6
	Training Schedule	6
	Estimating Staff, Procedures, and Assignments	6
III.	SITUATION AND ASSUMPTIONS	6
	Types of Disaster Events	7
	Disaster Debris Streams	8
	Forecasted Debris Types	9
	Forecast Methods	12
IV.	DEBRIS COLLECTION PLAN	15
	Eligible Debris	15
	Ineligible Debris	15
	Response Operations	15
	Recovery Operations	16
	Collecting Hazardous Waste and White Goods	17
	Hazardous Stump Removal	17
	Putrescent Waste Removal	18
	Recycling of Debris	18
V.	DEBRIS MANAGEMENT SITES	19
	Environmental Requirements	20
	Permits	21
	Site Design and Preparation	21
	Operational Boundaries	22
	Traffic Patterns	22
	Site Management	22
	Monitoring Debris Removal	23
	Methods of Material Reduction	26
	Site Closure	27
VI.	CONTRACTED SERVICES	27
	Emergency Contracting & Procurement Procedures	28
	Lump Sum Contract	28
	Unit Price Contract	28
	Time & Materials	28
	General Contract Provisions	29
	Contract Scope of Work	30
	Contract Limitations	31
	Procurement Policy	31
	Additional Contract Requirements	31
	Scope of Work for On-Call Debris Removal	31
VII.	PRIVATE PROPERTY DEMOLITION AND DEBRIS REMOVAL	32
VIII.	PUBLIC INFORMATION PLAN	33
IX.	PLAN MAINTENANCE	34
X.	ACRONYMS	34
XI.	DEFINITIONS	34
XII.	APPENDICES	36

I. Introduction

Purpose

Sedgwick County will adhere to this Debris Management Plan to respond to a natural or manmade debris-generating event. This plan is designed to identify agencies and activities that are involved in debris operations to ensure a coordinated response for final disposition of debris generated in unincorporated areas of Sedgwick County.

Scope

This Debris Management Plan will serve as a support annex to the Sedgwick County Local Emergency Operations Plan (EOP). It provides organizational structure, guidance, and standardized guidelines for field operations in the clearance, removal, and disposal of debris caused by a major debris-generating event. This Plan shall apply to all County departments and agencies. All cities within the jurisdictional boundaries are included in this plan.

The Plan is designed to assist Sedgwick County staff in implementing and coordinating the removal and disposal operations to maximize cleanup efficiencies. Expeditious debris removal and disposal actions will mitigate the threat to the health, safety, and welfare of all Sedgwick County residents.

Enforcement

Any person deviating from the provisions of this plan may be required, at the discretion of the County Manager of Sedgwick County, to submit in writing within five (5) calendar days, an explanation for such deviation. The written explanation will be forwarded to the County Manager's Office for final resolution if required. Be advised if a city chooses not to participate in this plan, it may not receive Federal assistance even if Federal assistance is granted to the County.

II. Staff Roles and Responsibilities

Per the Sedgwick County LEOP, the Sedgwick County Public Works Department is responsible for coordinating debris removal and disposal where appropriate in the unincorporated areas of the county. Similarly, the Sedgwick County Environmental Resources Division will help coordinate all solid waste management for the county. For the incorporated areas, the cities are responsible for this coordination, with the county providing secondary support if needed and available. In emergency situations, where limited local resources may require centralized coordination and prioritization, Emergency Support Function #3 (Public Works and Engineering) in the county Emergency Operations Center (EOC) will assume this responsibility.

The size and composition of a staff organized to manage debris clearance, removal, and disposal issues depends on the magnitude of the disaster and number of available response personnel. Successful debris operations require collaborative efforts between departments within Sedgwick County and with specific external agencies that have regulatory authority over debris operations. Prospective staff members will

receive general training and practice interface with other agencies responsible for debris management operations.

Immediately following a disaster event, a disaster debris management team will be established to facilitate successful coordination. Team members will consist of personnel from multiple Sedgwick County Departments and Divisions including Public Works, Environmental Resources, Emergency Management, Legal, Finance, Clerks Office, as well as other departments and divisions as applicable. Because each member of the team is responsible for implementing portions of this debris management plan in accordance with the planning goals and objectives and in compliance with Federal, State, and local laws, a Debris Project Manager will be designated to serve as the primary coordinator for all operations.

The Debris Project Manager (DPM) – This position will serve as the primary decision-maker and Incident Commander for all operations and has the following responsibilities:

- Will be knowledgeable of all Sedgwick County process, procedures, personnel, resources, and limitations;
- Overall responsibility for the operations, planning, logistics, financial, and administrative components of the debris management operations;
- Assign tasks to team members and support personnel to track the completion of tasks to ensure the quick and safe implementation of the debris removal process;
- Will be in constant contact with the Sedgwick County EOC regarding operational progress and planning needs; and,
- Responsibility for activation and deactivation of debris management operations.

Operations – This function is responsible for the supervision of force account and contract resources and overall project implementation. This section is responsible for implementing the entire debris removal operation and will perform the following tasks:

- Position equipment and resources for the response and recovery debris removal operation;
- Develop staff schedules and strategies to ensure efficient and effective response;
- Provide communication, facilities, services, equipment, and materials to support the response and recovery activities;
- Monitor and direct Sedgwick County personnel and contract labor;
- Distribute response and recovery resources;
- Operate and manage the collection, debris management site, and disposal strategies;
- Create a demolition strategy for structures (if necessary); and,
- Report progress for distribution to the debris management planning staff.

Planning – This section supports all other debris management sections in a technical and planning role. This section also provides debris quantity assumptions, economic analysis, and feasible solutions for debris operations. The following tasks will be performed:

- Forecast debris volume based on disaster type;
- Develop an estimating strategy for post-disaster debris quantities;

- Strategize and map debris haul routes;
- Select debris management sites and design the site layout;
- Determine reduction and recycling means and methods when possible;
- Identify and coordinate environmental issues with Environmental Resources;
- Assess available disposal space and determine if additional space is needed;
- Develop the debris collection strategy, if required;
- Write contract scopes of work, conditions, and specifications, if needed;
- Coordinate with other local and State jurisdictions for road clearance and operations;
- Establish a process for building damage assessment and condemnation (including public and private properties); and,
- Request and/or issue permits.

Finance & Administration – This function typically includes finance, personnel, and legal issues. This section must establish a records management system in order to collect and keep all the documentation that may be required for Public Assistance grants.

Administration – This sub-function primarily documents all debris management activities, including, but not limited to the following:

- Personnel policies;
- Labor and equipment timesheets and summaries;
- Safety procedures;
- Contract procurement procedures;
- Contracts;
- Billing and invoices (including debris hauler load tickets);
- Contracts, licenses or permits;
- Rights of Entry and Hold Harmless agreements for private property debris removal and demolition (when applicable); and,
- Debris salvage and recycling value information when possible.

Contracting and Procurement – This sub-function maintains contracts in draft form ready for advertisement or have pre-qualified contractors (see Appendix N) in place prior to the event. This individual will follow all applicable Sedgwick County procurement policies in effect at the time of the disaster. Organizational elements for this section include, but are not limited to the following tasks:

- Develop contract requirements;
- Establish contractor qualifications;
- Distribution instructions to bidders;
- Advertise bids;
- Establish a pre-disaster list of pre-qualified contractors;
- Manage the contract scope of work; and,
- Establish a post-disaster contractor procedure (if necessary).

Legal – This sub-function leads the review process for all legal matters in the debris management planning process. The following tasks will also be performed by the legal unit:

- Review all contracts;
- Review and/or establish a land acquisition process for temporary debris management sites;

- Review all insurance policies;
- Ensure environmental and historic preservation compliance before, during, and after operations (function may be tasked to Sedgwick County Environmental Resources);
- Ensure that site restoration and closure requirements are fulfilled;
- Review and/or establish a building condemnation processes if deemed necessary;
- Review and/or establish a legal process for private property demolition and debris removal; and,
- Review right-of-entry and hold harmless agreements. (Attached)

Public Information – This section will distribute information and educate citizens about debris management operations. This function will report directly to the Debris Project Manager. Various types of information distribution will be used to distribute messages including, but not limited to the following:

- Debris disposal schedules;
- Disposal methods and ongoing actions to comply with Federal, State, and local environmental regulations;
- Disposal procedures for the public and independent contractors;
- Restrictions and penalties for creating illegal dumps;
- Public drop-off locations for all debris types; and/or,
- Process for answering the public's questions concerning debris removal.

Operational Safety Officer

The DPM will also assign personnel to monitor and report on the safety of all debris management operations. The responsibilities of this position include the following:

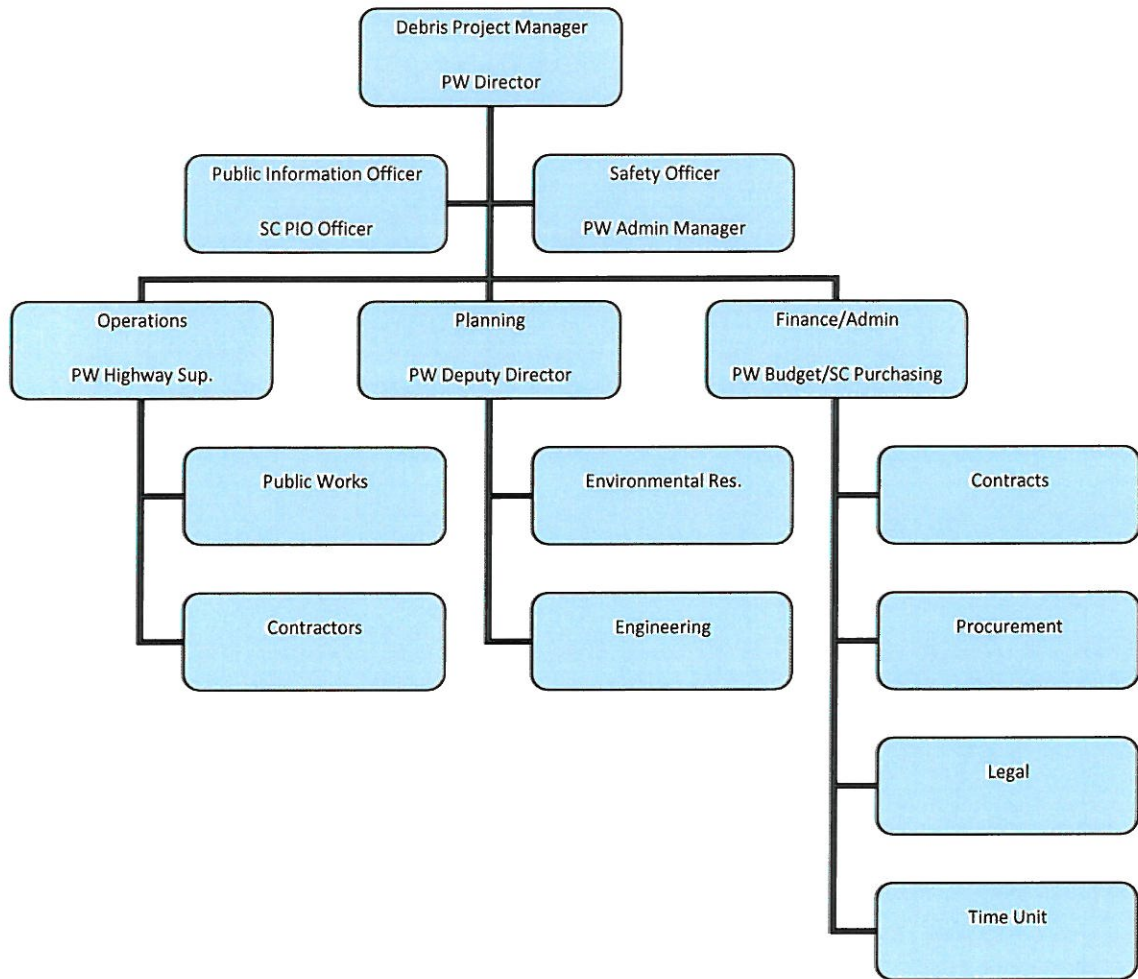
- Communicating timely information to the DPM and EOC regarding the safety status of the debris clearing, removal, and disposal operations;
- Coordinate with the DPM to assure the appropriate Responder Safety Training is provided;
- Ensure Sedgwick County Personnel follow all Kansas Department of Labor rules and regulations;
- Monitor contractor compliance with OSHA rules and regulations;
- Report and address any accidents or injuries that occur during operations;
- Coordinate with the DPM to assure that a site-specific Safety and Health Plan is created; and,
- Provide media relations information regarding safety concerns with the DPM and acting PIO.

Appendix D provides a detailed list of safety regulations and hazards that will impact debris management operations.

Support Staff

Support staff will be assigned as needed to functional and sub functional areas to ensure efficient and effective response. Assignments and supervision will follow the Incident Command System.

Staff Organizational Chart



Suggested Personnel

The following Sedgwick County personnel are recommendations to fill the command-level positions required for debris management operations:

Debris Project Manager: Public Works Director
Public Information Officer (PIO): Sedgwick County PIO
Safety Officer: Public Works Administrative Manager
Operations: Public Works Highway Superintendent
Planning: Public Works Deputy Director
Finance/Administration: Public Works Controller/Sedgwick County Purchasing

Additional personnel will be assigned as needed and available to relieve these positions and/or to expand operations to meet growing debris management needs.

