

AVAILABILITY AND QUALITY OF PHYSICAL ACTIVITY RESOURCES  
THROUGHOUT RURAL AND URBAN COMMUNITIES IN COMANCHE  
COUNTY, OKLAHOMA

By

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AVAILABILITY AND QUALITY OF PHYSICAL ACTIVITY RESOURCES  
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Abstract: Currently, Oklahoma is ranked seventh in the nation for the highest adult obesity rates. It is necessary to investigate physical activity resources in order to improve the built environment and promote a physically active lifestyle among Oklahomans. The overall goal of the project is to inventory and examine the availability and quality of physical activity resources in Comanche County, Oklahoma. Specific objectives include: 1) test the appropriateness of the Physical Activity Resource Assessment instrument (PARA) in assessing physical activity resources, and 2) compare physical activity resources between rural and urban communities in the county. Coalition members and health department staff were trained to use the PARA by the Oklahoma State University team. In addition, two researchers conducted the PARA in outlying rural communities. The PARA instrument was used to examine the number and quality of physical activity resources in the built environment. Feature, amenity, and incivility scores were calculated in the 158 physical activity resources surveyed in the rural and urban communities. Results found that there was a significant difference in the total number of amenities in urban ( $4.80 \pm 2.55$ ) versus rural ( $6.35 \pm 2.67$ ) communities, with rural having more amenities. However, there was no significant difference in PARA scores for features, amenities, and incivilities and total number of features and amenities when comparing rural and urban physical activity resources. In conclusion, the information gained from conducting the PARA aids in understanding the built environment in rural and urban communities.

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## CHAPTER I

### INTRODUCTION

Obesity has reached epidemic proportions in the United States and overall health status has decreased (McAlexander, Banda, McAlexander, & Lee, 2009), and is a reason for the decrease in health status (Centers for Disease Control and Prevention, 2010). More than one-third of adults in the United States (35.7%) are obese (Centers for Disease Control and Prevention, 2010). A contributing factor of rising obesity rates is the decrease in physical activity. The decrease in physical activity could be due to the condition of physical activity resources. Park and recreational facility features are key components of the built environment which encourage physical activity among people of all ages and places. However, previous research shows that park features and amenities vary dramatically based on location (Heinrich et al., 2007). Little is known about the quality of physical activity resources in Oklahoma and how exactly the built environment can increase physical activity in rural and urban communities. It is necessary to assess these physical activity resources in order to improve the built environment and promote a more physically active lifestyle among Oklahomans. The overall goal of this project is to inventory and examine the availability and quality of physical activity resources in

Comanche County, Oklahoma. Specific objectives include: 1) test the appropriateness of the Physical Activity Resource Assessment instrument (PARA) in assessing physical activity resources and 2) compare physical activity resources between rural and urban communities in the county.

In 2011, the Oklahoma State Department of Health and the Tobacco Settlement Endowment Trust (TSET) partnered to provide funding to county coalitions and consortiums to facilitate policy work and implementation of physical activity and nutrition efforts. Coalition members are health and wellness volunteers that strive for positive health outcomes in their local communities. “Coalition, individuals, and organizations must work together to create a mix of social, cultural, economic, and political supports that encourage healthy eating and physical activity opportunities” (The State Consultation Office in the Center for the Advancement of Wellness at Oklahoma State Department of Health, 2013). The mission of both agencies is to reduce Oklahoma’s increasing obesity rates and the resulting physical and financial toll on individuals, communities, and the State of Oklahoma.

Physical Activity Guidelines for Americans (2008) state that being physically active is one of the most important steps that Americans of all ages can take to improve their health. Some physical activity is better than none, additional benefits occur as the amount of physical activity increases through higher intensity and greater frequency and/or longer durations (Physical Activity Guidelines for Americans, 2008). Most health benefits occur between 150 minutes and two hours and thirty minutes a week of moderate intensity of physical activity, such as brisk walking. Both aerobic and anaerobic physical activity are beneficial (Physical Activity Guidelines for Americans, 2008). Furthermore,

health benefits occur for children and adolescents, young and middle-aged adults, older adults, and those with disabilities.

