MTP 2050

Chapter 2
Regional Trends

MTP 2.1

The WAMPO region is home to 547,230 people. As the largest metropolitan area entirely within the state of Kansas, the WAMPO region is responsible for about 19% of Kansas's Gross Domestic Product (GDP), which is the second-highest GDP by county in the state.

Home to 70% of the WAMPO regional population, the City of Wichita is situated in the heart of 11 adjacent suburban cities. The remainder of the WAMPO region is comprised of mostly rural areas, including a collection of small towns located in Sedgwick, western Butler County, and a portion of Sumner County.

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Regional Connections

Regional connections refer to the networks and relationships of connectivity for industry and commercial development, employment, and residential areas between the cities and counties within the WAMPO region. This connectivity relies on an efficient and accessible transportation network and understanding that networks allow WAMPO's partnering agencies to plan for transportation projections that improve a municipality's local quality of life and regional connection.

Regional Growth & Connections

There are many overarching trends toward increased regionalism in the WAMPO area, below is an overview of these trends. There have been a variety of growth patterns in the WAMPO region, especially in the last two decades. This encompasses a significant jump in population between 2010 and 2020, as well as an increase in industry and jobs, residential and housing developments, and growth in commuting and transportation networks. These all necessitate evolving transportation projects and infrastructure, to which WAMPO, the Kansas Department of Transportation (KDOT), and the cities and counties in the region work together. There are several key connectors that the municipalities in the region either directly or indirectly benefit from.

Connections Between Cities

Connections between WAMPO cities can include the transportation network employment, housing, and schools. First, highways and interstates, deliver transportation connections around the region and provide for economic and social trade and overlap. And second, the proximity to other cities, particularly Wichita, is an integral physical connection.

Further, the employment benefits that the City of Wichita provides extend to their international industry draw, for companies such as Spirit AeroSystems and Cargill. All of these provide jobs for the WAMPO region, but also for people around the world, where the WAMPO region is carving out a place for itself as an industrial hotspot, particularly for aerospace and manufacturing.

It should be noted that Sedgwick County's unincorporated portions are also active participants and integral components of regional connections. They are general connectors between cities and rural areas, as well as cities in general. The unincorporated county helps to bridge the gaps between smaller, more spread-out cities. Sedgwick County helps with industrial growth through freight transportation with their roads and bridges, as well as providing further residential areas for those who commute for work into the WAMPO region.

Population Growth

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WAMPO Region Population Change

City	2010 Population	2020 Population	% Change from 2010 to 2020	
Wichita	382,368	397,532	4.0%	↑
Derby	22,158	25,625	15.6%	↑
Andover	11,791	14,892	26.3%	↑
Haysville	10,826	11,262	4.0%	↑
Park City	7,297	8,333	14.2%	↑
Bel Aire	6,769	8,262	22.1%	↑
Valley Center	6,822	7,340	7.6%	↑
Mulvane	6,111	6,286	2.9%	↑
Maize	3,420	5,735	67.7%	↑
Goddard	4,344	5,084	17.0%	↑
Rose Hill	3,931	4,185	6.5%	↑
Clearwater	2,481	2,653	6.9%	↑
Kechi	1,909	2,217	16.1%	↑
Cheney	2,094	2,181	4.2%	↑
Sedgwick	1,695	1,603	-5.4%	↑
Colwich	1,327	1,455	9.6%	↓
Garden Plain	849	948	11.7%	↑
Andale	928	941	1.4%	↑
Mount Hope	813	806	-0.9%	↓
Eastborough	773	756	-2.2%	↓
Bentley	530	560	5.7%	↑
Viola	130	115	-11.5%	↓

Employment Growth

Beyond the changes in population size, many municipalities in the WAMPO region saw changes in employment and industry. As new businesses take interest in the WAMPO region they begin to invest in cities, these investments can lead to, among other things, employment growth. Additional employment growth also comes from existing businesses growing their operations.

One notable example of new business taking interest in the region has been the addition of the Amazon Fulfillment Center in Park City (Figure 3). This has provided jobs for over a thousand WAMPO residents, and even more during their peak seasons. This type of development also necessitated street improvements around the region and in Park City because of the number of new commuters this employer draws. Valley Center, to the northeast of Park City, has been one of the major suppliers of Amazon employees outside of Park City.

Several other new industrial developments or parks have been constructed in the WAMPO region in the past decade.

Regional Growth

Generally speaking, residential growth and industrial growth go hand in hand as employers need employees and employees need housing. Residential growth has a significant impact on the community and region in many ways, one of which is the need for more comprehensive and efficient transportation systems. Much like increases in population, more residences spread out around the region coincide with a rise in commuters who need reliable roads, as well as paths, trails, and bikeways.

Haysville's city government has been specifically involved in developing new residential areas, and Goddard' majority of growth has been residential in the past decade. Valley Center has three new housing developments and Maize has five new housing developments.

Transportation Growth

Employment and residential growth both contribute to increased transportation around the region and with that comes the need for transportation projects and infrastructure improvements. In terms of commuting patterns, most cities outside of Wichita see a higher number of their residents leave for work every day than they see staying or coming in for work. This is illustrated in the WAMPO 2023 Commuter Flows Report.

Commuting patterns illustrate the connectivity and reliance between each city and its neighbors, all feeding each other with employers and employees alike. To support the transportation needs of these commuting trips, cities must maintain and improve their transportation network. The connections between growth patterns and transportation projects are vast and far-reaching.

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2.2 Demographics

Population

The US Census Bureau conducts an official count of the US population once every 10 years. The last official US Census count was conducted in 2020. The WAMPO region includes all of Sedgwick County and portions of Butler and Sumner Counties, as well as 22 cities. Table 1 shows the 2010 and 2020 populations and 2010-2020 percent change in population for each jurisdiction within the WAMPO region.

Overall, the WAMPO region has seen an approximate 5.4% increase in population from 2010 to 2020. Three out of the 22 WAMPO cities experienced a decrease in population over the decade. The City of Maize experienced the highest population growth (67.7%) followed by the City of Andover (26.4%).