Training Schedule

Sedgwick County Public Works personnel will be trained on this debris management plan in accordance with pre-established internal policies on training.

Estimating Staff, Procedures, and Assignments

During any required debris removal events, Sedgwick County Public Works personnel will be the first workers utilized as directed by the DPM. Crew assignments will be based upon event needs and will be diverted from routine public works operations as necessary and where needed. Outside contractors will be utilized to assist the local workforce as needed, primarily in the recovery period of debris management.

III. Situation and Assumptions

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-28), as amended, authorizes the FEMA Public Assistance Program to award Federal funding to State and local governments, Federally recognized tribes, and eligible private non-profit organizations in order to assist them in their disaster response and recovery activities.

FEMA characterizes work eligible for Public Assistance grants as either emergency or permanent work. Debris management activities are grouped into Category A (Debris Removal) and Category B (Emergency Protective Measures). Debris management activities in these categories must meet all of the following:

- Be required as a result of the disaster event;
- Be located within a designated disaster area;
- Be the legal responsibility of the local government entity;
- Be in the public interest, which is defined as work necessary to meet the following:
 - Eliminate immediate threats to life, public health and safety;
 - Eliminate immediate threats of significant damage to improved public or private property;
 - Ensure economic recovery of the affected community to the benefit of the community-at-large; or
 - Mitigate the risk of life and property by removing substantially damaged structures and associated appurtenances as needed to convert property acquired through a FEMA hazard mitigation program to use compatible with open space, recreation, or wetlands management practices

- Be of a reasonable cost, which is defined as a cost, which in its nature does not exceed that which would be incurred by a prudent person under the circumstance prevailing at the time the decision was made to incur the cost.

For debris removal work, per FEMA's 2017 Public Assistance Debris Management Pilot Program, straight-time labor and overtime costs (including benefits) are eligible for permanent employees, reassigned employees, and seasonal employees (used during the season of anticipated employment).

Types of Disaster Events

Debris forecasting predicts the amount and type of debris prior to a disaster, whereas debris estimating quantifies the amount of debris after the disaster. By forecasting the type and quantity of debris, the planning section can better define the scope of work for the debris management operation prior to the event.

The following are general descriptions of natural and manmade disasters and the associated debris caused by each:

Tornadoes – Damage from tornadoes is caused by high-velocity rotating winds. The severity of the damage depends on the velocity of the tornado funnel and the length of time the funnel is on the ground; however, damage is generally confined to a narrow path, which can be up to one-half mile wide and from 100 yards to several miles long. Tornado debris consists primarily of vegetative debris, construction materials from damaged or destroyed structures, and personal property. Tornadoes are a medium probability, high vulnerability hazard in Sedgwick County.

Rainstorms, snow/ice storms, or reservoir failure can cause severe flooding floods –. Damage to structures from flooding is caused either by precipitation inundation or high-velocity water flow. Flood debris may consist of sediment, wreckage, personal property, and sometimes-hazardous materials deposited on public and private property. Additionally, heavy rains and floods may produce stream bank calving. However, flash flooding is a high probability, high vulnerability event.

Winter Storms – Debris from ice storms or snowstorms consists of significant amounts of vegetative debris and overhead utility service components. Winter storms are a medium probability, medium vulnerability event in Sedgwick County.

Earthquakes – Seismic forces along fault lines generate shock waves that cause ground shaking and surface ruptures. Sedgwick County lies to the west of the Nemaha fault line that runs north-northeast through Oklahoma, Central Kansas, and Nebraska. Because of the location, Sedgwick County would only receive minor physical effects from an earthquake. This type of damage consists of property damage, structural building materials, concrete, and asphalt. This type of event is a low probability, medium vulnerability event in Sedgwick County.

Acts of Terrorism – Terrorism includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. Since terrorism is regarded as a criminal act, it involves coordination with law enforcement authorities, the coroner's office, and health officials before debris is handled or disposed.

Debris generated as a result of an act of terrorism is highly variable in both quantity and type, depending upon the specific means utilized by the terrorists. An act of

terrorism could generate little to no debris at all, or could result in large quantities of multiple types of debris, potentially requiring highly specialized personnel, procedures, and equipment for its removal and disposal.

Disaster Debris Streams

Typically, disasters generate a mix of different types of debris. The following figure summarized the typical types of debris for each type of disaster.

		Typical Debris Streams								
		Vegetative	Construction & Demolition (C&D)	Personal Property/ Household Items	Hazardous Waste	Household Hazardous Waste	White Goods	Soil, Mud, and Sand	Vehicles	Putrescent
Types of Disasters	Tornadoes	X	X	X	X	X	X	X	X	X
	Floods	X	X	X	X	X	X	X	X	X
	Earthquakes		X	X		X	X	X		X
	Winter Storms	X				X				X
	Acts of Terrorism	X	X	X	X	X	X	X	X	X

Forecasted Debris Types

Vegetative Debris – Consists of whole trees, tree stumps, tree branches, tree trunks, and other leafy material. Because of the large volume, vegetative debris should be reduced by mulching, grinding, or burning. Collections are typically based on the size of the vegetative material or by unit.

Hazardous Trees – Type of vegetative debris that is caused by the disaster, is an immediate threat to lives, public health, safety, or improved property, has a diameter breast height of six inches or greater and one or more of the following criteria are met:

- It has more than 50% of the crown damaged or destroyed;
- It has a split trunk or broken branches that expose the heartwood;
- It has fallen or been uprooted within a public-use area, and/or

- It is leaning at an angle greater than 30 degrees.

Trees located on public rights-of-way and determined to be hazardous and that have less than 50% of the root-ball exposed will be cut flush at the ground level. This cut portion will then be included with regular vegetative debris. Grinding of the resulting stump after the tree has been cut flush at the ground is not eligible debris management work.

Straightening and bracing are allowable emergency protective measures if they eliminate an immediate threat to lives, public health, safety, or improved property and are less costly than removal and disposal of the hazardous tree.

The Applicant must provide all of the following documentation to support the eligibility of removing tree limbs, branches, stumps, or trees that are still in place:

- Specifics of the immediate threat with the U.S. National Grid (USNG) location and photograph or video documentation that establishes the item is on public property;
- Diameter of each item removed (measurement must be 2 feet up the trunk from the ground for stumps and 4.5 feet up for trees);
- Quantity of material to fill root-ball holes; and,
- Equipment used to perform the work.

Hazardous Limb (Hangers) – Type of vegetative debris that is eligible for removal if the limbs are:

- Located on improved property;
- Greater than two inches in diameter at the point of breakage; and,
- Still hanging in a tree and threatening a public-use area (e.g. trails, sidewalks, paths, etc.)

Only the minimum amount of work necessary is eligible for hazardous limb removal. Pruning, maintenance trimming, and landscaping are not eligible. If the canopy of a tree located on public property extends over a public right-of-way, removal of hazardous limbs on the tree that extend over are eligible.

Hazardous Tree Stumps – Type of vegetative debris eligible for debris removal if all the following criteria are met:

- It has 50% or more of the root-ball exposed;
- It is greater than 24" in diameter, measured 24" above the ground;
- It is on improved public property or a public right-of-way, and,
- It poses an immediate threat to life, and public health and safety.

Hazardous Stump Removal

A hazardous tree or stump may be collected individually, while downed or fallen debris is collected from rights-of-way or at a designated collection

center. Determining whether to remove a hazardous stump is difficult. FEMA has established criteria to assist in making these eligibility determinations, using objective information that can be collected in the field. A stump may be considered hazardous if the following criteria are met:

- 50% or more of the root-ball is exposed (less than 50% will be flush cut);
- Greater than 24" in diameter (as measured 24" above the ground);
- On improved property; and,
- Poses immediate threat to life, public health, and safety.

FEMA's Hazardous Stump Worksheet and Stump Conversion Table are included in Appendices A and B, respectively.

Construction and Demolition (C & D) Debris -- Consists of damaged components of buildings and structures such as lumber and wood, gypsum wallboard, glass, metal, roofing material, tile, carpeting and floor coverings, window coverings, pipe, concrete, fully cured asphalt, equipment, furnishings, and fixtures.

Certain types of construction and demolition debris are reusable or recyclable. To conserve landfill space, it is prudent to separate materials for reuse or recycling when feasible. Because some construction and demolition debris may be hazardous (ex: asbestos coated materials), environmental regulations and ordinances must be included during all operations. Full documentation of these materials including debris origin, any processing (reduction or recycling), and the final disposition must be noted.

Typically, removal of construction by-products generated by repairs or rebuilding is covered by insurance policies and therefore is not part of the debris management process.

Hazardous Waste – A type of debris with properties that make it potentially harmful to human health or the environment. Generally, this type of material exhibits at least one of the following characteristics: ignitability, corrosively, reactivity, or toxicity. Debris management activities are allowed for measures that address widespread hazardous materials contamination.

Household Hazardous Waste (HHW) – A type of debris composed of hazardous products and materials that are used and disposed of by residential, rather than commercial or industrial consumers. HHW includes some paints, stains, varnishes, solvents, pesticides, and other products or materials containing volatile chemicals that catch fire, react, or explode under certain circumstances, or that are corrosive or toxic.

White Goods – A type of debris defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters. Many white goods contain ozone-depleting refrigerants, mercury, or compressor oils, which are prohibited by the Clean Air Act to be released into the atmosphere. Certified

technicians must extract these refrigerants before disposing or recycling the white goods.

Electronic Waste (E-Waste) – A type of debris composed of electronics that contain hazardous materials such as cathode ray tubes. Examples include computer monitors and televisions.

Soil and Mud – Floods often deposit soil and mud on improved public property and public rights-of-way. Facilities commonly impacted by this type of debris may include streets, sidewalks, storm and sanitary sewers, water treatment facilities, drainage basins, and swimming pools. This type of debris on public rights-of-way can be included in the debris management process; however, removal from streams, improved and unimproved property cannot be included. Regularly scheduled maintenance reports for improved public property and public rights-of-way will be kept that indicate pre-disaster soil, mud, and sand levels.

Vehicles – A type of debris that includes vehicles that have been moved from private property onto improved public property and public rights-of-way. To remove this type of debris, the follow characteristics must be met:

- The vehicle or vessel presents a hazard or immediate threat that blocks ingress/egress in a public-use area;
- The vehicle is abandoned (e.g., the vehicle is not on the owner's property and the ownership is undetermined);
- Sedgwick County follows local ordinances and State law by securing ownership, and,
- Sedgwick County verified chain of custody, transport, and disposal of the vehicle.

Putrescent Materials – Type of debris that will decompose or rot, such as animal carcasses and other fleshy organic matter. The USDA's National Resources Conservation Service (NRCS) and the Kansas Department of Health and Environment have developed specific disposal guidelines for animal carcasses.

Infectious Waste – Type of debris capable of causing infections in humans, including contaminated animal waste, human blood and blood products, isolation waste, pathological waste, and discarded sharps (needles, scalpels, or broken medical instruments).

Chemical, Biological, Radiological and Nuclear-Contaminated Debris – Type of debris that has biological, chemical, radiological, or nuclear contamination. This type of debris usually would happen as a result of a Weapon of Mass Destruction (WMD) event. Eligibility for this type of debris removal will be made by FEMA based on applicable Federal statutes, regulations, policies, and other guidance documents.

Garbage (Household Waste) – Type of debris that is waste generated during non-disaster situations and regularly picked up through normal municipal waste collection methods. Common examples of garbage include food,

packaging, plastics, and papers. This type of debris is not eligible for debris management activities.

Forecast Methods

After the disaster parameters and geographic extent are established, specific debris volumes can be quantified by using historical information available through Sedgwick County Emergency Management & Homeland Security or the National Weather Service or by using forecasting models. If historical data is not available or insufficient, quantitative and qualitative forecasting models can be used to supplement the debris volume quantification.

Qualitative Forecasting

Qualitative forecasting will consist of “windshield tours” and “pass through” of the impacted portions of the unincorporated sections of Sedgwick County. The City’s may use this same method with assistance from the DPM. These actions will note the location, vegetative cover, and estimated percentage of area impacted. These estimates will be the basis of the overall debris forecast.

Quantitative Forecasting

The information gathered as part of the qualitative forecasting will be reported to Sedgwick County’s Geographic Information System (GIS) which will establish the number of habitable structures in the review area as well as land-use of the noted properties. Based on this information, the following estimations can be applied.

Buildings – Several basic techniques have been established to forecast destroyed building debris quantities. These techniques can be used to forecast debris quantities prior to an event or estimate quantities after an event.

Residential Buildings – A formula for estimating the debris quantities from a demolished single-family home and associated debris is as follows:

$$L \times W \times S \times 0.20 \times VCM = \text{_____ cubic yards of debris (cy)}$$

- L = Length of the building in feet
- W = Width of the building in feet
- S = Height of building in stories
- VCM = Vegetative Cover Multiplier Always use medium in our County 1.3 as a variable

The VCM is a measure of the amount of debris within a subdivision or neighborhood. The descriptions and multipliers are described as:

- Light (1.1 multiplier) includes new home developments where more ground is visible than trees. These areas will have a sparse canopy cover.

- Medium (1.3 multiplier) generally has a uniform pattern of open space and tree canopy cover. This is the most common description for vegetative cover.
- Heavy (1.5 multiplier) is found in mature neighborhoods and woodlots where the ground or houses cannot be seen due to the tree canopy cover.