Healthy People is a government organization which provides science-based ten year national objectives for improving the health of all Americans. Healthy People 2010 set objectives for increasing physical activity levels in Americans over the last decade from 2000-2010; however, the latest information shows that inactivity among American adults and children remains high and, even worse, that little to no progress has been made to meet the Healthy People 2010 objectives to increase physical activity (Physical Activity Guidelines for Americans, 2008). The objectives for the 2020 Healthy People Report include: reduce the proportion of adults who engage in no leisure-time physical activity, increase the proportion of adults that meet current federal physical activity guidelines for aerobic physical activity and for muscle strength training, increase the proportion of adolescents that meet current federal physical activity guidelines for aerobic physical activity and for muscle strength training, and increase the proportion of trips made by bicycling and walking.

### **Built Environment**

One possible reason why these physical activity guidelines for Americans are not being achieved is because the built environment does not have enough physical activity resources to facilitate these activities or the physical activity resources are in poor condition which makes them unattractive to users in the community (Built Environment Assessment Training Institute. [Video file]). The built environment is considered

anything and everything built or modified by humans (Built Environment Assessment Training Institute. [Video file]). “It is comprised of urban design, land use, the transportation system, and encompasses patterns of human activity within the physical activity environment” (Handy, Boarne, Ewing, & Killingsworth, 2002, p. 65). However, the built environment can constantly be changing; i.e., a fast change such as the drop in pedestrians on a street at various times of the day, or slow changes such as deterioration of building exteriors over decades (Handy et al., 2002). The built environment has been said to have five interrelated dimensions at the neighborhood scale which include: density and intensity of development, mix of land uses, connectivity of the street network, scale of the streets, and aesthetic qualities (Handy et al., 2002).

The Oxford Health Alliance (2010) founded the 3-Four-50 idea which represents how central physical activity is to health. The three represents the three risk factors: physical inactivity, poor diet, and smoking. These three risk factors contribute to four serious chronic diseases: heart disease, type 2 diabetes, lung disease, and some cancers. These major health problems account for more than 50% of the deaths worldwide (Oxford Health Alliance, 2010). By changing the built environment for schools, parks, and communities we are more likely to impact the community in the long-term and positively influence these risk factors and chronic diseases.

There are several important characteristics of the built environment critical to supporting healthy behavior such as walkable and bikeable neighborhoods, public transit, parks, recreation facilities, open spaces, healthy food environments and safety (Healthy Eating Active Living Convergence Partnership, 2008). To create a better built environment one can change the access to physical activity resources, walkability by

connecting roadways to bike trails, or by decreasing incivilities, environmental hazards, and violence. Handy et al. (2002), suggests that the influence of peer groups, perceptions of crime rates, personal safety, and the pleasure of aesthetic appeal of a streetscape are more important determinants of walking behavior and use of the built environment. The challenge when studying the built environment is to understand the interrelationship between the built environment and human behavior, then to develop models that can predict the environmental condition which humans can be the most physically active in that specific built environment (Handy et al., 2002).

According to the Trust for America's Health, the current 2012 census population in Oklahoma is 3,814,820 of which 17.2% are at the poverty level and 16.9% are uninsured. According to the Centers for Disease Control, adults whose family income is above the poverty level are more likely to meet the 2008 Physical Activity Guidelines for aerobic activity than adults whose family income is close to the poverty level (Centers for Disease Control-Facts about Physical Activity, 2014). Since parks are free resources, people who are below the poverty level still have the opportunity to be physically active.

When looking at the well-being of Oklahomans, most people are not meeting the previously stated Physical Activity Guidelines for Americans. In Oklahoma, there are specific areas of concern. Oklahomans have the third highest death rate due to heart disease, is the 44<sup>th</sup> least physically active state, and has the 12<sup>th</sup> highest death rate due to cancer (2014 State of the State's Health Report, 2014). The Centers for Disease Control Division of Nutrition, Physical Activity and Obesity's goal is to improve dietary quality, increase physical activity, and reduce obesity across multiple settings.