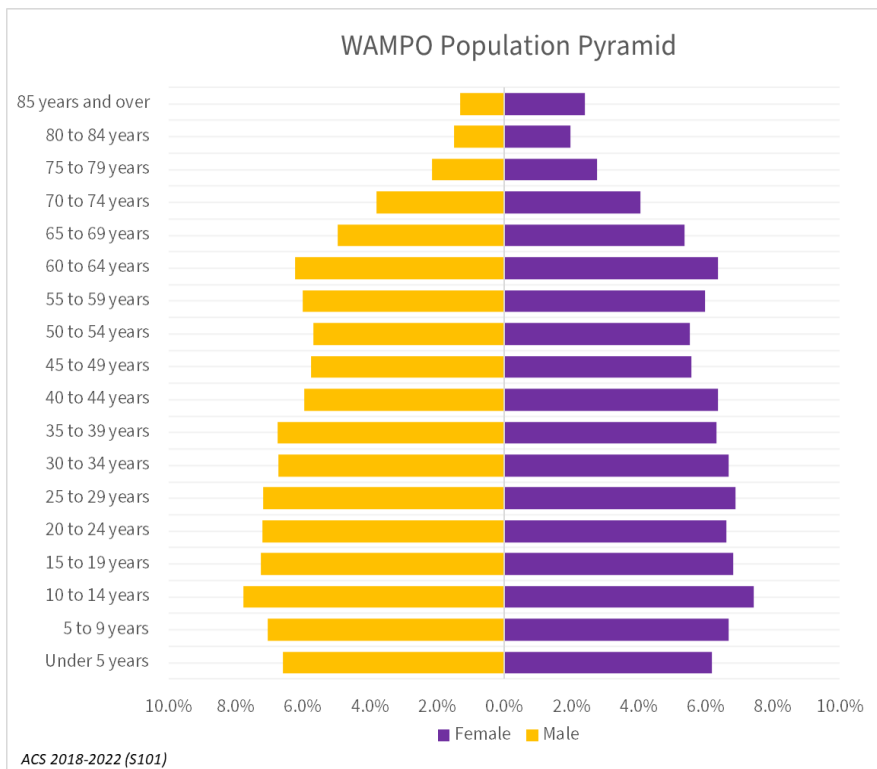| WAMPO Jurisdictions	2010 Population	2020 Population	% Change
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Sedgwick*	192	194	1.0%
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Mount Hope	813	806	-0.9%
Eastborough	773	756	-2.2%
Bentley	530	560	5.7%
Viola	130	115	-11.5%
Sedgwick County⁺	37,214	36,474	-2.0%
Butler County⁺	2,666	2,344	-12.1%
Sumner County⁺	1,233	1,050	-14.8%
WAMPO Region Total	**518,976**	**547,230**	**5.4%**

*Portion of city within the WAMPO planning boundary
⁺Unincorporated portion inside WAMPO planning boundary

Population Pyramid

Figure 1, known as a population pyramid, illustrates the distribution of a population by age group and sex.
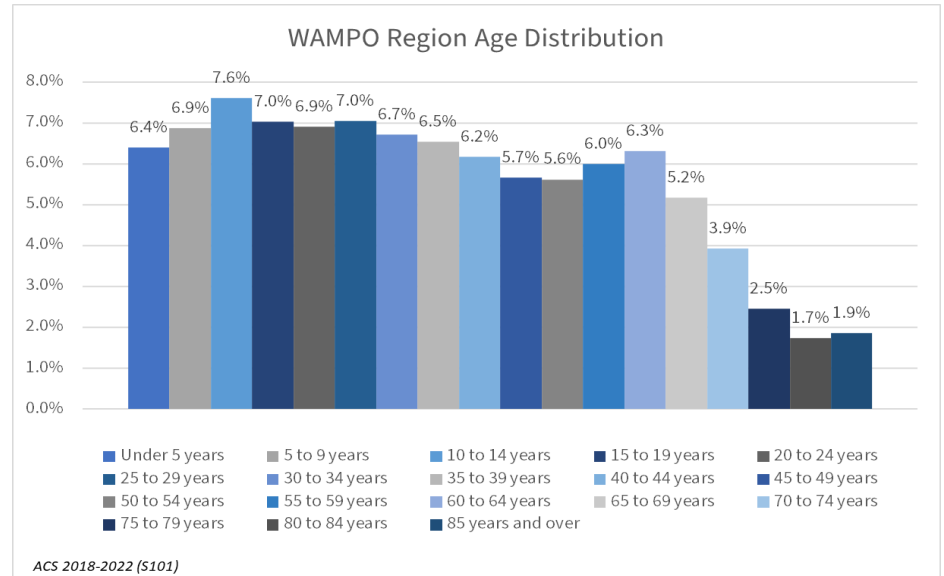
The age group with the highest population is 10 to 14 years of age for both males (21,898) and females (21,098). The percentage of the population divided amongst males (49.8%), and females (50.2%) is half and half.

Age Group Distribution

Figure 2 illustrates population distribution by age groups.

Approximately 48.6% of WAMPO's population is under the age of 35. WAMPO residents categorized as elderly (65 years of age or older) represent approximately 15.2% of the WAMPO population.

WAMPO Population Pyramid

ACS 2018-2022 (S101)

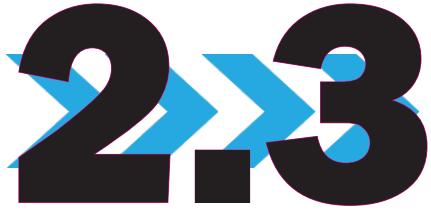### WAMPO Region Age Distribution

ACS 2018-2022 (S101)

Population Density

Figure 3 shows the population density per square mile for the WAMPO region by Census Tract. Census Tracts provide a stable set of geographic units for the presentation of statistical data. Census Tracts generally have a population size between 1,200 and 8,000 people. The spatial size of a Census Tract varies depending on population density.

WAMPO's 2020 population is 547,230. With a land area of 1,065.7 square miles, the WAMPO region has an approximate population density of 513 residents per square mile. The most densely populated census tract is located south of East Lincoln, east of Hillside St., north of Harry St., and west of Oliver St.

Add population density map Here

2.3 Education

The WAMPO region is home to 168 Public Schools within 14 school districts. WAMPO region is also home to three four-year universities (Wichita State University, Friends University, and Newman University), as well as seven satellite campuses and four community colleges.