The following table can be used to forecast debris quantities for totally destroyed single-family, single-story homes in the applicable vegetative cover category.

Typical House Size	Vegetative Cover Multiplier (cy)			
	None	Light (1.1)	Medium (1.3)	Heavy (1.5)
1000 ft ²	220	220	260	300
1200 ft ²	240	264	312	360
1400 ft ²	280	308	364	420
1600 ft ²	320	352	416	480
1800 ft ²	360	396	468	540
2000 ft ²	400	440	520	600
2200 ft ²	440	484	572	660
2400 ft ²	480	528	624	720
2600 ft ²	520	572	676	780

The amount of personal property within an average flooded single-family home has been found to be:

- 25-40 cy for homes without a basement
- 45-50 cy for homes with a basement

Mobile homes have less utilized space due to their construction and use. The walls are narrower, and the units contain more storage space. Therefore, the typical mobile home generates more debris by volume than a single-family home. Historically, the volume of debris from mobile homes can be found to be:

- 290 cy of debris for a single-wide mobile home
- 415 cy of debris for a double-wide mobile home

Outbuildings – All other buildings volumes may be calculated by using the following formulas:

$$(L \times W \times H \times .33)/27 = \text{cubic yards of debris}$$

- L = Length of the building in feet
- W = Width of the building in feet
- H = Height of the building in feet
- 0.33 is a constant to account for the “air space” in the building
- “27” is the conversion factor from cubic feet to cubic yards

Vegetation – This type of debris is the most difficult to estimate due to the random sizes and shapes of trees and shrubbery. The following serves as a guide for forecasting and estimating vegetative debris:

- Each home is estimated to have an associated 3.65 cubic yards of this type of debris
- Treat debris piles as cubes, not a cone (when estimating)
- 15 trees, 8 inches in diameter = 40 cy (average)
- One acre of debris, 3.33 yards high = 16,117 cy

The following factors will be used to convert woody debris from cubic yards to tons:

- Softwoods: 6 cubic yards = 1 ton
- Hardwoods: 4 cubic yards = 1 ton
- Mixed Debris: 4 cubic yards = 1 ton
- Construction & Demolition: 2 cubic yards = 1 ton

Several truckloads may need to be tested to confirm these factors during actually debris management activities.

IV. Debris Collection

Eligible Debris

Eligible debris removal work must meet the following criteria:

- The debris was generated by a major disaster event;
- The debris is located within a designated disaster area;
- Federal assistance may be available with debris removal on Federal aided Roadways if the Emergency Relief Program is activated through the Federal Highway Administration;
- Any other debris considered to be a public hazard as determined by the debris removal safety officer;
- The debris is located in R.O.W; and,
- The debris removal is the legal responsibility of Sedgwick County.

Ineligible Debris

The following are not eligible for debris removal work:

- Any debris removed from an eligible applicant's unimproved property or undeveloped land;
- Any debris removed from a facility that is not eligible for funding under the Public Assistance Program (ex: private owned cemeteries and golf courses); and,
- Any debris removed from Federal lands or facilities that are under the direct authority of Federal agency or department, and USACE navigable waterways.

Response Operations

Sedgwick County will use its own labor force and equipment to remove debris during this phase. In circumstances when the existing labor force is not sufficient, or when specialized services are required, Sedgwick County may supplement its

work efforts by activating local or regional mutual aid agreements or by awarding short-term debris removal contracts for specific work.

Priorities

Response operations will primarily focus on the emergency access routes and main arterials within Sedgwick County. Based on the incident, planning staff members will identify which roads and streets are essential to emergency operations so local resources can be optimally managed and directed. The Emergency Snow Routes would be a good starting point within the cities with such designated routes.

Prior to and immediately following the event, extricating people and providing access to health care facilities are the top priorities; therefore, the major arterial road routes are given priority for the emergency services staff such as police, fire, and ambulance services.

Overall priority to roadways will be prioritized by the event; however, specific considerations are as follows:

- Fire, police, and ambulance service routes to affected areas
- Access routes to trauma centers, hospitals, critical care units, and jails
- Major arterial routes
- Roads and streets to the debris management center and emergency operations center
- Supply routes to emergency supply distribution centers
- Roads and streets to government facilities
- Communication towers and systems access
- Utility access routes
- Routes to shelters

Recovery Operations

These activities begin after the emergency access routes are cleared and the residents return to their homes and begin to bring debris to the designated disposal site.

The implementation of disaster debris collection immediately after the disaster event assures the public that recovery efforts are in progress and that the community will return to normal quickly. The main method of debris collection is through a collection center(s).

Source-Segregated Debris Collection

This method requires residents to sort the debris by material type. This method offers the potential of high salvage value and efficient recycling/reduction processing. The County offers information through pamphlets and its web site on recycling sites within Sedgwick County.

Collection Centers

This type of collection method directs residents to transport their debris to a common location in the county where roll-off bins or dumpsters are located. Associated costs are generally low since the public essentially accomplished the material collection and separation themselves when possible; however, site monitoring is required to ensure against debris cross-contamination

Collecting Hazardous Waste and White Goods

The three most common types of debris that will need special handling are hazardous waste, white goods, and electronic waste.

Household Hazardous Waste (HHW)

HHW should be separated from the other debris when possible. The Sedgwick County HHW Facility will accept this material and, when possible, set up a remote HHW collection area at the Collection Centers.

White Goods

White goods include all appliances and household machines that contain refrigerants and other fluids that are regulated the Kansas Department of Health and Environment and can only be reclaimed by certified technicians and disposed of a permitted facility. Sedgwick County Environmental Resources provides information on their web site and in pamphlets on businesses that will properly recycle these appliances to avoid accidental release of hazardous fluids.

Electronic Waste (E-waste)

E-waste consists of any broken or damaged piece of electronic equipment. Categories include communications equipment, computer equipment, television and video equipment, electronic tools, lighting, medical equipment, etc. Sedgwick County Environmental Resources provides information on their web site and in pamphlets on businesses that will properly recycle e-waste.

Hazardous Stump Removal

A hazardous tree or stump may be collected, while downed or fallen debris is collected from rights-of-way. Tree and stump collection prices are typically based on the size of the tree or stump and charged by unit. Determining whether to remove a hazardous stump is difficult. FEMA has established criteria to assist in making these eligibility determinations, using objective information that can be collected in the field. A stump may be considered hazardous if the following criteria are met:

- 50% or more of the root-ball is exposed (less than 50% will be flush cut)
- Greater than 24" in diameter (as measured 24" above the ground)
- On improved property
- Poses immediate threat to life, public health, and safety.

FEMA's Hazardous Stump Worksheet and Stump Conversion Table are included in Appendix A and B, respectively.

Putrescent Waste Removal

Putrescent materials such as dead animals will not be shipped to county temporary landfill operations. The Kansas Department of Agriculture and/or the Kansas Department of Health and Environment will be contacted to determine the most effective method of disposal. If on-site burial is considered Sedgwick County Planning and Zoning, Kansas Department of Health and Environment, and Kansas Wildlife and Parks would need to be notified of such actions.

Recycling of Debris

- Recycling reduces mixed debris volume before it is hauled to a landfill. When possible, recycling is attractive and strongly supported by Sedgwick County because there may be an economic value to the recovered material if it can be sorted and sold. A portable Recovery Facility could be set up at the site. Metals, wood, and soils are prime candidates for recycling. The major drawback is the potential environmental impact of the recycling operation. In areas where there is a large usage of chemical agricultural fertilizer, the recovered soil may be too contaminated for use on residential or existing agricultural land.
- Tornadoes may present opportunities to contract out large-scale recycling operations and to achieve an economic return from some of the prime contractors who exercise their initiative to segregate and recycle debris as it arrives at the staging and reduction sites. Recycling has significant drawbacks if contracts are not properly written and closely monitored.
- Specialized contractors should be available to bid on disposal of debris by recycling, if it is well sorted. Contracts and monitoring procedures should be developed to ensure that the recyclers comply with local, tribal, State and Federal environmental regulations.
- Recycling should be considered early in the debris removal and disposal operation because it may present an opportunity to reduce the overall cost of the operation. The following materials are suitable for recycling.

Metals. Tornadoes and Wind Storms may cause extensive damage to mobile homes, sun porches, and barns and out buildings. Most of the metals are non-ferrous and suitable for recycling. Trailer frames and other ferrous metals are also suitable for recycling. Metals can be separated using an electromagnet. Metals that have been processed for recycling can be sold to metal recycling firms.

Soil. Cleanup operations using large pieces of equipment pick up large amounts of soil. The soil can be transported to the staging and reduction sites where it is combined with other organic materials that will decompose over time. Large amounts of soil can be recovered if the material is put through some type of screen or shaker system. This procedure can produce significant

amounts of soil that can either be sold or recycled back into the agricultural community. This soil could also be used at local landfills for cover. It is more expensive to transport and pay tipping fees at local landfills than to sort out the heavy dirt before moving the material. Monitoring and testing of the soil may be necessary to ensure that it is not contaminated with chemicals.

Wood. Woody debris can be either ground or chipped into mulch. Then the mulch may be given to citizens.

Construction Material. Concrete block and other building materials can be ground and used for other purposes if there is a ready market. Construction materials and wood can also be shredded to reduce volume. This construction material could also be used at local landfills for cover. Were Sedgwick County does not have such a resource of grinding of concrete, we would be forced to contract this out which may or may not be feasible to cost benefit ratio. Two local Construction & Demolition Landfills can receive this material.

Residue Material. Residue material that cannot be recycled, such as cloth, rugs, and trash, can be sent to a transfer station for disposal.

- **Household Hazardous Waste:** Waste of such that can be reused in a safe manner. Many household hazardous waste materials can be reused for many applications rather than entering the product into the waste stream. Sedgwick County has a strong HHHW program supported by the Kansas Department of Health and Environment. This includes a program to recycle paint and a Swap & Shop where residents can take selected materials home for free.
- **White Goods:** White goods such as washers, dryers, refrigerators, freezers can be recycled for their salvage value of metal. Waste Connections has a contractor at their transfer station that extracts the Freon and oils from the units before they are sent to be recycled. This would continue for a disaster event.
- **Vehicles:** Motor vehicles (trucks, cars, motor homes, tractors) that would become debris as a result of a disaster could be recycled or determined if operational or salvageable by private contractors.
- **Electronic Waste:** As we have discussed earlier in this plan e-waste is recyclable and could be segregated at a debris site.

V. Debris Management Sites

Depending on the type of disaster debris and scale of the event, Temporary Debris Management Sites (DMS) will be necessary as transfer stations. The DMS location could temporarily store, reduce, segregate, and/or process debris before it is hauled to its final disposition. The County will prioritize site locations based on safety, resources, and practicality of location. The priority in terms of general types of locations will be as follows: public paved property, private paved property, public unpaved property, and private unpaved property. A list of potential temporary DMS is included in Appendix H.

The temporary DMS site review ensured the following:

- Does not exist in an environmentally or historically sensitive area such critical animal and plant habitats, sole source aquifers, freshwater well fields, historic districts, or archeological sites.
- Does not exist in Superfund site or area within a 100-year floodplain without proper permission.
- Takes into consideration any disproportionately high or adverse impacts on minority or low-income populations.

Environmental Requirements

A baseline environmental collection study will also be conducted prior to a DMS establishment. This baseline data is essential in assuring that the land is returned to its original condition following the end of all debris management operations. The following methods may be used to document new or updated baseline data:

- Videotape and/or Photograph the Site – Thoroughly videotape and/or photograph (ground or aerial) each site before beginning any activities.
- Document Physical Features – Note existing structures, fences, culverts, irrigation systems, and landscaping that can help evaluate possible damage claims made later.
- Investigation of the Historical Significance – Research the past use and ownership of the property to document any issues regarding the existence of historic structures or archeological sites.
- Sample Soil and Water – Soil and groundwater samples may be collected prior to use of the site if it is not a government-owned site. Planned HHW, ash, and fuel storage areas may also be sampled prior to site setup.

As operations proceed additional data may be collected throughout the operation for closeout and quality assurance reasons. The data can be compared to the previously established information in order to determine any remediation that may be necessary. The following tools can be utilized:

- Sketch Site Operation Layout – DMS operations may grow, shrink, or shift on the site. It is important to track reduction, hazardous waste collection, fuel, and equipment storage in order to sample soil and water for contaminants.
- Document Quality Assurance Issues – Document operations that will have a bearing on site closeout, such as petroleum spills at fueling sites, hydraulic fluid spills at equipment breakdowns, installation of water wells for stock pile cooling or dust control, discovery of HHW, and commercial, agricultural, or industrial hazardous and toxic waste storage and disposal.
- Restoration of Site – Final restoration of the landscape must be acceptable to the landowner, but within reasonable expectations. Therefore, the restoration of the landscape will be planned for as early as possible during debris management operations.

Sedgwick County's objective with regards to the potential environmental impact at all sites is to ensure that safety precautions are taken to organize the site in such a way as to provide a safe and organized use of the location throughout the event, and that measures are taken to reduce the chance of ground, air, and water contamination after all the materials have been collected. This objective may be accomplished in a variety of ways and will be the responsibility of the Sedgwick County Environmental Resources Division.