In addition, the quality of these resources could be altered based on the rural and urban communities throughout the State of Oklahoma. Nevertheless, more research needs to be done in Oklahoma to fully assess the quality of these physical activity resources in rural and urban communities. Little is known about the quality of physical activity resources in Oklahoma and how exactly the built environment can increase physical activity in rural and urban communities. It is necessary to investigate these physical activity resources in order to improve the built environment and promote a more physically active lifestyle among Oklahomans. The overall goal of the current project is to inventory and examine the availability and quality of physical activity resources in Comanche County, Oklahoma. Specific objectives include: 1) test the appropriateness of the Physical Activity Resource Assessment instrument (PARA) in assessing physical activity resources, and 2) compare physical activity resources between rural and urban communities in the county.

Thus, one significant role in reducing obesity and promoting a healthier lifestyle is the built environment including physical activity resources in both rural and urban environments. The Physical Activity Resource Assessment (PARA) instrument was used to examine the number and quality of physical activity resources in an Oklahoma county. This study piloted the assessment of the park and recreational features, amenities, and incivilities in selected rural and urban communities in Comanche County, Oklahoma.

### **Research Questions**

- 1) Will there be significant differences in PARA scores for features, amenities, and incivilities in rural versus urban communities in Comanche, County Oklahoma?

- 2) Will there be significant differences in number of features, amenities, and incivilities in rural versus urban communities in Comanche, County Oklahoma?

### **Limitations**

The PARA may be biased toward large resources that have a variety of activities and therefore, a higher PARA score. Consequently, a smaller but safe and well maintained playground or sandbox with only one type of physical activity resource could be overlooked with a lower score (Debate et al., 2011). Due to conducting the survey in late winter/early spring many facilities were closed or not in operations. The weather delayed training and data collection. The health department collected urban data while my advisor and I collected rural physical activity resource data. In addition, the health department had to return to various physical activity resources in the urban communities and collect missing data.

### **Assumptions**

- 1) The convenience sample was representative of the county
- 2) Volunteers accurately used the PARA

## GLOSSARY

**Features:** Elements of a physical activity resource specifically used for physical activity such as a baseball field, basketball court, soccer field, football field, exercise station, play equipment, pool, sandbox, sidewalk, tennis court, running/biking trail, volleyball court, and open fields (Lee et al., 2005).

**Amenities:** Elements that support a feature such as access points, bathrooms, benches, drinking fountains, landscaping efforts, lighting, picnic tables, shelters, locker rooms, showers, trash containers, and bike racks (Lee et al., 2005).

**Incivilities:** Elements that reduce the pleasure associated with using a physical activity resource such as vandalism, auditory annoyance, broken glass, dog refuse, litter, no grass, over-grown grass, graffiti, sex paraphernalia, evidence of alcohol, tobacco or substance use (Lee et al., 2005).

**Moderate-intensity level physical activity:** An individual is working hard enough to raise his/her heart rate and break a sweat. For example, walking fast, doing water aerobics, riding a bike, playing doubles tennis (CDC, 2011).

**Vigorous-intensity level physical activity:** An individual is breathing hard and fast and the heart rate has gone up. For example, jogging or running, swimming laps, or playing basketball (CDC, 2011).



## CHAPTER II

### REVIEW OF LITERATURE

#### **National Health Epidemic**

Obesity has reached epidemic proportions in the United States, and overall health status has decreased (McAlexander, Banda, McAlexander, & Lee, 2009). One of the major reasons for the decrease in health status is the increase in overweight and obesity rates (Centers for Disease Control and Prevention, 2010). Overweight and obesity raises one's risk of morbidity from hypertension: dyslipidemia, type 2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea, respiratory problems, endometrial, breast, prostate, and colon cancer (National Conference of State Legislatures, 2012). *Overweight* is defined as having a body mass index of 25-29.9 kg/m<sup>2</sup> and *obesity* as having a body mass index greater than or equal to 30 kg/m<sup>2</sup>. More than one-third of adults in the United States (35.7%) are obese (Centers for Disease Control and Prevention, 2010). The estimated annual medical cost due to obesity in the United States was \$147 billion in 2008. The medical costs for people who are obese were \$1,429 higher than those people of normal weight (Centers for Disease Control and Prevention, 2010). Overweight and obesity however are defined differently for teenagers and children