Add districts table

Add region schools and districts map Here

Add schools and colleges map Here

Population Density

A common theme in a variety of regional plans and studies is economic growth lags associated with attraction and retention of an educated, talented workforce. A wide variety of factors are attributed to these lags, but "talent shortfall" is by far the most commonly identified issue.

Referenced by the inability to attract and retain the most educated and productive workers in the region, regional leaders have identified that today's workforce is highly mobile with a variety of options competing for their interests (i.e., where people choose to live and work).

These connections are supported by a number of reputable universities in the region that provide both employment and training, and also prepare those who live in the WAMPO region for the future outside of employment – by creating educated, conscientious global residents. Wichita State University and the other universities and community colleges in the region certainly serve this purpose, with Wichita State alone drawing in an international presence and corporate businesses that are set up on campus, all due to their engineering program, Innovation Campus, and more. The Innovation Campus has partnerships with major international corporations Spirit AeroSystems and NetApp, which provide valuable partnerships, education, experience, and employment for residents and students alike. Wichita State University is ranked number three academically in Kansas, and in the mid-200s nationally. They have a regularly growing enrollment as well, with 16,921 in 2022, the third highest in the state behind the University of Kansas and Kansas State University.

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2.4 ›Housing ›››

Housing characteristics are important considerations in transportation planning as they can provide valuable information regarding transportation and trending data within the region. Characteristics such as type of housing and number of persons per household can be determinants in trip generation rates.

The following tables and figures are based on 2018-2022 US Census Bureau American Community Survey (ACS) data. ACS data provides detailed information on a community's population and housing characteristics. Because ACS data provides sample estimates (as opposed to official counts) based on data collected through nationwide surveys it may not be reflective of current trends.

Add Housing units table

Owner-Occupied Average Household Size

Figure 1 illustrates the average household size of owner-occupied housing units by Census Tract. The region-wide average household size for owner-occupied housing is three (2.7) people. The Census Tract with the highest average household size (4.2) for owner-occupied units, as shown in dark purple, is located in northeast Wichita, east of Oliver St., west of Webb Rd., south of 34th St., and north of K96.

Add average household size map

Renter-Occupied Average Household Size

Figure 2 illustrates the average household size of renter-occupied housing units by Census Tract. The region-wide average household size for renter-occupied housing is two (2.4) people. The Census Tract with the highest average household size of five people (4.8) for renter-occupied units, as shown in dark purple, is south of Haysville.

Add average household size map

Occupied Dwelling Units

Figure 3 illustrates the number of occupied dwelling units by Census Tract. Within the WAMPO region, there are approximately 230,934 occupied housing units. Approximately 64.0% of housing units within the WAMPO region are owner-occupied and 36.0% are renter-occupied. The Census Tract with the most occupied dwelling units (4,007), as shown in dark green, includes portions of the cities of Maize, Wichita, and Valley Center.

Add occupied map

Vacant Households

Figure 4 shows numbers of vacant housing units by Census Tract. Within the WAMPO region there are approximately 21,944 vacant housing units (9.5% vacancy rate). The Census Tract with the most vacant housing units (539), as shown in dark green, is centrally located in Wichita, east of Waco St., west of Washington St., south of Murdock St., and north of US 54.

Add vacant map

Median Home Value

Figure 5 shows median house values by Census Tract. The average median home value of all Census Tracts in the WAMPO region is $173,552, as shown in Table 4. Census Tracts with higher median home values are generally located on the perimeter of Wichita. The Census Tract with the highest median home value, as shown in dark red, is in the City of Wichita, east of Woodlawn St., west of Webb Rd., south of 21st St., and north of 13th St.

Add median household value map

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2.5 > Employment & Jobs

Employment projections are an integral part of long-range transportation planning. Understanding the trajectory of a region's employment is critical in forecasting future demands on the transportation system.

Insert Employment predictions table

Major Industries and Employers

The aim of this report is to analyze the progress of economic development in the WAMPO region selected target sectors. The Greater Wichita Partnership has identified key development sectors as part of its economic development initiatives: advanced manufacturing, aerospace, agriculture, energy, healthcare, IT systems & support, and transportation. Each sector will be outlined in this report with an investigation into its industry landscape, labor, the balance of trade, and general trends.

AEROSPACE

The aerospace manufacturing sector in Wichita is competitive, with a high level of rivalry among existing firms. The industry plays a vital role in the local economy, offering employment opportunities and contributing to innovation and technology. Understanding the industry landscape, labor market, transportation infrastructure, balance of trade, and general trends is crucial for identifying weaknesses and leveraging growth opportunities within the aerospace sector.

Insert aerospace manufacturing

ADVANCED MANUFACTURING

Advanced manufacturing within the Wichita MSA has been in a growth cycle, increasing its relative competitiveness. The five largest subsectors are plastics, architectural metals, machine shops, coating, and agriculture machinery. The sector has a significant competitive labor advantage over its competitors, as the region has a high labor concentration in purchase agents, assemblers, machinists, and inspectors. The skills, knowledge, and abilities within this segment tend to require more education and experience than the broader manufacturing industry, as this study outlines. Therefore, the region's higher relative number of skilled laborers creates a competitive advantage over other markets.

Insert advanced manufacturing map

AGRICULTURE

The agricultural industry is a vital part of the Wichita economy and a major employer in the area. The industry is also a source of food for the nation and the world, and it plays an important role in the national and global economy. The competitive landscape for the agricultural sector is strong, as only 2 companies maintain a proportion greater than 1% of the sector. Cargill is a key player to consider for the Wichita economy, as their global headquarters is located here. Per Data Axle, Cargill employs 800 people in the Wichita area. Their presence includes a beef processing plant, protein ingredients plant, feed mill, and multiple office and support facilities. It should also be noted that Cargill has deep economic ties across the state.

Insert AGRICULTURE map

ENERGY

The energy sector is a vital part of Wichita's economy, but it faces challenges such as declining employment and wage trends. Adapting to market dynamics, investing in technology, and addressing infrastructure needs are key to promoting growth and stability in the sector.