Permits

Environmental permits and land-use variances may be required to establish a temporary DMS. Several agencies may be involved in issuing permits and granting land-use approvals. The need for these permits may be satisfied by changes established in a declared disaster in Sedgwick County; however, a listing of permits that may be necessary include the following:

- Waste processing and recycling operations permit
- Temporary land-use permits
- Land-use variances
- Traffic circulation strategies
- Air quality permits
- Water quality permits
- HHW permits
- Fire department burn permits

Agencies involved in issuing permits and granting land-use approvals includes, but is not limited to, the following:

- Wichita Environmental Health Department
- Wichita/Sedgwick County Metropolitan Area Planning Department
- Kansas Department of Health and Environment (www.kdheks.gov)
 - Bureau of Waste Management (www.kdheks.gov/waste)
- Kansas Department of Agriculture (<http://agriculture.ks.gov/>)
- Kansas State Historical and Preservation Office (www.kshs.org)

Site Design and Preparation

The topography and soil/substrate conditions will be evaluated to determine the best site layout. When planning site preparation, the designer will consider ways to make site closure and restoration easier. Upon site closeout, the uncontaminated soil can be re-spread to preserve the integrity of the tillable soils.

Operational Boundaries

These boundaries or areas clearly define the difference in use areas at the DMS. Earthen berms, temporary barriers, or any other physical restriction may be used to aid in traffic circulation and the minimization of amazing debris at the DMS. Common operational areas may include the following:

- Reduction
- Recycling
- Tipping areas (unloading)
- Loading areas for processed debris to go to its final destination
- Drop-off centers for the general public (this may include vegetative, recycling, or construction and demolition debris)
- HHW storage
- Monitoring locations at both the ingress and egress points
- Equipment, fuel, and water storage

The reduction, recycling, tipping, and loading areas need ample room for large equipment operations. Depending on the scale of the operations, each debris stream may and should have its own tipping area and will be designed accordingly.

General public drop-off areas for recycling, reduction, and construction and demolition debris may be included within the DMS, but will be carefully designed for passenger vehicle traffic and public safety. Any HHW storage will be close to the public drop-off center yet restricted so that qualified personnel may process the waste appropriately.

Monitoring areas will be located at ingress and egress points.

Equipment and fuel will have a designated storage area and signs posted appropriately. The fuel storage areas need to be designed to contain spills. Every effort will be made to have water readily available at all times. Water storage areas will be strategically positioned throughout the site and identified appropriately. Water Storage may come as a tender truck from a fire department or the local entity overseeing the DMS. Appendix C contains a sample DMS layout with operational boundaries.

Traffic Patterns

The traffic circulation needs to be well defined throughout the entire site. Although traffic signs and barricades aid in directing traffic, flag directors and law enforcement personnel may need to be on site to direct traffic.

Site Management

The management of the DMS will be under the control of Sedgwick County Public Works personnel to ensure operational efficiency and to meet strategic goals.

Site Manager

This position is responsible for supervising the overall day-to-day operations, maintaining daily logs, preparing site progress reports, and enforcing safety and permitting requirements during site operations. Furthermore, the site manager has oversight for monitoring the activities of the debris removal contractors and onsite debris processing contractors to ensure they comply with the terms of their contracts. The site manager is also responsible for site security and traffic control. These functions can be delegated to assigned personnel if appropriate and available.

Debris Monitors

Operational monitors will be placed at ingress and egress points in order to quantify debris loads, issue load tickets, inspect and validate truck capacities, check loads for hazardous waste, and perform quality control checks as necessary.

Safety Personnel

Safety personnel are responsible for traffic control and ensuring that site operations are in compliance with Federal and State occupational safety regulations.

Monitoring Debris Removal

The purpose of monitoring debris removal is to (1) verify that the work completed by the contractor is within the scope of work of the contract and (2) documentation is provided to ensure operations have meet all local, State, and Federal laws, regulations, and guidelines.

Debris Monitoring Duties

To do this debris monitors will minimally perform the following roles:

- Measure and certify truck capacities (recertify on a regular basis);
- Complete and physically control load tickets (in monitoring towers and the field);
- Validate hazardous trees, including hangers, leaners, and stumps (use appropriate documentation forms);
- Ensure that trucks are accurately credited for their loads;
- Ensure that trucks are not artificially loaded to maximize reimbursement (i.e., debris is wetted, debris is not compacted, etc.)
- Ensure that hazardous waste is not mixed with loads
- Ensure that all debris is removed from trucks at the DMS
- Report to project manager:
 - Mobilization and use of improper equipment
 - Contractor personnel safety standards are not followed
 - General public safety standards are not followed
 - Completion schedules are not on target
 - Debris removal work does not comply with all local, State, and Federal ordinances and regulations

- Ensure that only debris specified in the scope of work is collected and identify work as potentially eligible or ineligible;
- Monitor site development and restoration of DMS;
- Ensure daily loads meet permit requirements; and
- Ensure that work stops immediately in an area where human remains or potential archeological deposits are discovered.
- Ensure the route to the DMS is free of debris that may have fallen off trucks while hauling to the site. Might need a cleanup crew that just follows the route picking up fallen debris.

Debris Monitoring Methods

Additional documentation requirements depend on how the debris is collected and processed. The following methods and systems may be used to monitor and document the work completed by Sedgwick County resources and/or by contractors.

Debris Monitoring Reports – This type of report is important for time-and-materials contracts that may be used during the response phase of the operations. Monitoring documentation for time-and-materials contracts includes:

- Actual labor hours worked
- Actual equipment hours operated
- Type and specification of equipment used

Truck Certification Form – This type of report allows the monitor to identify the truck itself and its hauling capacity in a standardized manner. The standard list of requirements includes:

- Size of hauling bed in cubic yards
- License plate number
- Truck identification number assigned by the owner
- Short physical description of the truck

Recertification of the hauling trucks on a random and periodic basis may be implemented for contract compliance and reimbursement considerations. Appendix I contains a sample truck certification form.

Load Ticket System – The term “load ticket” refers to the primary debris-tracking document. A load ticket system tracks the debris from the original collection point to the DMS, Transfer Station(s) or C&D landfill(s). By positioning debris monitors at each point of the operations (collection, DMS, and/or final disposition), the eligible scope of work can be properly documented.

Each monitor keeps a copy of the load ticket and the driver/contractor keeps two copies for billing purposes. Appendix F includes a copy of the load ticket that will be used by Sedgwick County personnel during debris management personnel. Upon activation, the load ticket will be printed sequentially by the Sedgwick County Printing Office.

Each load ticket will be printed as a five-part form with the following jurisdictional origin numbering code system.

*Note: Color Code for Jurisdiction: **County**, **City**, **Township***

JURISDICTION	CODE	JURISDICTION	CODE
Sedgwick County Govt	Co-1	Erie Township	TS-4
City of Andale	Ci-3-1	Garden Plain Township	TS-5
City of Bel Aire	Ci-2-1	Grand River Township	TS-6
City of Bentley	Ci-3-2	Grant Township	TS-7
City of Cheney	Ci-3-3	Greeley Township	TS-8
City of Clearwater	Ci-3-4	Gypsum Township	TS-9
City of Colwich	Ci-3-5	Illinois Township	TS-10
City of Derby	Ci-2-2	Kechi Township	TS-11
City of Eastborough	Ci-3-6	Lincoln Township	TS-12
City of Garden Plain	Ci-3-7	Minneha Township	TS-13
City of Goddard	Ci-2-3	Morton Township	TS-14
City of Haysville	Ci-2-4	Ninnescah Township	TS-15
City of Kechi	Ci-3-8	Ohio Township	TS-16
City of Maize	Ci-3-9	Park Township	TS-17
City of Mount Hope	Ci-3-10	Payne Township	TS-18
City of Mulvane	Ci-2-5	Riverside Township	TS-19
City of Park City	Ci-2-6	Rockford Township	TS-20
City of Sedgwick	Ci-3-11	Salem Township	TS-21
City of Valley Center	Ci-2-7	Sherman Township	TS-22
City of Viola	Ci-3-12	Union Township	TS-23
City of Wichita	Ci-1	Valley Center Township	TS-24
Afton Township	TS-1	Viola Township	TS-25
Attica Township	TS-2	Waco Township	TS-26
Eagle Township	TS-3		

The following is the disposition of each load ticket part.

- Part 1 (White) – Site or Origin Representative
- Part 2 (Green) – Disposal Site Monitor
- Part 3 (Canary) – Debris Site Representative
- Part 4 (Pink) – Driver or Contractor

Monitoring Tips

Contractors must always be monitored closely to ensure compliance with the scope of work. Appendix J includes monitoring tips that address common types of contractor abuse.

Methods of Material Reduction

There are three main types of reduction methods to consider and use during debris management operations; incineration, chipping/grinding, and recycling. The type(s) used will be based on operational goals, site availability, and personnel availability.

Incineration – Burning vegetative debris is a very common reduction method because it has up to a 95% reduction rate. The incineration process requires a minimum of three steps, to include:

- Unloading the debris
- Moving the debris into an incinerator
- Removing the ash from the incinerator to final disposition, which may be an appropriately constructed area at the DMS or a C&D landfill

There are several incineration methods available for volume reduction.

Uncontrolled Open-Air Incineration – This method reduces debris with no control over how much or how quickly it is allowed to burn. The use of this type of reduction will be limited due to its lack of environmental control.

Controlled Open-Air Incineration – This method reduces vegetative debris by burning debris within a contained fixed area. This reduction can be used freely because it presents little environmental damage and is cost-effective.

Air Curtain Pit Incineration – This method effectively expedites the volume reduction process while substantially reducing the environmental concerns caused by open-air incineration. Specifically, this type of reduction uses a pit constructed by digging below grade or building above grade and using a blower unit. The burning chamber is usually no more than 8 feet wide and 9-14 feet deep. Sedgwick County owns a portable air curtain burner. A pit is already in place at the Sedgwick County Public Works West Yard.

Portable Air Curtain Incinerators – This method uses the same concept as air curtain pit incineration, except this method utilizes pre-manufactured pits rather than onsite constructed earthen pits. These types of incinerators are the most efficient because they have been pre-engineered to precise dimensions to complement the blower system.

Setbacks and buffer zones need to be established within and around the reduction sites not only for the public safety, but also for the safety of debris operations. A setback of at least 100 feet will be maintained between the

debris piles and the incineration area. A 1,000 foot buffer zone will be established between the incineration area and the nearest building to create room for emergency vehicles to maneuver. All burning operations are subject to environmental regulations set forth in K.A.R. 28-19-647(d.-e.).

Chipping/Grinding – This method calls for the vegetative debris to be chipped or ground. This method reduces volume by 75%. Because of the remaining volume, the benefit of this reduction method is increased by identifying alternate use of residual material such as recycled wood chips used for agricultural purposes or as fuel for industrial heating. Plastics will be eliminated completely from debris prior to performing this method. Sedgwick County owns a portable Tub Grinder that is located at the Sedgwick County Public Works West Yard.

Recycling – This method captures pre-identified types of debris materials for recycling and/or reuse. Currently, businesses in Sedgwick County have the capability to recycle metals such as aluminum, tin, and various other scrap metals. Community recycling centers are currently available in Sedgwick County for residential-type recycling, e-waste, white goods, and household hazardous waste. Information about local recycling businesses can be found on the Sedgwick County Environmental web site or in their pamphlets.

Site Closure

When the site operations are complete, the property must be restored to its original condition before returning the site to the property owner. This restoration includes the removal of all traces of operations and possible remediation of any contamination that may have taken place during the operations. The site, whether owned or leased by Sedgwick County, must be brought back to its environmental state, prior to it being returned to the owner.

The final environmental site evaluation is an extension of the environmental monitoring program. Similar testing as completed in the baseline study may be conducted to confirm that the site has been returned to its pre-activity state. Test samples may be taken at the same locations as those of the initial assessment and monitoring program. Based on the results of the testing, additional remediation may be required.

All operational documentation will be collected and organized and then submitted to Sedgwick County Emergency Management and Homeland Security for review. If needed, these documents will be incorporated into disaster reimbursement request per pre-determined processes established by county policy.

VI. Contracted Services

It may be necessary to contract for debris removal services if the magnitude of the disaster is beyond the capabilities of Sedgwick County, mutual aid agreements, and volunteer labor.

Emergency Contracting & Procurement Procedures

Type of Contract

Sedgwick County will use Request For Proposal (RFP) and/or Request For Bid (RFB) contracts to solicit bids and award contracts in non-disaster times. Contractors will be paid based on the number of cubic yards of eligible debris hauled per truckload to the temporary debris management site(s).

If additional contracted labor is needed during debris management operations, additional contracts may need to be instituted. The following list of contract types may be instituted.

Lump Sum – Work within a prescribed boundary with a clearly defined scope (including finite timeframe) and a total price. There are two common uses of the lump sum contract which are as follows:

Area Method – This technique defines the geographical boundary in which the debris is to be collected. By providing geographical boundaries, the quantity of debris may be forecasted or estimated based on topography and land use.

Pass Method – This technique describes the number of times debris will be collected from the curbside within a specified geographical boundary. Limiting the number of passes for an area keeps the scope of work known.

Unit Price – Work done on an item-by-item basis with cost determined per unit. The quantities of work to be completed are estimated by Sedgwick County and included in the bid solicitation process. The estimated quantity of work described in the bid solicitation can be adjusted to reflect a more accurate quantity when debris operations are under way and the true extent of the disaster is realized.