than adults (Centers for Disease Control and Prevention, 2014b). After the BMI is found for the child or teenager, it is then plotted on a CDC BMI-for age growth chart for either girls or boys to find a percentile ranking (Centers for Disease Control and Prevention, 2014b). The percentile shows the relative position of the child or teenager BMI among other children of the same gender and age. Underweight status is categorized as less than the 5<sup>th</sup> percentile. A healthy weight is from the 5<sup>th</sup> percentile to less than the 85<sup>th</sup> percentile. Overweight is categorized as the 85<sup>th</sup> percentile to less than the 95<sup>th</sup> percentile. Obese is equal to or greater than the 95<sup>th</sup> percentile on the CDC BMI-for-age growth chart (Centers for Disease Control and Prevention, 2014b). Using these criteria, 16.9% of children and adolescents are in the obese percentile in the United States.

In total, 78 million United States adults and 12.5 million United States children and adolescents were obese in 2009-2010 (Centers for Disease Control and Prevention, 2010). The prevalence of obesity did not differ between males and females in the United States in 2010 (Centers for Disease Control and Prevention, 2010). In Oklahoma, 66.3% of adults are overweight or obese with a body mass index of 25 kg/m<sup>2</sup> or greater and 30.4% are obese with a body mass index of 30 kg/m<sup>2</sup> or greater. Also, 11.5% of adults in Oklahoma are diabetic and 35.5% have hypertension, both diseases have been linked to obesity (Trusts for American's Health, 2013). Currently, Oklahoma is rated seventh in the nation for the highest adult obesity rates (Trust for American's Health, 2014).

In addition, 16.4% of adolescents were overweight (greater than or equal to the 85<sup>th</sup> percentile and less than the 95<sup>th</sup> percentile for BMI by age and sex) and 14.1% were obese (greater than or equal to the 95<sup>th</sup> percentile for BMI by age and sex) (Oklahoma

State- Nutrition, Physical Activity, and Obesity Profile, 2012). It is projected that in 2030 Oklahoma will have the second highest adult obesity rates in the nation behind Mississippi (Trust for American's Health, 2014).

### **Physical Activity**

One contributor to the increase in prevalence of obesity in Oklahoma is the lack of physical activity. According to the Oklahoma State Nutrition and Physical Activity Obesity Plan (2012), less than half (41.5%) of adults achieved the recommended physical activity guidelines of at least 300 minutes a week of moderate-intensity or 150 minutes a week of vigorous intensity aerobic physical activity. Further, 31.4% adults in Oklahoma reported that during the past one month they did not participate in any form of physical activity. Among adolescents, 27.5% were physically active for a total of at least 60 minutes per day every day for one week prior to the survey. In addition, 31.4% of adolescents attended daily physical activity education class when school was in session. More concerning, 16.3% of adolescents in Oklahoma did not participate in at least 60 minutes of physical activity in any day during the week before the survey (Oklahoma State- Nutrition, Physical Activity, and Obesity Profile, 2012).

According to the U.S. Department of Health and Human Services (2008), physical activity is any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level. Engaging in regular physical activity can greatly reduce the risk of obesity and obesity related chronic diseases (Centers for Disease Control and Prevention, 2010). Currently 80.0% of adults in United States are not getting enough combined physical activity (BRFSS, 2012).

An increase in physical activity is an important component of weight loss therapy, and continuous physical activity is most helpful in the prevention of weight gain or regains (Physical Activity Guidelines for Americans, 2008). In addition, physical activity has a benefit in reducing cardiovascular and diabetes risks. People who are physically active for seven hours a week have a 40% lower risk of dying earlier compared to those that are active for less than 30 minutes a week (Centers for Disease Control, 2014).

However, although physical activity has many benefits, 52.0 % of all adults in the United States are not meeting the 2008 Physical Activity Guidelines (Centers for Disease Control-Facts about Physical Activity, 2014). Men (57.4%) are more likely than women (42.6%) to meet the 2008 Physical Activity Guidelines. Less than three in ten high school students are being physically active for at least one hour a day. Also, some populations tend to be more physically active than others; more non-Hispanic white adults (22.8%) meet the 2008 Physical Activity Guidelines for aerobic physical activity and musclestrengthening activity than the non-Hispanic black adults (17.3%) and Hispanic adults (14.4%) (Centers for Disease Control-Facts about Physical Activity, 2014). Adults whose families' income is above the poverty level are more likely to meet the 2008 Physical Activity Guidelines for aerobic activity than adults whose family income is at or near the poverty level (Centers for Disease Control-Facts about Physical Activity, 2014).