Insert energy sector map

HEALTHARE

The healthcare industry in the Wichita area has shown relatively stable employment levels from 2015 to 2021. Although there were minor fluctuations, the number of healthcare jobs remained consistent, indicating a steady demand for healthcare services in the region. However, within the healthcare sector, different areas experienced varied levels of growth. Offices of physicians and offices of dentists saw slight declines or minimal increases, while offices of other health practitioners and outpatient care centers exhibited steady growth. Other ambulatory healthcare services experienced a significant decrease, while general medical and surgical hospitals and nursing care facilities remained relatively stable. Continuing care retirement communities faced a decline. Among key healthcare occupations, licensed practical and licensed vocational nurses showed an above-average location quotient in Wichita.

Insert HEALTHCARE map

Insert HEALTHCARE map

INFORMATION TECHNOLOGY AND SUPPORT

Wichita's IT systems & support industry encompasses sectors related to information, administrative services, and professional services. These sectors include data processing, cybersecurity, medical processing, and software/web development. While Wichita has seen an increase in the number of establishments dedicated to this sector, it lags behind in terms of wage growth and overall employment compared to Kansas City, which has the industry's largest employment and most competitive wage growth.
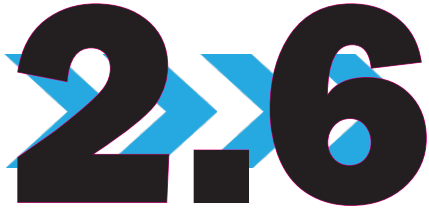
Insert IT SYSTEM map

TRANSPORTATION

The transportation industry in Wichita is a significant sector that includes various logistics sectors within wholesale and selected sectors within the traditional transportation NAICS sector. Wichita had strong growth in employment and wages, ranking eighth in total employment but among the top cities with substantial growth. The labor discussion highlighted the employment growth rates, with Wichita exceeding most comparison metro areas except for Flint and Spartanburg. The analysis of the industry's competitive forces revealed moderate barriers to entry, a moderate threat of substitutes, a moderate bargaining power of buyers, and a moderate bargaining power of suppliers. However, there is high rivalry among existing firms due to the rapid growth and high demand for transportation services in Wichita.

Insert TRANSPORTATION EMPLOYMENT SECTOR map

WAMPO Region Unemployment

Factors such as technological advancements, shifts in market demands, and insufficient infrastructure have further exacerbated the problem, making it challenging for individuals to secure meaningful work. Addressing unemployment in the WAMPO region requires a multi-faceted approach, including targeted initiatives to enhance workforce skills, stimulate job creation through strategic economic development projects, and foster a conducive business environment to attract investment and entrepreneurship. Figure 9 shows the unemployment rates by census tract with darker shades of blue representing higher levels of unemployment.

Insert unemployment map

2.6 Travel

Travel patterns in the WAMPO region can reveal a great deal about how people move between places and how they choose to do so. Mode choice, or the choice of transportation mode, is a key factor in understanding travel patterns and is of great importance to transportation planning. Mode share, or the relative proportion of trips made in each mode, is another important factor. By understanding mode choice and mode share, transportation decision makers can better design the network to better serve the needs of travelers.

Means of Transportaion

Understanding travel trends is necessary when planning and considering transportation improvements.

Table 1 identifies the travel trends for means of transportation to work, mean travel time to work, and vehicles available per household within the WAMPO region.

The following tables and figures are based on 2018-2022 US Census Bureau American Community Survey (ACS) data. ACS data provides detailed information on a community's population and housing characteristics. Because ACS data provides sample estimates (as opposed to official counts) based on data collected through nationwide surveys it may not be reflective of current trends. The population for commuting characteristics of the ACS are workers 16 years of age and older.

Insert commute modes and times and household vehicles table

Means of Transportaion

Figure 1 shows the percentage of the working population over age 16 within a Census Tract that uses public transportation to get to work. The Census Tract with the highest percent of workers for whom public transportation is the most used commute mode (6.8%), as shown in dark blue, is located in the City of Wichita, east of the MS Mitch Mitchell Floodway, west of W Zoo Blvd., south of W 13th St N., and north of W Central Ave.

Insert means of transportation to work: public transportation map

Figure 2 shows the percentage of the working population over age 16 within a Census Tract that bikes or walks as a means of transportation to get to work.

Insert means of transportation to work: bicycle or walked map

Figure 3 shows the percent of the working population over age 16 within a Census Tract that carpools to work.

Insert means of transportation to work: carpooled map

Figure 4 shows the percent of the working population over age 16 within a Census Tract that works from home.

Insert means of transportation to work: work from home map

Average Travel Time to Work

Figure 5 shows average travel times to work by the Census Tract where workers live. For average travel time to work in the WAMPO region is 19.8 minutes. The Census Tract with the highest average travel time to work (32.9 minutes), as shown in dark blue, is located in Butler County south of Rose Hill. The longer commute for residents within that Census Tract could be attributed to the lack of close proximity to higher functional classifications roads such as interstates, freeways, and arterials. Roads designated as a high functional classification support higher traffic volumes and long trips.

Insert means of travel time to work map

Vehicles Available Per Household

Figure 6 and Figure 7 show the percentages of the population (age 16 years of age and older) of a Census Tract that have no vehicle available or one vehicle available per household, respectively. Approximately 3% of all Census Tracts in the region have 11.6-20.8% of the population in households with no vehicle available.

Insert no vehicle available per household map

Approximately 7.5% of all Census Tracts in the region have over 37.9% of the population in households with one vehicle available.