Time and Materials – Contractor bills Sedgwick County for labor, equipment, materials, and overhead. This type of contract is used when the scope of work necessary to achieve an outcome is unknown. Moreover, this type of contract establishes hourly rates for labor and equipment that will be used to perform specific tasks. Solicitation for a time and materials contract will include descriptions of the types of work items that would be required for debris removal, debris processing, and recycling.

Sedgwick County will establish the maximum number of hours this type of contract can work or set an operational ceiling of actual work. Sedgwick County will carefully monitor these contracts by requiring contractors to provide daily work reports and other control measures as deemed necessary.

This type of contract is the least preferred and is typically only used for initial emergency work or when there are complex life-saving activities dependent on the removal of debris.

FEMA reimburses costs incurred using three types of contract payment obligations: fixed-price, cost-reimbursement, and, to a limited extent, time and materials (T&M). The specific contract types related to each of these are described in FEMA's Procurement Guidance for Recipients and Sub-recipients, under 2 C.F.R. Part 200 (Uniform Rules).

The Applicant must include required provisions in all contracts awarded; and, maintain oversight to ensure contractors perform according to the conditions and specifications of the contract and any purchase orders.

FEMA does not reimburse costs incurred under a cost plus a percentage of cost contract or a contract with a percentage of construction cost method.

FEMA advises against the use of T&M contracts and generally limits the use of these contracts to a reasonable time based on the circumstances during which the Applicant could not define a clear scope of work (SOW). T&M contracts do not provide incentives to the contractor for cost control or labor efficiency. Therefore, FEMA may reimburse costs incurred under a T&M contract only if all of the following apply:

- No other contract was suitable;
- The contract has a ceiling price that the contractor exceeds at its own risk; and,
- The Applicant provides a high degree of oversight to obtain reasonable assurance that the contractor is using efficient methods and effective cost controls.

The Applicant should define the SOW as soon as possible to enable procurement of a more acceptable type of contract.

General Contract Provisions

To protect the interests of Sedgwick County, specific items will be included in the contract to minimize the potential conflicts with the contractor. These items may include, but are not limited to, the following:

- Basis of payment – Basis of payment is usually based on the volume and/or weight of the contractor's loads
- Duration of the contract – To ensure that debris removal is conducted expeditiously, the contract will include specific timelines for work to be completed
- Performance measures – Sedgwick County will implement progress payments for services as specific performance tasks have been met and documented.
- Agreement to restore collateral damage – A contract provision will include a requirement that the contractor is to restore and/or repair (at the contractor's expense) all damaged infrastructure back to pre-existing conditions if the damage was caused by their activities
- Termination
 - Termination for Cause. In the event of any breach of the terms or conditions of this Agreement by Contractor, or in the event of any

proceedings by or against Contractor in bankruptcy or insolvency or for appointment of receiver or trustee or any general assignment for the benefit of creditors, County may, in addition to any other remedy provided it by law or in equity or other right reserved to it elsewhere in this Agreement, without any liability to Contractor on account thereof, by written notice, terminate immediately all or any part of this Agreement, procure the goods, equipment and/or services provided for herein elsewhere, on such terms and under such conditions as are reasonable in the sole discretion of County, and Contractor shall be liable to pay to County any excess cost or other damages caused by Contractor as a result thereof.

- Termination for Convenience. County shall have the right to terminate this Agreement for convenience in whole, or from time to time, in part, upon thirty (30) days' written notice. Upon receipt of such termination notice, Contractor shall not incur any new obligations and shall cancel as many outstanding obligations as reasonably possible. In such event, County's maximum liability shall be limited to payment for goods or equipment delivered and accepted and/or services rendered.
- Reduction in Funds. It is understood that funding may cease or be reduced at any time. In the event that adequate funds are not available to meet the obligations hereunder, either party reserves the right to terminate this Agreement upon thirty (30) days' written notice.

Contract Scope of Work

Will reference one of the following:

- Eligible Work
- Work eligible under FEMA Public Assistance regulations, policies, and guidance
- Work performed on public property and/or public rights-of-way

Units of work must be viewed uniformly to prevent work on one piece of debris on multiple occasions (ex: removing a leaning portion and the cutting the stump to the ground cannot be two separate unit costs).

Contract Limitations

- Avoid “piggyback contracts” with neighboring jurisdictions
- Use caution with shared contracts
- Cost plus percentage of cost contracts will not be used
- Avoid contracts with any phrase that implies, insinuates, or otherwise uses phrases that indicate FEMA pre-approval

Procurement Policy

Sedgwick County jurisdictions will follow the Board of County’s Commissioners Resolution or City’s Ordinance for all emergency procurement rules, regulations, limitations, and exceptions.

Additional Contract Requirements

- For all contracts, the following minimum bonding requirements will apply:
 - A bid guarantee from each bidder equivalent to 5% of the bid price
 - A performance bond on the part of the contractor for 100% of the contract price
 - A payment bond on the part of the contractor for 100% of the contract price

Scope of Work for On-Call Debris Removal

Purpose: Sedgwick County can have storm debris generated by high winds, ice storms, tornadoes and flooding events. Depending on the severity of the storm, the County may sponsor dumpsters for onsite disposal, arrange for packer truck collection in certain neighborhoods, or offer sites for residents to bring their tree waste to for free disposal. In order to best serve the community after a storm event, the County wants to have pre-event unit-price contracts in hand to help expedite an immediate response.

Scope of Work: The companies should bid on the following items:

- Charge for delivering each dumpster
 - Note if mileage variations will occur, and what they are
- If applicable: Charge per size of dumpster: 30 cubic yard and 40 cubic yard
- Charge for collecting dumpster
- Tonnage fee
- Any Overtime Charges (include Saturday and Sunday)
- Costs associated with Packer trucks:
 - Hourly costs per driver
 - Overtime costs
 - Mileage
 - Tonnage fee
- Any other ancillary costs

Response Time: The Company must provide a guaranteed time frame for dumpster and packer truck response. Once they receive our request, how long will it take to get a dumpster in place or packer truck in place (maximum time may be based on mileage to event).

VII. Private Property Demolition and Debris Removal

County staff, contractors or other representatives will not enter onto private property to collect debris. In the event that damage is not abated and/or debris is not removed and such conditions are deemed to constitute a dangerous health or nuisance condition, necessary governing authority will be provided by the Sedgwick County Board of Commissioners.

If deemed appropriate due to the scope of the disaster and/or debris generated by such a disaster, the County Board of Commissioners along with City Officials may take additional formal executive action to authorize collection of debris on private property provided such authorization ensures that the applicable property owner(s) execute a waiver or release of liability developed by Sedgwick County in coordination with FEMA or other applicable State & Federal agencies.

Prior to any removal of debris from the private property, the following documentation will be sent to FEMA's Federal Coordinating Officer FCO:

- Documentation confirming the existence of an immediate threat on public property (44 CFR 206.224(a));
 - Immediate threat to life, public health, and/or safety
 - Immediate threat to improved property determination
 - Removal will expedite economic recovery of Sedgwick County
- Documentation of the legal authority to enter that property (44 CFR 206.223(a)(3);
- Documentation that a legally authorized official has ordered the exercise of public authority to enter private property to perform debris removal (44 CFR 206.223(a)(3); and
- Indemnification for the Federal government and its employees, agents, and contractors from any claims arising from the removal of debris (44 CFR 206.9).

The FCO will approve or disapprove in writing Sedgwick County's request. If approval is granted, debris removal can begin with the pre-determined scope of work; however the following documents will be created during debris management operations:

- Right-of-Entry – This document must be signed by the property owner and will include a hold harmless agreement and indemnification applicable to the project's scope of work.
- Physical Documentation – Photos will be taken to show the condition of the property prior to the beginning of the work. Pictures will document the address and scope-of-work on the private property.
- Private Property Debris Removal (PPDR) Assessment – A property specific assessment will be created to establish the scope of eligible work. The PPDR can be a map or other documentation system that serves as a guide indicating the location of the eligible items of work that present an immediate threat relative to the improved property or rights-of-way.
- Documentation of Environmental and Historic Review – Documents environmental and historical preservation compliance as established in 44 CFR Parts 9 and 10 as well as any relevant Kansas or Sedgwick County resolution, Statute, or ordinance.

Additional documentation may be required by the FCO on a case-by-case basis to demonstrate the proposed work is in compliance with all Federal, State, and local laws and regulations.

VIII. Public Information Plan

Distribution Strategy

Public information related to debris management will be submitted to the public in as many ways as possible. Although there will be an operational PIO designated by the Debris Project Manager, this position will work in cooperation with the Sedgwick County PIO to facilitate the distribution of public information. The following communication vehicles will be considered when performing this function:

- Media – This includes local television, radio, newspapers, Social Media, or community newsletters that reach the impacted area(s).
- Internet Sites – Information will be posted to the Sedgwick County Government webpage (www.sedgwickcounty.org)
- Public forums – This includes interactive meetings at a local government building(s).
- Direct Delivery Products – This includes door hangers, direct mail, fact sheets, flyers within bills, billboards, etc.

Using these various communication methods will ensure the distribution of information even if power, utilities, and other infrastructure have been damaged during the disaster. Providing this information to the workers in the field is also a critical way to distribute vital information.

The PIO may choose to establish a Debris Information Hub if the size of the debris management process warrants it. This may include a direct Sedgwick County hotline or information may be routinely submitted to the regional 2-1-1 system.

Through the listed mechanisms, the public will be encouraged to do the following:

- If possible, separate debris materials – burnable materials, non-burnable materials, household hazardous waste (HHW), and recyclable materials;
- Keep debris materials from fire hydrants;
- Report illegal debris material dump sites; and
- Review all debris removal routes and schedules

The -Sedgwick County Print Shop will be used to print all materials needed for Debris Management activities. If operational demands exceed the capabilities of the Print Shop, contractors or mutual aid may be required to supplement the printing of the necessary items.

IX. Plan Maintenance

As a support annex to the Sedgwick County LEOP, this Plan will be reviewed on an annual basis for necessary changes or additions to continue to meet operational and legal requirements.

X. Acronyms

C&D	Construction & Demolition
DMS	Debris Management Site
DPM	Debris Project Manager
EOC	Emergency Operations Center

FCO	Federal Coordinating Officer
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HHW	Household Hazardous Waste
K.A.R.	Kansas Administrative Regulations
KDEM	Kansas Department of Emergency Management
KDHE	Kansas Department of Health and Environment
LEOP	Local Emergency Operations Plan
NRCS	National Resources Conservation Service
PIO	Public Information Officer
PPDR	Private Property Debris Removal
R.O.W.	Right of Way
ROOT-BALL	The tightly packed mass of roots and soil produced by a plant
TDMS	Temporary Debris Management Site
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
VCM	Vegetative Cover Multiplier
WMD	Weapon of Mass Destruction

XI. Definitions

Disaster-generated debris: Any material, including trees, branches, personal property and building material on public or private property that is directly deposited by the disaster.

Improved property: Any structure, facility, or equipment that was built, constructed, or manufactured. Examples include houses, sheds, car ports, pools, and gazebos. Land used for agricultural purposes is not improved property.

Legal responsibility: A statute, formally adopted State or local code, or ordinance that gives local government officials responsibility to enter private property to remove debris or to perform work to remove an immediate threat.

Private property: Land and structures, to include contents within the structures, built on land that is owned by non-governmental entities.

Private road: Any non-public road for which a subdivision of the State is not legally responsible to maintain. Private roads include roads owned and maintained by homeowners associations, including gated communities, and roads for which no entity has claimed responsibility. Local police, fire, and emergency medical entities may use these roads to provide services to the community.

Appendices

Appendix A:	Hazardous Stump Worksheet
Appendix B:	Stump Conversion Table
Appendix C:	Sample DMS with Operational Boundaries
Appendix D:	Operational Safety Awareness & Regulations
Appendix E:	Federal Guide Load Ticket
Appendix F:	Sedgwick County Sample Debris Load Ticket
Appendix G:	Landfills and Debris Management Sites in Sedgwick County
Appendix H:	Temporary Debris Management Sites
Appendix I:	Truck Certification Form
Appendix J:	Debris Monitoring Tips
Appendix K:	Debris Notification Sheet
Appendix L:	Right of Entry
Appendix M:	Debris site check off
Appendix N:	List of Preferred Vendors

APPENDIX A: Hazardous Stump Worksheet

Hazardous Stump Worksheet

Applicant: _____ Date: _____

Applicant Representative: _____ Signature: _____

FEMA Representative (if available) _____ Signature: _____

State Representative (if available): _____ Signature: _____

	Physical Location (i.e., Street address, road, cross streets, etc.)	Description of Facility (ROW, Park, City Hall, etc.)	Hazard		GPS (decimal degrees, 00.000000)		Tree Size (Diameter)	Eligible		Fill for Debris Stumps CY	Comments (See attached sketch, photo, etc.)
			Yes	No	Latitude (N)	Longitude (W)		Yes	No		
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

APPENDIX B: Stump Conversation Table

Stump Conversion Table

Diameter to Volume Capacity

The quantification of the cubic yards of debris for each size of stump in the following table was derived from FEMA field studies conducted throughout the State of Florida during the debris removal operations following Hurricanes Charley, Frances, Ivan and Jeanne. The following formula is used to derive cubic yards:

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root Ball Diameter}^2 \times 0.7854) \times \text{Root Ball Height}]}{46656}$$

0.7854 is one-fourth Pi and is a constant.