### **Physical Activity Resources**

Parks have been shown to have a positive effect on physical activity levels. Individuals who used parks, playgrounds, and sports fields were more likely to be regularly active (Addy, 2004; Giles-Corti, 2005). In addition, a child being able to walk to a park is associated with park use while having to drive in order to access a park deters

park use (McCormack, Rock, Toohey, & Hignell, 2010). A study by Moody et al. (2004) found that on a typical day in San Diego, more than 28,000 children or 7.0% of children used public parks or recreation centers to be physically active. Moreover, Timperio, Crawford, Telford, and Salmon (2004), found that an absence of nearby parks or sport facilities was related to fewer walking/cycling trips among 10-12 year olds.

Public parks offer several physical activity opportunities and are present in almost all communities at no or low costs (Godbey, Caldwell, Floyd, & Payne, 2005). People with parkland less than 0.6 km (0.3 miles) from their residence were 41.0% more likely to meet physical activity recommendations (Duncan & Mummery, 2004). In addition, park facilities were more important than were park amenities. The park facilities which had trails had the strongest relationship with park use for physical activity (Kaczynski, Potwarka, & Saelens, 2008). Higher densities of physical activity resources have been associated with better health outcomes. Also, it has been shown that as the number of available physical activity resources increased, so did the likelihood of meeting physical activity guidelines for each population (Parks, Housemann, & Brownson, 2003), which makes the number of physical activity resources crucial for increased physical activity in communities.

An association has been made between park space and facilities with healthy weight status among children. This study examined the number of parks within 1 km of home, total area of the park land within 1 km, and distance to the closest park from home (Potwarka, Kaczynski, & Flack, 2008). The overall results of this study found that children with a park playground within 1 km were five times more likely to be classified as being of a healthy weight rather than at-risk or overweight than those children without

close playgrounds. A study by Shore et al. (2006) researched four suburban parks and found that parks with more features; trails/paths, play structures, and sports fields were significantly related to increased activity intensity. Sallis et al. (1990) found that the closer the proximity and higher the density of exercise facilities were significantly associated with increased frequency of exercise as well. Also a study by Colabianchi, Maslow, and Swayampakala, (2011) found that increasing play features and amenities at playgrounds lead to significant increases in physical activity among children. In addition, study by Cohen et al. (2006) found that amenities such as streetlights, shaded areas, and drinking fountains were all related to greater weekly minutes of physical activity.

More availability to physical activity resources has been associated with an increase in physical activity status. The availability of resources has been positively associated with physical activity (Sallis et al., 1990). However, lower socioeconomic status neighborhoods tend to have fewer high-quality and less accessibility to physical activity resources than high income neighborhoods (Estabrooks, Lee, & Gyurski, 2003).

### **Inhibition of Physical Activity**

Poor maintenance and upkeep of physical activity resource has been associated with a decrease in physical activity level. A study by Zoellner, Hill, and Zynda (2012), observed the use of trails; physical activity levels were inhibited by negative perceptions of poor-quality trails. Powell, Slater, Chaloupka, and Harper, (2006) researched neighborhood demographic characteristics with the availability of commercial physical activity-related outlets. Results of this study found that there were fewer commercial physical activity facilities such as gyms, sports clubs, dance facilities, and golf courses in

lower income neighborhoods and in neighborhoods with high proportions of ethnic minorities (Powell et al., 2006).

The relationship between community of residence and physical activity has become an important area of investigation based on initial findings that neighborhood of residence differentially influences physical activity rates (Saelens, Sallis, & Frank, 2003). Communities with increased proximity between homes and a greater proportion of park areas are associated with higher physical activity rates in young children (Roemmich, 2006). Communities with many incivilities may influence residents' perceptions and health behaviors related to obesity because incivilities could lead to unsociable behavior and deter physical activity resource usage (McAlexander et al., 2009).