Insert one vehicle available per household map

Transit Accessibility

Accessibility is a measure of the opportunities available within a given travel area or catchment. As a performance measure, accessibility ties the quality of land use and transportation network connections together, rather than just focusing on either transportation or land use independently. For transit accessibility, a combination of walking and the regional fixed route transit system were combined.

need to make map: total jobs within 30 min walk and bus travel time area at 7:30am

need to make map: total jobs within 30 min walk and bus travel time area at 8am

fixed route and bicycle metwork

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Annual Ridership for the Wichita Transit Fixed Route System

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WICHITA TRANSIT PARATRANSIT TRIPS ORIGINS AND DESTINATIONS

Bike & Pedestrian Accessibility

Accessibility is a measure of the opportunities available within a given travel area or catchment. As a performance measure, accessibility ties the quality of land use and transportation network connections together, rather than just focusing on either transportation or land use independently. Accessibility analyses are used in transportation planning to identify regional network gaps, provide a way of prioritizing projects and strategies in the long-range planning process, and inform policy decisions regarding both land use and the transportation system. This metric, which can be defined as measuring the opportunities (i.e., employers, shopping, schools, parks, etc.) that are available within a given travel area or travel time. The accessibility metric provides insight into how transportation systems and land use function together.

map

BICYCLE & PEDESTRIAN COUNTS

WAMPO facilitates an annual bicycle and pedestrian count event in which volunteers count the number of bicyclists, pedestrians, and other non-motorized transport users (i.e., scooters, skateboards, roller skaters, etc.) over a two-hour morning and two-hour evening periods on three different days in September. These counts are recorded following National Bicycle and Pedestrian Documentation (NBPD) methodology, which accounts for weather and other community events that may influence the amount of active transportation users recorded on the regional bicycle and pedestrian network at the time of the counting event.

Since 2012, WAMPO has counted bicycle and pedestrian traffic at dozens of specific locations throughout the region. The methodology for collecting and projecting these counts is standardized by the National Bicycle and Pedestrian Documentation Project standards (http://bikepeddocumentation.org).

The counts are conducted during five two-hour time slots in September: two weekday mornings, two weekday evenings, and a Saturday afternoon (a complete count at a given site includes data from one weekday morning, one weekday evening, and one Saturday afternoon). The days were chosen based on recommendations from the National Bicycle and Pedestrian Documentation Project. Each site is either a screenline or an intersection; at an intersection, the direction of travel of each counted person is recorded.

Bicycle and pedestrian counts can measure multimodal traffic volumes and aid in the prioritization of road, sidewalk, and path improvements and new transportation projects based on levels of usage. These count data help to understand how the region chooses to get around and stay active. It also illustrates relationships between transportation, land use, and mobility. Lastly, as this information is standardized and shareable, it can assist in comparisons against the rest of the nation.
WAMPO has developed user-friendly, interactive ArcGIS Online map of bicycle/pedestrian-count data, available at https://www.wampo.org/bicycle-pedestrian. In the interactive map, users can explore the count locations and recent and historical count data. The interactive map allows users to isolate information that pertains to their interests or personal investments. Users can also see where the count locations are in relation to bikeways, major roadways, and the numerous municipalities in the WAMPO region.

INSERT BIKE PED COUNT IMAGE

BIKE AND PED PROJECTIONS MAP

Bike & Pedestrian Accessibility

The past several years has seen a revolution in how people travel and the types of transportation modes they use for commuting, recreation, and other trip purposes. Several of these emerging mobility technologies have made their way to the WAMPO region, such as bike share, and electric scooters. However, these transportation modes are not without their own considerations and costs, and communities are encouraged to work with the public and other stakeholders to plan for the role they desire to see these technologies play in the regional transportation system.

BICYCLE & PEDESTRIAN COUNTS

Bike Share ICT is a collaborative partnership between Blue Cross and Blue Shield of Kansas and the Knight Foundation Fund that provides rentable bicycles for use within the WAMPO region.6 Users must be 18 years or older and can either pay each time they rent a bicycle or sign up for a membership via a smartphone application. The cost of each rental is $1.50 for every 30 minutes, and bicycles may be rented for up to 24 hours. Past 24 hours, users will be charged an additional $30 overtime fee for exceeding this maximum rental period. There are 40 stations located around the City of Wichita, with approximately 200 bicycles available for rent. Users are free to return their rented bicycle to any of the 40 stations to end their rental, but the bicycles must be locked up and secured at a station—failing to do so can incur additional fees and charges. Trip data for the Bike Share ICT Program was analyzed to get basic statistics for ridership, including the total number of trips, average distance traveled per trip in miles, and the average length of each trip in minutes.....

BIKE FACILITY BIKE SHARE USER LOCATIONS MAP

BIKE ORIGIN DESTIINATION MAP

ELECTRIC SCOOTER

Electric scooters have been available in U.S. communities since 2017. Since their introduction, numerous metropolitan areas across the country have instituted pilot programs to study the effects of this mode on local transportation networks. While these scooters are a solution to the "last-mile" issue—helping connect individuals to public transit and other transportation modes to complete trips—the public safety concern related to scooter users riding in vehicle travel lanes and not wearing helmets have led communities to adopt local ordinances and other policies that limit scooter sharing operations. Further concerns over the use of electric scooters include these vehicles serving as an obstacle when parked on public sidewalks. This results in cluttering the public space and creating impediments to accessibility for sidewalk users, especially those of limited mobility (i.e., wheelchair users, walkers, strollers, etc.).

In 2019, the Wichita City Council approved an ordinance requiring scooters to entire into pilot operating agreements to operate in the city. Since then, three scooter companies – Spin, VeoRide and Bird– launched pilot programs in the region.

SCOOTER IMAGE

➤ **Spin:** Spin specializes in the operation of dockless mobility systems across the U.S. With operations in 62 cities and 20 college campuses, Spin has recorded over 1 million rides since 2016. Individuals over the age of 18 can download the Spin app on their smart phone, create a profile, and check the scooters out. Once their trip is complete, the user returns the scooter to a designated area. Rides on Spin scooters start at $1 to rent the vehicle, and then 15 cents per minute.

➤ **VeoRide:** VeoRide operates mobility sharing programs in communities and college campuses throughout the U.S. Within the City of Wichita, VeoRide maintains a fleet of 500 scooters. Renting a VeoRide scooter is a similar process to Spin for users, who use the smart phone app to locate a scooter to rent. Users simply return the scooter to a designated area once their trip ends. VeoRide's cost is also $1 to check a scooter out and then an additional 15 cents per minute. VeoRide scooter trip data indicates that the average trip taken on a VeoRide scooter was 21 minutes long at an average cost of $4.26. The timeframe of this data was August 2019 through February 2020.

➤ **Bird:** Bird works with cities and universities across the world to provide new transportation options, complement public transit systems, and invest in safety infrastructure that benefits everyone. On average, a ride costs around $2-5 ($1 to unlock the scooter and $0.25-$0.39 plus tax per minute).