46656 is used to convert cubic inches to cubic yards and is a constant

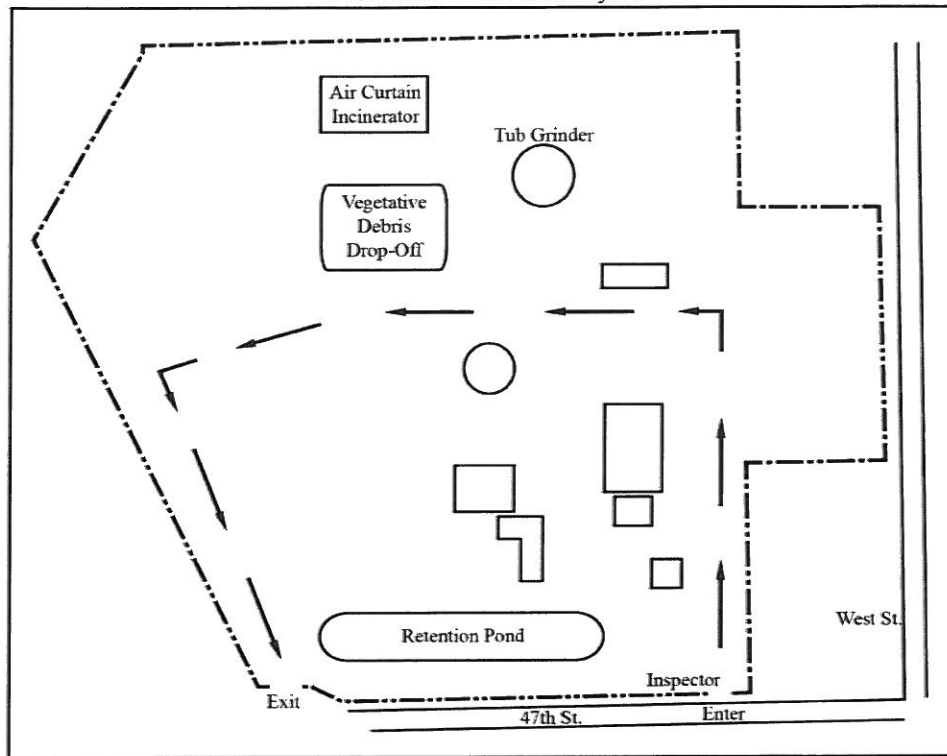
The formula used to calculate the cubic yardage used the following factors, based upon findings in the field:

- Stump diameter measured two feet up from ground
- Stump diameter to root ball diameter ratio of 1:3.6
- Root ball height of 31"

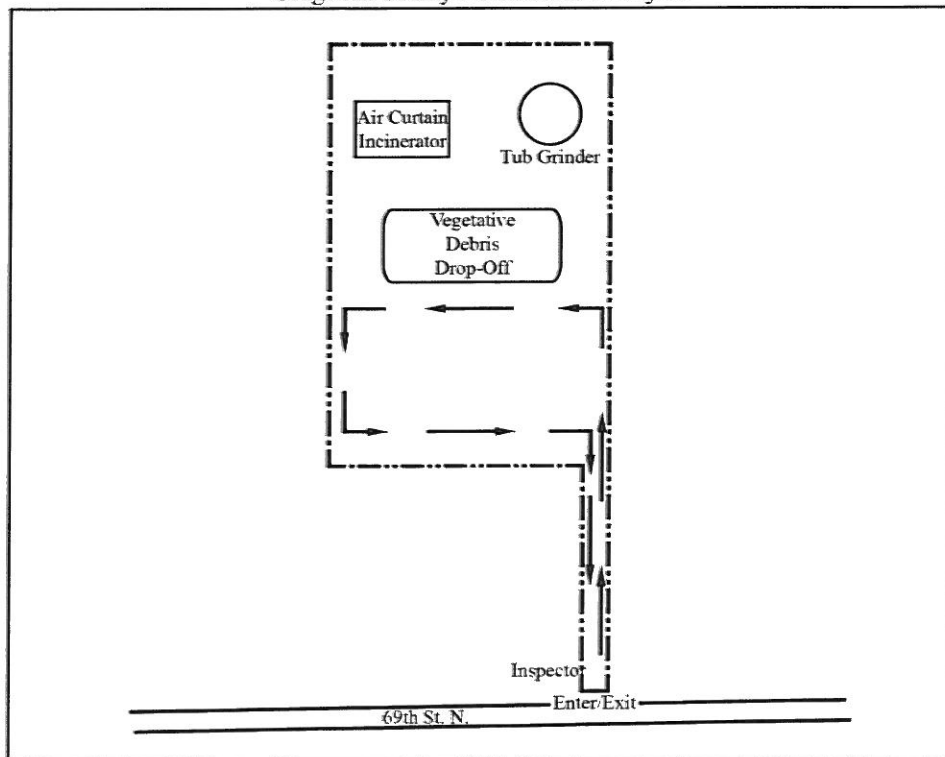
Stump Diameter (Inches)	Debris Volume (Cubic Yards)	Stump Diameter (Inches)	Debris Volume (Cubic Yards)
6	0.3	46	15.2
7	0.4	47	15.8
8	0.5	48	16.5
9	0.6	49	17.2
10	0.7	50	17.9
11	0.9	51	18.6
12	1	52	19.4
13	1.2	53	20.1
14	1.4	54	20.9
15	1.6	55	21.7
16	1.8	56	22.5
17	2.1	57	23.3
18	2.3	58	24.1
19	2.6	59	24.9
20	2.9	60	25.8
21	3.2	61	26.7
22	3.5	62	27.6
23	3.8	63	28.4
24	4.1	64	29.4
25	4.5	65	30.3
26	4.8	66	31.2
27	5.2	67	32.2
28	5.6	68	33.1
29	6	69	34.1
30	6.5	70	35.1
31	6.9	71	36.1
32	7.3	72	37.2
33	7.8	73	38.2
34	8.3	74	39.2
35	8.8	75	40.3
36	9.3	76	41.4
37	9.8	77	42.5
38	10.3	78	43.6
39	10.9	79	44.7
40	11.5	80	45.9
41	12	81	47
42	12.6	82	48.2
43	13.3	83	49.4
44	13.9	84	50.6
45	14.5		

APPENDIX C: Sample DMS Layout with Operational Boundaries

West Public Works Yard Layout



Sedgwick County North Location Layout



APPENDIX D: Operational Safety Awareness & Regulations

Potential Hazards

Sedgwick County responders along with contracted workers may face the following potential hazards while performing debris management operations:

• Unstable work surfaces	• Roadside work
• Structural integrity	• Driving
• Flying debris (eye injuries)	• Breathing dust
• Heavy equipment	• Falling Ice & Debris
• Electrical	• Carbon monoxide
• Excessive noise	• Smoke inhalation
• Falls from heights	• Potential chemical exposures
• Molds	• Bites and stings
• Blood-borne diseases	• Water and food sanitation
• Personal sanitation and Hygiene	• Traumatic stress
• Confined spaces	

Safety Regulations

Sedgwick County personnel are subject to the rules and regulations of the Kansas Department of Labor, while contracted personnel are subject to OSHA regulations. However, since these regulations are often tied together, the following list of regulations will be considered before, during, and after all debris management activities.

- 29 CFR 1910.1200 (HazCom)
- 29 CFR 1910.120 (Hazwoper)
- 29 CFR 1910.134 (Respiratory Protection)
- 29 CFR 1910.146 (Confined Spaces)
- 29 CFR 1910.1030 (Bloodborne Pathogens)
- 29 CFR 1926.20-35 (General Construction),
- 29 CFR 1910.23 (Fall Protection),
- 29 CFR 1915.159 (Fall Arrest Equipment)
- 29 CFR 1910.132 (Personal Protective Equipment),
- 29 CFR 1910.137 & 29 CFR 1910.332 (Electrical safety),
- 29 CFR 1910.147 (Lockout/Tagout), and
- All other local, State, or Federal safety regulations.

Health Concerns

Exposure to potentially hazardous conditions may require immunization and/or monitoring from public health experts. Specific considerations include tetanus, hepatitis A, or other vaccines as recommended by the Sedgwick County Public Health Department.

Appendix E Federal Guide Load Ticket

Sample Debris Load Ticket

LOAD TICKET		
TICKET NUMBER:		00001
CONTRACT NUMBER:		
PRIME CONTRACTOR'S NAME:		
DATE:		
DEBRIS QUANTITY		
Truck No:	Capacity (CY):	
Load Size : Cubic Yards _____		
or Tons _____		
Truck Driver:		
DEBRIS CLASSIFICATION		
<input type="checkbox"/>	Burnable	
<input type="checkbox"/>	Non-Burnable	
<input type="checkbox"/>	Mixed	
<input type="checkbox"/>	Other	
LOCATION		
Zone/Section	Dumpsite	
	Time	Contract Monitor
Loading		
Unloading		

APPENDIX F: Sample Sedgwick County (KS) Debris Load Ticket

LOAD TICKET	Ticket #
Debris Source Address: GPS Coordinates:	Unloading Address: GPS Coordinates: Site Monitor: _____
Date:	Arrival Time:
Municipality (Source) ID Code: _____	Contractor, if applicable
Truck #	Truck Driver
Debris Quantity Cubic Yards: _____ Or Tons: _____	Type of Debris (check all that apply) <input type="checkbox"/> Tree <input type="checkbox"/> Brush <input type="checkbox"/> Wood <input type="checkbox"/> Other: Explain _____ _____ _____ _____

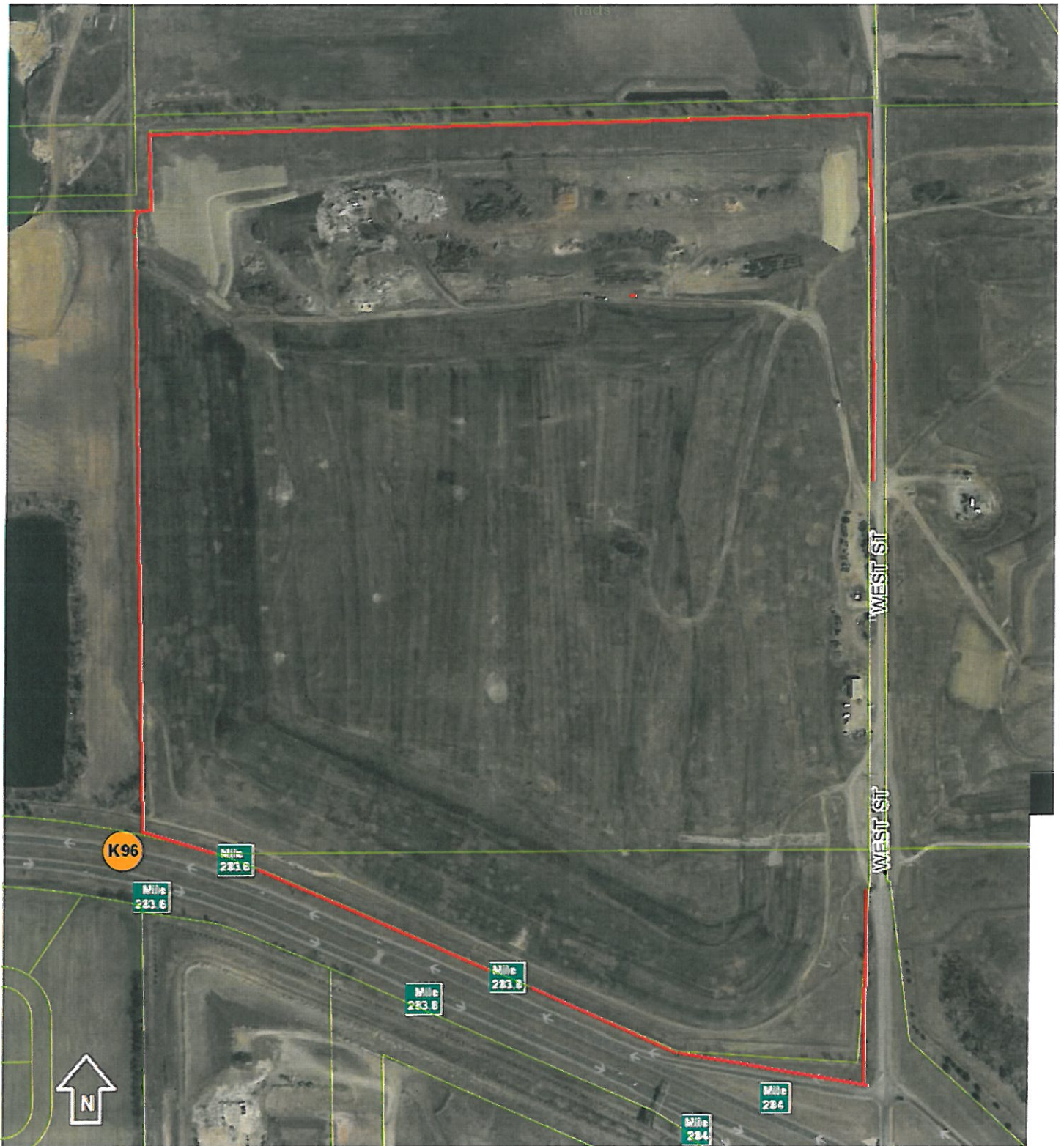
APPENDIX G: Landfills and Debris Management Sites