### **Physical Activity Resource Assessment**

A park audit is a careful review or examination of elements found in a physical activity resource. Observational assessments are measures assessing the features, amenities, and incivilities of the built environment that can be observed. The Physical Activity Resource Assessment tool (PARA) was published in 2005 and updated in 2010 by Dr. Rebecca Lee. The PARA was designed to systematically document and describe the type, features, amenities, and incivilities of a variety of physical activity resources in calculating a quality score. It was designed to audit a variety of spaces in which physical activity might occur such as parks, fitness clubs, and churches. The PARA was initially developed to evaluate the resources in urban and lower income communities around public housing developments compared to those found in higher income communities (Lee, Mana, Adamus-Leach & Soltero, 2005).

The PARA is a brief, one page tool that was developed to be easy and fast to administer with three main headings: features, amenities, and incivilities. Features are elements specifically used for physical activity such as a baseball field, basketball court, soccer field, football field, exercise station, play equipment, pool, sandbox, sidewalk, tennis court, running/biking trail, volleyball court, or open fields. Amenities are elements that support a feature such as access points, bathrooms, benches, drinking fountains, landscaping efforts, lighting, picnic tables, shelters, locker rooms, showers, trash containers, or bike racks. Incivilities are elements that reduce the pleasure associated with using the physical activity resource such as vandalism, auditory annoyance, broken glass, dog refuse, litter, no grass, overgrown grass, graffiti, sex paraphernalia, evidence of alcohol use, and tobacco or substance use. The PARA can take about 10 minutes to complete per resource such as a park, but larger parks can take up to 30 minutes (Lee et al., 2005).

### **Application of the PARA**

The PARA has been used in several studies to examine availability and quality of physical activity resources within other communities throughout the nation. Lee et al. (2005) found that access to higher-quality physical activity resources can help increase or maintain physical activity in both higher and lower income neighborhoods.

DeBate et al. (2011) utilized the PARA when researching community-based physical activity programs in two urban communities located in Tampa, Florida. The PARA was used to assess the physical activity resources in these two urban communities for their availability and suitability as action outlets for child-centric physical activity.



This study assessed 13 features, 12 amenities, and 9 incivilities within a 3 mile radius surrounding the two communities. Results found that one community surrounding one elementary school had 37 resources, 11 of which were within one mile, 14 of which were between one and two miles, and 12 of which were between two to three miles. The other urban community had more resources, but they tended to be farther away, with 22 being two to three miles away from the elementary school. This study brings up the important point that physical activity resources must be present and also within a reasonable distance in communities to be utilized. For children to be physically active, physical activity resources need to be close enough for children to walk to these resources in order to use them and have parents feel that their child is safe I doing so. The PARA can be useful for needs assessment and as a program planning tool for community-based physical activity programs.

Parks represent a free and open resource for physical activity that is open to all citizens, all day, every day, particularly for urban dwellers that may have less access to rural or countryside space (Temple, Rhodes, & Higgins, 2011). Another study using the PARA researched if dog owners walked more than non-dog owners (Temple, Rhodes, & Higgins, 2011). The PARA was used to categorize each park in terms of its features, amenities, and incivilities present. In addition to the PARA, this study also used the Standardized Observation of Physical Activity with Dogs (SOPAWD) which is a direct observational instrument designed to record information about physical activity users as well as various characteristics of those users. In these parks, features, the quality of the features, amenities, the quality of the amenities, and incivilities were rated. In terms of physical activity level, most people used parks for walking. Also, because of the greater

amount of physical activity features present in multiuse parks, non-dog walkers used multiuse parks more than dog-walkers because of the various sporting activities available such as a tennis or soccer. This finding is important because this shows that people want to use physical activity resources more often if they contain more physical activity features. The PARA was used to assess the park type, amount of features, quality of features, amenities, quality of amenities, and incivilities. The PARA found that parks provided the most variety of physical activity opportunities (features) for community members, primarily for baseball, soccer, and tennis.