2.7 Enviornmental Resources

Transportation and the natural environment are closely connected. Lands, rivers, and oceans were the first transportation systems people used to get around. Today, fossil fuels found in the earth serve as the primary fuel for cars, trucks, trains, and airplanes. Over time, there has been growing interest in the short- and long-term impacts on the natural environment caused by human systems, including transportation.

The transportation system impacts on the natural environment are diverse and far-reaching across time and space. For example, emissions from motor vehicles combine with hot air temperatures to form ground-level ozone; rain carries spilled car fluids into local rivers and water bodies; trucks and trains carrying hazardous material travel our highways, roads, and rails; and urban development leads to heat island effect, increased storm water runoff, and agricultural land impacts.

In response to this, federal, state, and local governments have passed laws and regulations to balance the environmental impacts with the needs of other interests. Additionally, there has been growing interest to shift some trips to more environmentally friendly modes, like walking and biking, and in developing alternative fuels.

As part of the overall transportation planning process, it is important to assess any potential environmental impacts associated with the transportation system and, more specifically, with the projects and strategies of WAMPO's long-range Metropolitan Transportation Plan (MTP). This Appendix documents that assessment and also inventories the natural resources in the WAMPO region, summarizes the major environmental issues facing the region, and lists some possible mitigation activities. *above pulled from appendix 10*
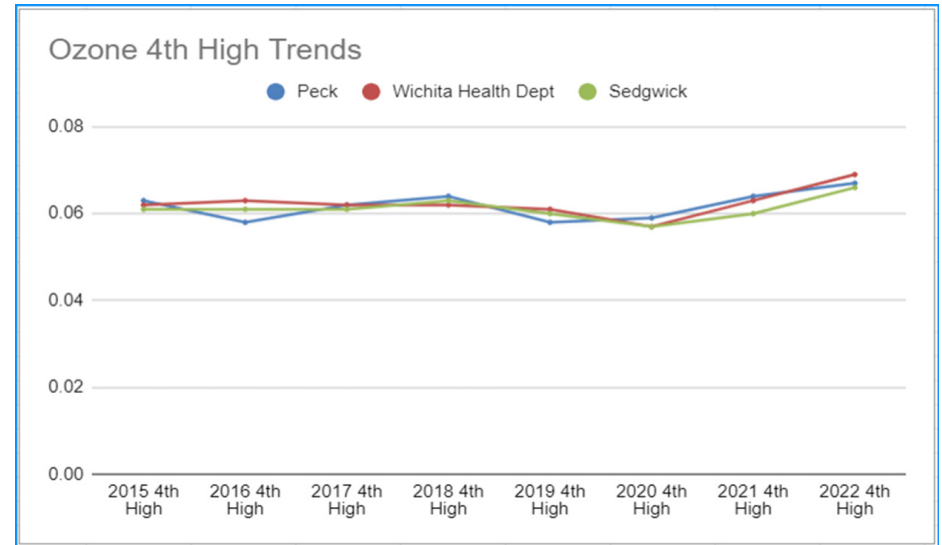
WATER RESOURCES

Eight watersheds cover the WAMPO region; these eight watersheds drain into the Arkansas River, the Cheney Reservoir, the Ninnescah River, and the Walnut River. Along with groundwater, the water in these rivers and reservoir compose the region's water resources. These resources provide the region its drinking water and water for industry, and are provided to users thru local water utilities, rural water districts, and private wells.

AIR QUALITY

Of all of the monitored air pollutants, the only one that has posed any concern in the WAMPO region has been ground level ozone. Ground level ozone is a major component of smog. Long-term exposure to ground level ozone can irritate the eyes, nose, and lungs, particularly in vulnerable populations, including youth, the elderly, and those with asthma.

Ground level ozone also damages vegetation, including crops. Unlike many other types of pollution, ozone is generally not emitted directly. Instead, it is formed when nitrogen oxides (NOx) combine with volatile organic compounds (VOC) in the presence of sunlight. NOx and VOC are therefore ozone precursors. NOx comes primarily from various types of combustion; everything from large power plants to internal combustion engines to wood-burning stoves. Motor vehicles, solvents, industrial processes, and gasoline vapors emit VOCs. It is estimated that between 50% and 70% of all VOCs and NOx emitted come from cars, trucks, and other motor vehicles traveling on roads.

As shown on the following chart, over the last several years, the region's ozone level has remained below the regulatory limit (70 to 75 ppb), and will continue to be monitored.

Date	Peck	Wichita Health Dept	Sedgwick
2020 4th High	0.059	0.057	0.057
2021 4th High	0.064	0.063	0.06
2022 4th High	0.067	0.069	0.066
20-22 Average	0.063	0.063	0.061
Critical Value for 2022*	0.090	0.093	0.096

OIL & GAS DEPOSITS

With the discovery of the El Dorado field near Wichita in 1915, Kansas became known as a significant oil-producing state. The WAMPO region is one of several parts of the State that contribute to the state's production of natural gas and crude oil.

HISTORICALLY SIGNIFICANT PLACES

The WAMPO region has a proud heritage of buildings, districts, and sites that have been preserved and listed on the Wichita, State of Kansas, or National Registers of Historic Places. Within the City of Wichita, there are over 600 structures that are individually listed or properties within a historic district and three individual archeological sites.

NATIVE PLANT & WILDLIFE

The WAMPO region is part of the Grassland Biome ecosystem, specifically one of the "mixed prairie" type, where both tall grass and short grass prairie grasses thrive. Similar to other communities, urban development and agricultural production lands replaced the native prairie for the most part. As development occurred and transformed the extent and quality of native habitat, wildlife species had to adapt, and many species dwindled in numbers. In response to dwindling numbers, the Endangered Species Act was put into place to protect the habitat for species in danger of extinction.

In the WAMPO region, there are four species with "threatened" designation, and five species with "endangered" designation. Of those, five have critical habitat (lands and waters that are designated habitat and special protections are in place) in Kansas.

Designated critical habitat in the WAMPO region includes the Arkansas River, the Ninnescah River, and its North Fork and South Fork, and drainage basins of the Cowskin Creek and Big Slough creek.