There are several locations within Sedgwick County that could be used during debris management activities. Sedgwick County also uses an out-of-county landfill that could be used during debris management activities. They are as follows:

Landfill	Owner /Operator	Access	Accepts
Brooks C&D Landfill 4100 N. West St. 316-722-0601	City of Wichita	Businesses and Public	C&D and Yard Waste
CDR North C&D Landfill 4250 W. 37 th St. N. 316-942-8666	Cornejo & Sons	Businesses and Public	C&D
Evergreen Recycle 302 W. 53 rd St. N. 316-832-0400	Evergreen Recycle	Businesses and Public	Wood and Yard Waste
Waste Connections Transfer Station' 4300 W. 37 th St. N. 316-941-4320	Waste Connections	Businesses and Public	MSW
Waste Disposal Transfer Station 5550 W. 55 th St. S. 316-522-3633	Waste Disposal, LLC	Businesses and Public	MSW
Sedgwick County's Household Hazardous Waste Facility 801 Stillwell 316-660-7458	Sedgwick County	Small Quantity Generators & Public	HHW
Colwich Brush Pile 500 S. 8th St. 316-796-1025	Colwich	Colwich Residents	Tree Debris and Brush
Goddard Public Works Yard 1206 S. 199th St. W. 316-794-2441	Goddard	Goddard Residents	Tree Debris and Brush
Clearwater Brush Dump 10750 S 151 st Street W 620-584-2311	Clearwater	Clearwater Residents	Tree Debris and Brush
Haysville Brush Pile 401 S. Jane 316-529-5940	Haysville	Haysville Residents	Yard Waste, Concrete, Metal, Used Oil, Tree Debris
Valley Center Brush & Compost Site 531 W. Clay 316-755-7320	Valley Center	Valley Center Residents	Yard Waste, Brush and Tree Limbs
Plumb Thicket Landfill NE 150 th Road, West of NE 50 th Avenue Harper, Kansas 620-896-2229	Waste Connections	Businesses and Public	C&D and Yard Waste

Note: Call for hours of operation. None of these facilities will accept radioactive material or animal carcasses with the exception of Plumb Thicket that will accept dead animals. Only the HHW Facility will receive hazardous materials and car batteries. Municipal Solid Waste (MSW) includes all types of yard waste. Check SedgwickCounty.org for locations to dispose of or recycle special materials

**BROOKS CONSTRUCTION & DEMOLITION LANDFILL
4100 N WEST STREET
WICHITA, KANSAS**



CORNEJO & SONS CONSTRUCTION & DEMOLITION CDR LANDFILL
4250 W 37TH STREET, NORTH
WICHITA, KANSAS



EVERGREEN RECYCLE
302 W 53RD STREET, NORTH
WICHITA, KANSAS



**WASTE CONNECTIONS TRANSFER STATION
4300 W 37TH STREET, NORTH
WICHITA, KANSAS**



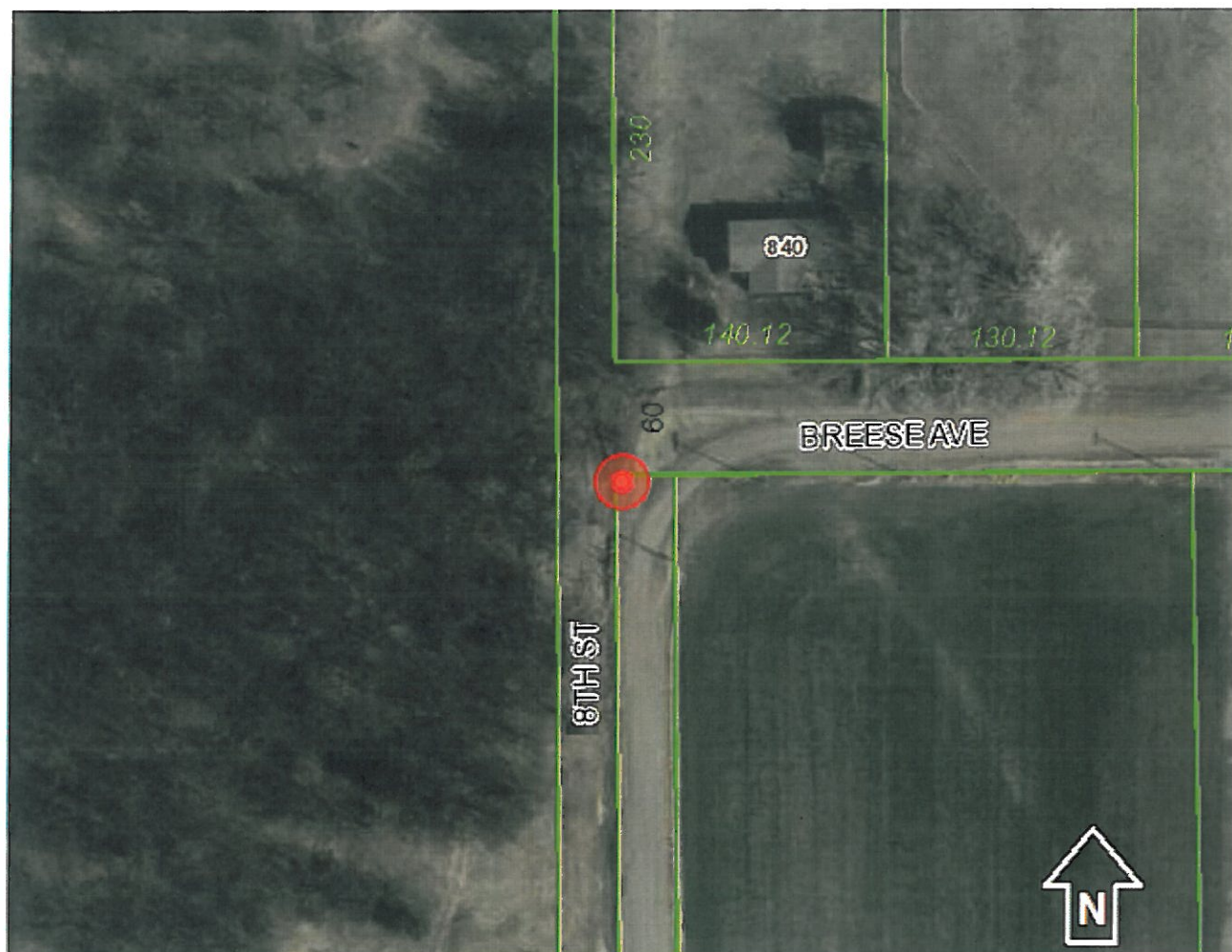
WASTE DISPOSAL TRANSFER STATION
5550 W 55TH STREET, SOUTH
WICHITA, KANSAS



**HOUSEHOLD HAZARDOUS WASTE COLLECTION SITE
801 W STILLWELL AVENUE
WICHITA, KANSAS**



COLWICH BRUSH PILE
500 S 8TH STREET
COLWICH, KANSAS



GODDARD PUBLIC WORKS YARD
1206 S 199TH STREET, W
GODDARD, KANSAS



CLEARWATER BRUSH DUMP
10740 S 151ST STREET W
CLEARWATER, KANSAS



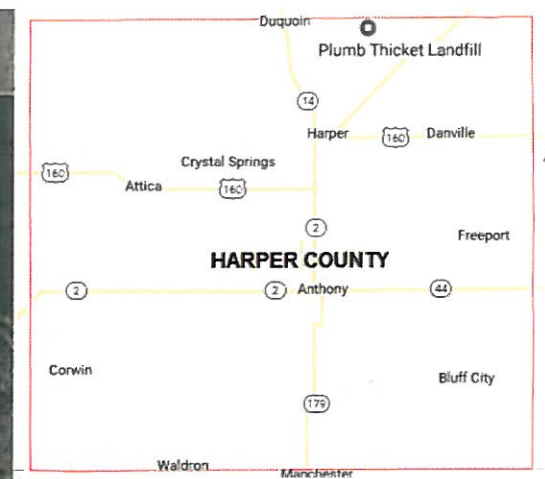
HAYSVILLE BRUSH PILE
401 S JANE STREET
HAYSVILLE, KANSAS



VALLEY CENTER BRUSH & COMPOST SITE
531 W CLAY STREET
VALLEY CENTER, KANSAS



**PLUMB THICKET CONSTRUCTION & DEMOLITION LANDFILL
NE 150TH ROAD, WEST OF NE 50TH AVENUE
HARPER COUNTY, KANSAS**



APPENDIX H Potential Temporary Debris Management Sites (TDMS)

Sedgwick County has identified three sites that may be used for the temporary storage, reduction, and overall management of disaster-related debris until final disposition is made at a permanent landfill. Additional sites may be necessary, depending on the location of the storm debris.

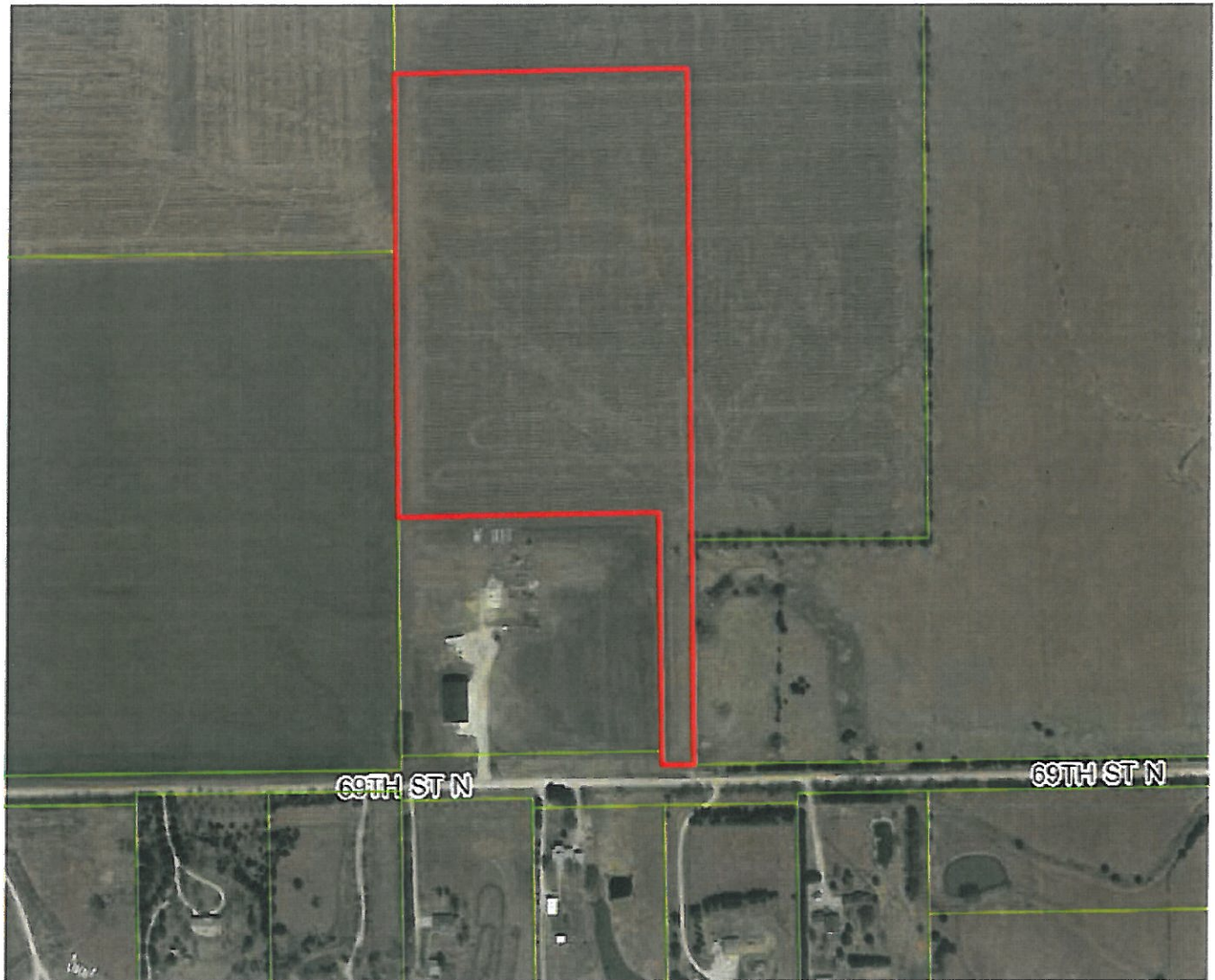
	Sedgwick County West Public Works Yard	Sedgwick County Northeast Storm Debris Land	Wichita-Valley Center Floodway
Ownership	Sedgwick County	Sedgwick County	Wichita and Sedgwick County
Location	4701 S. West St	69 th St N. between Greenwich Rd. and 127 th E., north of Payne Township Building	East side of south Meridian, located between 63 rd St. S. and 71 th St. S.
Size	30 acres	20 acres	30 acre site, 10 acres used for debris management
Access Route – Ingress	Quarter mile west of West St. S. on 47 th St. S. on north side of road	6/10 of a mile east of Greenwich Road on 69 th St. N. on north side of road, entrance is east of Payne Township Building entrance	1/4 mile south of the intersection of 63 rd St S. heading west of Meridian and Meridian, entrance is on the east side of Meridian
Ingress Road Types	Paved on West St., gravel on 47 th St. S., gravel/dirt on site	Paved on Greenwich Rd., gravel on 69 th St. N., dirt on site	Paved on Meridian, dirt on site
Access Route – Egress	Exit onto 47 th St. S. and head east to West St.	Exit onto 69 th St. N. and head west to Greenwich Rd.	Exit onto Meridian
Egress Road Types	Gravel on 47 th St. S. to West St where it is paved	Gavel on 69 th St. N. to Greenwich Rd. where it is paved	Meridian is paved
Approved Debris Streams	Tree Debris	Tree Debris	Tree Debris
Environmental Status	No known special status	No known special status.	Floodplain

TEMPORARY SITES HAVE BEEN ALSO SELECTED FOR CITIES WITHIN SEDGWICK COUNTY FOR EITHER BRUSH OR DEBRIS AS STATED ON THE MAPS TO FOLLOW.