Threatened & Endangered Species

The following are identified threatened and endangered species in the WAMPO region. Several additional species are listed on the State's list of "Species in Need of Conservation," which may be found by visiting www.ksoutdoors.com.

Threatened Species	Endangered Species
Plains Minnow	Arkansas River Shiner
Eastern Spotted Skunk	Silver Chub
Piping Plover	Peppered Chub
Snowy Plover	Whooping Crane
	Least Tern

Threatened Species

Eastern Spotted Skunk | Piping Plover | Plains Minnow | Snowy Plover

Endangered Species

Arkansas River Shiner | Least Tern | Peppered Crane | Silver Chub

Whooping Crane

Environmental Issues

Similar to other metropolitan areas, there are many long-standing environmental issues facing the WAMPO region. The priority issues are listed below. Due to their long-standing nature, ongoing monitoring, research, public education, and remediation/mitigation are taking place on these issues.

Natural Disasters

The WAMPO region is located in "Tornado Alley," a large area that covers parts of South Dakota, Nebraska, Kansas, Oklahoma, and Texas that are more likely for tornadoes. Several large, damaging tornadoes have hit the region over the years, including one in 1991 that hit Haysville, Wichita, and Andover, another in 1999 that devastated Haysville, and in 2022 that hit Andover.

Gorund - Level Ozone

Ozone season runs April thru October, when temperatures are high and southern winds are strong. High temperatures mix with emissions from motor vehicles to form ground-level ozone; ozone levels in the region have flirted with exceeding the allowable standard over the last several years but have not exceeded the standard to date.

Stormwater Drainage, Overland Flooding, & Groundwater Intrusion

Natural features, including the area's relative flatness, its floodplains associated with the Arkansas River and the Ninnescah River, and the prevalence of basements make overland storm water drainage and groundwater intrusion particularly challenging problems in the region.

Hazardous Waste

Groundwater and soil contamination associated with industries in the early to middle part of the 20th century exist at three sites in the region. These areas are currently being remediated to standards.

Environmental Issues

- Natural Disasters
- Ground - Level Ozone
- Stormwater Drainage, Overland Flooding, & Groundwater Intrusion
- Hazardous Waste
- Agricultural Chemicals Runoff
- Private Water & Sewer System
- Preservation
- Earthquakes
- Invasive Plants & Animals
- Climate Change

Agricultural Chemicals Runoff

It is common practice to use herbicides, pesticides, and fertilizer in modern-day agricultural operations, residential lawns, and commercial turf management; and rain carries these chemicals to surrounding water bodies and groundwater. When unnatural levels of fertilizer runoff take place, harmful algae blooms occur and lead to unsafe water bodies.

Private Water & Sewer Systems

Private drinking water wells, irrigation wells, and septic systems are often found in rural residential areas located in unincorporated areas. Local regulations require testing prior to purchase of the property, and then individual homeowners are responsible for upkeep and testing.

Preservation

There are several current local initiatives aimed at preserving native plant species and historical buildings and sites in the region.

Earthquakes

Over the last few years, earthquake frequency has increased across northern Oklahoma and south-central Kansas. Scientists continue to study the causes and impacts.

Invasive Plants & Animals

Zebra mussels, bush honeysuckles, Johnson grass, red cedars, and many other plants have been introduced to the region and threaten native species, crops, and landscapes.

Climate Change

Like many other communities, climate change is an emerging issue in the WAMPO region too. Changes in historical climate trends, such as warmer winters and droughts that are more frequent, impact farmers and are a general concern.

2.8 Environmental Justice

The U.S. Environmental Protection Agency (EPA) defines environmental justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.

Environmental justice plays an important role in transportation planning. Transportation projects have long-lasting physical impacts on communities, and it is important to evaluate fairness and equity as part of the development of transportation policies and funding decisions. No group of people – by race, ethnicity or socio-economic status – should bear a disproportionate share of negative impacts as a result of decisions made at the federal, state, regional or local levels.

Measuring Environmental Justice

As part of the Metropolitan Transportation Plan Amendment 2, the census data used for the Environmental Justice analysis was updated from 2018-2022 American Community Survey (ACS) Five-Year Estimates to 2016-2020 American Community Survey (ACS) Five-Year Estimates. Incorporating non-discriminatory considerations and practices into the transportation planning and decision-making processes is one of the main focal areas of the efforts we have undertaken as part of the REIMAGINED MOVE 2040 plan. This appendix outlines and expands on the environmental justice analysis process, which includes the following core elements:

> **Identification:** Gathering data supported by descriptive statistics and mapping to describe and identify EJ populations in the region.

> **Assessment:** Includes reviewing the planned projects in relation to EJ populations. Assessment also includes the implementation of outreach strategies designed to engage traditionally underserved populations.

> **Evaluation:** Evaluating regional benefits and burdens though an overall assessment of the slate of planned transportation projects to determine if there are disproportionate/adverse impacts to the target populations. This section also includes discussion on how any findings of disproportionate and/or adverse impacts may be addressed.

For more information on Environmental Justice, visit the following US Department of Transportation web-page on the subject at https://www.transportation.gov/transportation-policy/environmental-justice.

ENVIRONMENTAL JUSTICE POPULATION

To identify those included in this discussion as EJ populations we consider two different Executive Orders. Executive Order 12898, discusses Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. There is a separate Executive Order (13166) that addresses Improving Access to Services for Persons with Limited English Proficiency (LEP). For purposes of the analysis in this document, minority and low-income populations are defined as "EJ populations".

Spatial and demographic data from the U.S. Census Bureau's (Census) 2016-2020 American Community Survey (ACS) Five-Year Estimates was used to identify environmental justice populations in the WAMPO region. In this document, environmental justice analysis data was evaluated at the Census tract level (census tracts include one or more Census block groups with 1,500-8,000 residents).

Race & Ethnicity

Aggregated data showing race and ethnicity was organized into the following five categories (the first four of which are classified as EJ "minority" groups):

1. Asian, which refers to people having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent - including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

2. Black or African American, which refers to people having origins in any of the Black racial groups of Africa.

3. Hispanic or Latino, which includes persons of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

4. Other, which includes:
  • Native Hawaiian or Other Pacific Islander, which refers to people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
  • American Indian and Alaska Native, which refers to people having origins in any of the original peoples of North and South America (including Central America), and who maintain tribal affiliation or community attachment.
  • Other Races, and those identified by two or more races.

5. White or Caucasian, which refers to people having origins in any of the original peoples of Europe, the Middle East or North Africa.

Low-Income

Individuals included in the "low-income" category are identified in the analysis as 'Persons Below Poverty' based on the Census definition.

THRESHOLDS & LIMITATIONS

Identifying environmental justice populations is useful in understanding the comparative effects of projects throughout all of the affected populations. Thresholds for EJ populations were established in accordance with policy guidance on environmental justice. Population thresholds establish the number or percentage of individuals within a geographic area that must be exceeded to identify an EJ population.

While a convenient and commonly used method to identify EJ populations, the use of thresholds can mask the presence of small pockets of minority populations or low-income populations. WAMPO is mindful that thresholds may exclude some populations from analysis, despite the potential for those populations to be affected by a proposed plan or program. WAMPO also recognizes that EJ determinations are made based on effects, not population size.

Therefore, WAMPO will be analyzing data based on an "EJ Threshold" as well as a regional average comparison to help identify concentrations of minority and low-income populations. Census tracts in this analysis considered to be "environmental justice census tracts" are those that meet the following criteria:

   1. **EJ Threshold** denotes Census tracts with concentrated minority or low-income populations, specifically 50% or greater.

   2. **Regional Average Threshold:** used for those populations that are less concentrated, but still more than 10% of the WAMPO regional average. These averages are outlined in the following section.

Environmental Justice Analysis

The following sections include the presentation of the EJ analysis organized by the three previously defined core elements (identification, assessment and evaluation).

Identification

Data supported by descriptive statistics and mapping to describe and identify low income, minority, and LEP populations in the region.

REGIONAL COMMUNITY PROFILE

The EJ analysis process begins with developing an understanding of the EJ populations present in the region. To do this, WAMPO has gathered data on the size and location of low-income, minority, and LEP populations.

The following table (Table 1: Minority and Low-Income Populations) highlights the distributions of EJ populations in the WAMPO region.

POPULATION CATEGORIES		# OF PEOPLE	PERCENTAGE
Total Population Total		533,530	100%
RACE/ETHNICTY	Minority	124,700	23.4%
	Black or African American	43,454	8.1%
	American Indian and Alaska Native	4,825	0.9%
	Asian	22,841	4.3%
	Native Hawaiian and Pacific Islander	326	0.1%
	Some other race	20,640	3.9%
	Two or more races	32,613	6.1%
	[Hispanic or Latino*]	[79,054]	[14.1%]
	White	408,830	76.6%
LOW INCOME	'Persons Below Poverty'	68,777	13.1%

* Individuals with overlapping Hispanic or Latino ethnicity have been captured among one of the above-listed race categories. Source: ACS 2016-2020 5-Year Estimate (B02001, B03003 and S1701)

Mapping

Identifying EJ populations and their locations (Figures 1, 2, 3, and 4) is the first step in conducting the benefits and burdens analysis of plans, policies, and programs. Furthermore, demographic and other data collected to identify populations supports other targeted neighborhood level studies as well as the transportation funding applications and planning efforts of WAMPO regional partners.

Minority Populations

The minority population of the WAMPO region is nearly 24% of the total population. An analysis of regional Census Tracts has identified the geographic locations where minority populations are most concentrated. Figure 1 illustrates the geographic locations of minority populations that are:

1. Greater than the 50% of that tract's total population (EJ Threshold, solid dark red)
2. More than 10 % greater than the regional average of 23.4% (Regional Average Threshold, cross-hatched blue). Therefore, the Regional Average Threshold tracts are those that are at least 33.4% minority, but less than 50%.

Figure 2 illustrates the geographic locations of minority populations that are:
1. Greater than 50% of the tract's total population (EJ Threshold, solid dark red)
2. More than 10% greater than the regional average of 23.4% (Regional Average Threshold, cross-hatched blue). Therefore, the Regional Average Threshold tracts are those with at least 33.4% minority but less than 50%.
3. One dot represents 100 people and each color represents a minority group

Low-Income Populations

Identifying EJ populations and their locations (Figures 1, 2, 3, and 4) is the first step in conducting the benefits and burdens analysis of plans, policies, and programs. Furthermore, demographic and other data collected to identify populations supports other targeted neighborhood level studies as well as the transportation funding applications and planning efforts of WAMPO regional partners.

Low-Income Populations

Populations reporting low incomes in the WAMPO region make up around 13.1% of the total population. An analysis of regional Census Tracts have identified the geographic locations of these low-income populations. Figure 3 illustrates the geographic locations of low-income populations that are:

1. Greater than the 50% of the tract's total population. (EJ Threshold, solid dark red)
2. More than 10% greater than the regional average of 13.1% (Regional Average Threshold, cross-hatched blue). Therefore, the Regional Average Threshold tracts are those with at least 23.1% of the population that is low-income, but less than 50%.

Figure 4 illustrates the geographic locations of low-income populations that meet the previously defined analysis thresholds:
1. Greater than the 50% of that tract's total population. (EJ Threshold, solid dark red)
2. Low-income populations more than 10% greater than the regional average of 13.1% (Regional Average Threshold, cross-hatched blue), meaning at least 23.1% of the tract population but less than 50%.
3. One dot represents 100 people

Table 2 represents the total population of the census tracts represented in the previous figures. The remainder of this document compares the number of MTP projects in proximity to the populations in EJ census tracts to the number of MTP projects in proximity to the populations that live in census tracts that do not meet the EJ thresholds.

	EJ Census Tracts	Non-EJ Census Tracts	Totals
Total Population	145,055	388,475	533,530
Percent of Total Population	27.2%	72.8%	100%

Assessment

This section documents the conditions of the system in relation to the EJ populations including traditionally underserved population engagement strategies.

EXISTING CONDITIONS & NEEDS

Identifying environmental justice populations is useful in understanding the comparative effects of projects throughout all of the affected populations. Thresholds for EJ populations were established in accordance with policy guidance on environmental justice. Population thresholds establish the number or percentage of individuals within a geographic area that must be exceeded to identify an EJ population.