**SEDGWICK COUNTY WEST PUBLIC WORKS YARD
4701 S. WEST STREET
WICHITA, KANSAS**



**SEDGWICK COUNTY NORTHEAST STORM DEBRIS LAND
12010 E 69TH STREET N
WICHITA, KANSAS**



WICHITA-VALLEY CENTER FLOODWAY
63RD STREET SOUTH & MERIDIAN AVENUE
WICHITA, KANSAS



APPENDIX I: Truck Certification Form

DUMP TRUCK

Measurements

Truck Measurements

Length (L) =

Width (W) ft =

Height (H) ft =

Hoist Measurement

Length₁ (L₁) ft =

Length₂ (L₂) ft =

Width_H (W_H) ft =

Height_H (H_H) ft =

Radius

Radius ft =

Height (H) =

Calculations

Bed Volume (Basic)

$(L \times W \times H) / 27 =$ cyd

Hoist Volume

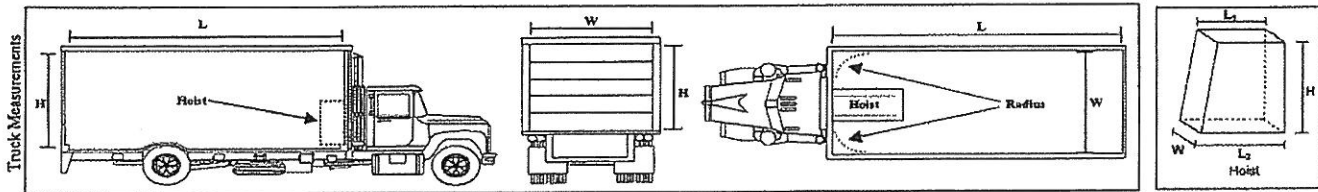
$((L_1 + L_2) / 2) \times W_H \times H_H / 27 =$ cyd

Radius Volume

$(3.14 \times R^2 \times H) / 27 =$ cyd

Total = cyd

Cubic Yards



EXTRA TRAILER

Measurements

Truck Measurements (Basic)

Length (L) =

Width (W) ft =

Height (H) ft =

Hoist Measurement

Length₁ (L₁) ft =

Length₂ (L₂) ft =

Width_H (W_H) ft =

Height_H (H_H) ft =

Radius

Radius ft =

Height (H) =

Calculations

Bed Volume (Basic)

$(L \times W \times H) / 27 =$ cyd

Hoist Volume

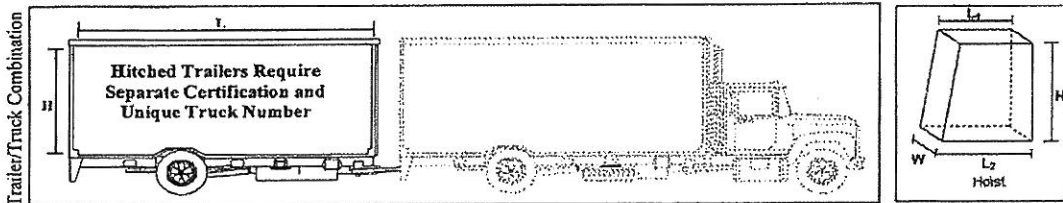
$((L_1 + L_2) / 2) \times W_H \times H_H / 27 =$ cyd

Radius Volume

$(3.14 \times R^2 \times H) / 27 =$ cyd

Total = cyd

Cubic Yards



ROUND BOTTOM TRUCK

Measurements

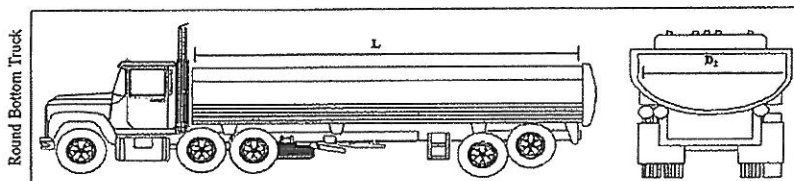
Truck Measurements

Length (L) ft =

Diameter (D) ft =

Calculations

Approx. Volume $(3.14 \times (D/2)^2 \times L) / 27 =$ cyd (round bottom portion only)



Cubic Yards

General Information

Applicant: _____ Monitor: _____
Contractor: _____ Date: _____
Measurement Location: _____ County: _____
Declaration Number: _____

Truck Information

Make	Year	Color	License

Truck Measurements

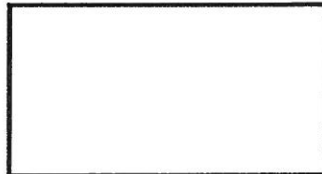
Performed By: _____ Date: _____
Volume Calculated By: _____ Date: _____
Both Checked by: _____ Date: _____

Driver Information

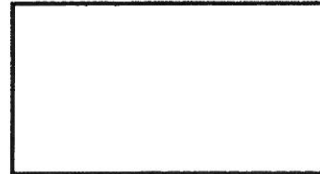
Name: _____
Address: _____
Phone Number: _____

Owner Information

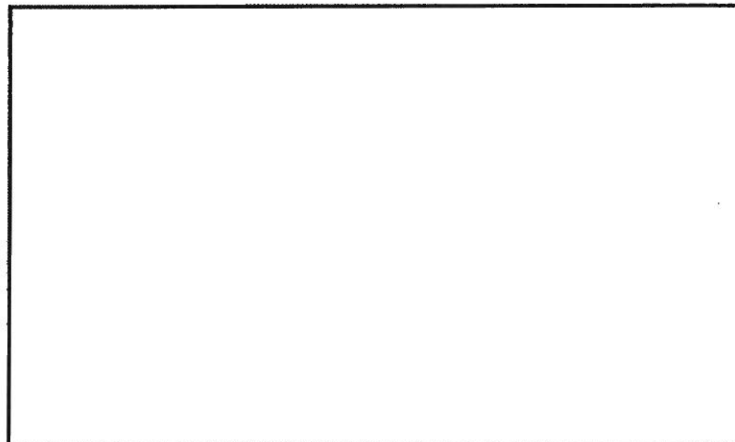
Name: _____
Address: _____
Phone Number: _____



Truck Identification



Truck Capacity



Photo

(See reverse for calculation worksheet)

APPENDIX J: Debris Monitoring Tips

Debris monitoring is a critical piece of the overall operation. By avoiding the following fraudulent acts, operational compliance is maintained.

Inaccurate Truck Capacities – Trucks will be measured before operations and load capacities will be documented by truck number. Periodically, trucks will be pulled from operations and reassessed.

Trucks Not Fully Loaded – Do not accept the contention that loads are higher in the middle and if level would fill the truck.

Trucks Lightly Loaded – Trucks arrive loaded with treetops with extensive voids in the load. Trucks need to be loaded to their full capacity with front end loaders or other similar equipment.

Trucks Overloaded – Trucks cannot receive credit for more than the measured capacity of the truck or trailer bed even if material is above the sideboards.

Changing Truck Numbers – Trucks are listed by an assigned vehicle number and capacity. There have been occasions where truck or trailer numbers with a smaller carrying capacity have been changed to one with a larger capacity. Periodically re-measuring the trucks will identify this issue.

Reduced Truck Capacity or Increased Truck Weight – There have been occasions where trucks have had heavy steel grating welded two to three feet above the bed after being measure, thus reducing the capacity or inflating the weight of the load. Periodically re-measuring the trucks will identify this issue.

Wet Debris When Paid by Weight – Excessive water added to debris will increase the weight of the load. When the contractual unit cost is based on weight, this increases the cost to Sedgwick County. This can be detected during monitoring if there is excessive water dripping from the truck bed.

Multiple Counting of the Same Load – Trucks have been reported driving through the disposal site without unloading, then re-entering with the same load. This can be detected by observing the time of departure and the time of arrival recorded on the driver's load ticket.

Picking up Ineligible Debris – Monitors will have a good understanding of eligible debris and any time limits imposed on picking up specific types of debris.

Appendix K: Debris Notification Sheet

Your area has been involved in a disaster event

Please avoid placing debris over Fire Hydrants and Gas Meters and in the street.

To assist in the debris clean up please separate the following at the curbside.

To Expedite Cleanup efforts please separate as follows in separate piles:

Trees and Vegetation

White goods (washing machine, refrigerators)

Clean construction debris (2x4's and such, plywood)

Metals

Household hazardous chemicals (Paints, bug killers, cleaning products)

Personnel Property

We thank you for your cooperation through these trying times; any questions please call your local contact at

Appendix L: Right of Entry

RIGHT OF ENTRY AGREEMENT

I/We _____, the owner(s) of the property, commonly identified as
_____, Sedgwick, State of Kansas,
(street) (city/town) (county)

do hereby grant and give freely and without coercion, the right of access and entry to said property in the County/City of _____, to Sedgwick County, its employees, agents, contractors, and subcontractors thereof, for the purpose of removing and clearing any or all storm-generated debris of whatever nature from the above described property.

It is fully understood that this permit is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless Sedgwick County, its elected and appointed officials, employees, agents, contractors, and subcontractors, against any and all loss or damage, except to the extent such loss and/or damage arises out of Sedgwick County's, or its elected and appointed officials', employees', or agents' negligence and/or willful, wanton or reckless conduct in the performance of debris clearance. The property owner(s) will mark any storm damaged sewer lines, water lines, and other utility lines located in the described property.

I/We (have _____, have not _____) (will _____, will not _____) receive any compensation for debris removal from any other source including Small Business Administration (SBA), National Resource Conservation Service (ANRCS), private insurance, individual and family grant program or any other public assistance program. I will report for this property any insurance settlements to me or my family for debris removal that has been performed at government expense. For the considerations and purposes set forth herein, I set my hand this _____ day of _____, _____.

Owner

Owner

Appendix M: Debris site check off

Disaster Debris Management Site Selection Worksheet

Site Name _____

Site Address _____

Estimated Size in Acres _____

Estimated Volume of Debris Able to Hold (cubic yards) _____

(Note: Assume up to 16,000 cubic yards/acre and only 40 percent of site available for debris storage.)

Primary Local Government Point of Contact:

Name _____ Phone _____ Email _____

Secondary Local Government Point of Contact:

Name _____ Phone _____ Email _____

Preferred Disaster Debris Management Site Criteria

- ☐ The site is owned or controlled by municipal or state government.
- ☐ The site has easy access, including being near the area of debris generation, easy to enter and exit, and near transportation arteries.
- ☐ The site is ready to use as a debris management site without extensive site modifications.
- ☐ The debris storage and handling areas would be at least 100 feet from property lines.
- ☐ To the maximum extent possible, the site location minimizes potential environmental and public health impacts, including considering setbacks from public water supplies, surface water bodies, and residential dwellings and avoiding areas such as flood plans, drinking water Zone IIs, and Areas of Critical Environmental Concern.

If any of these criteria are not met, please explain why not and how any concerns regarding that criterion would be addressed: _____

Anticipated Site Activities

(Note: intended for use only in declared disaster, NOT for routine operation.)

- ☐ A site plan and layout has been prepared that considers the management and operating practices recommended in this guidance.

What types of disaster debris do you expect to manage at this site? (e.g., vegetative waste, C&D debris, hazardous household products, etc) _____

What debris processing or other handling activities do you expect to conduct at this site? (e.g., sorting and transfer for recycling, chipping vegetative waste, transfer of trash for disposal, etc.) _____

Please summarize any other benefits or concerns with using this site as a debris management site.

Appendix N: List of Preferred Vendors

Waste Connections and Mayer Specialty Services, LLC were pre-selected as potential debris management vendors during disaster response and recovery operations. Selected information for each company is listed below:

Company	Waste Connections	Mayer Specialty Services LLC
Corporate Address:	2745 N Ohio Street Wichita, Kansas 67219	831 Industrial Road Goddard, Kansas 67052
Firm Size:	National	Local
Licensed in Kansas:	Yes	Yes
Primary Contact:	Herschel West, Owner/Manager Phone: (316) 838-4920 (Rolls Over)	Todd Mayer, Owner/Manager Phone: (316) 794-1165
Evening Phone:	(316) 253-8023	(316) 617-3392
Dedicated Equipment:	Trash dumpsters open top & large construction containers, portable restrooms, debris clean-up & removal	Debris removal
Quoted Price:	Determined per Incident	Determined per Incident

The specific Proposals for each company will be determined at the time of the incident.