An additional part of physical activity is how environmental factors influence low rates of physical activity in African American and low-income adult populations. A study by Heinrich et al. (2007) looked at self-reported walking and vigorous physical activity in persons living in public housing developments. Results from this study found that overall physical activity rates were low, with only 21.0% of participants meeting the moderate physical activity guidelines. Also, fewer physical activity resources predicted 90.0% of the variance in meeting the moderate physical activities guidelines. Thus, physical activity of low income residents, of public housing was related to modifiable aspects of the built environment. Hence, those with greater access to more physical activity resources with fewer incivilities and with greater street connectivity are more likely to be physically active. A similar study by Heinrich et al. (2008) examined the association of environmental variables with obesity prevalence and body mass index in impoverished residents of public housing developments in metropolitan areas within the same community. This study found that higher feature quality predicted a lower body mass index among the residents which shows that a supportive neighborhood

environment was related to lower obesity prevalence and a lower body mass index in housing development residents.

Ecological models of health suggest that lower individual and environmental socioeconomic status and the built environment may be related to health attitudes and behaviors that contribute to obesity (McAlexander, Banda, McAlexander, & Lee, 2009). This cross sectional study researched the direct association of community physical activity resources attributed with body mass index and body fat in low-income African Americans, using the PARA to measure accessibility, quality of features, amenities, and incivilities of each physical activity resource within an 800-m radius around each housing development. Research shows that lower physical activity resource density has been associated with physical inactivity and may contribute to higher obesity prevalence and higher body mass indexes in a low-income community (McAlexander et al., 2009). Using the PARA most (89.0%) of the physical activity resources were accessible.

McAlexander et al. (2009) found that sidewalk connectivity predicted higher body mass index and body fat for housing development residents. Each community had an average of almost six incivilities per physical activity resource. However, which regardless of high physical activity resource accessibility and sidewalk connectivity, there are many other reasons why people do not visit a physical activity resource or use a highly connected sidewalk. One reason why could be that in this study, 75.0% of the housing developments were located in zip codes where crimes had taken place.

### **Discrepancies between Rural vs. Urban**

More than 32.0% of Oklahoma residents live in rural areas compared to the national average of 24.8% for the United States (United States Census Bureau, 2006).

Research has found associations between increased physical activity and availability and accessibility of urban parks (Henderson, 2007). The National Health and Nutrition Examination Survey examined rural and urban physical activity measures. Health disparities have been suggested due to the lower levels of physical activity around rural versus urban residents. This study surveyed 5,065 adults ages 20-75 and measured intensity level with type of physical activity such as leisure, household, and transportation. The results of this study found rural residents were less active than urban residents in high-intensity physical activity. However, rural residents reported more total physical activity than urban residents with differences in the household physical activity category (Fan, Wen, & Kowaleski-Jones, 2006).

Surveillance data by geography shows that access to healthcare services, receipt of prevention services, and multiple health behaviors and outcomes differ in rural versus urban settings (Bennett et al., 2008; Eberhardt & Pamuk, 2004). A study by the founder of the PARA, Lee (2005) evaluated features, amenities and incivilities of physical activity resources in only urban neighborhoods. The purpose of this study was to test the instrument to systemically document and describe the type and quality of features, amenities, and incivilities of a variety of physical activity resources. They assessed 13 urban lower income, high ethnic minority-concentrated communities and four higher income-low ethnic minority communities. The resources in both types of communities had an average of two to three physical activity features and amenities. The quality in both communities was mediocre to good. However, incivilities at the physical activity resources in the housing development community were significantly greater than in comparison to the higher income neighborhoods.

Rural and urban parks have been shown to have different effects on physical activity. A recent literature review (Frost et al., 2010) found a positive association between physical activity and the distance or access to recreation facilities among adults living in rural settings. Also, rural adults suggested that increased safety and reduced crime was associated with an increased level of physical activity. There has been limited research documented in park use with most conducted in urban areas. However, omission of rural settings is a concern because differences have been observed in park visitation and park-based physical activity between rural and urban parks (Shores & West, 2010).

Access to parks plays another role in physical activity and quality of physical activity resources. A recent study found that there are large differences in park access along the rural-urban geographic continuum, with rural areas having less access than urban (Zhang, Lu, & Holt, 2011). The overall results of this study found that the population weighted distance to parks was 1.2 miles for large metropolitan central counties, 3.0 miles for large fringe metropolitan counties, 6.8 miles for median metropolitan counties, 14.5 for small metropolitan counties, 15.0 for metropolitan counties, and 22.2 miles for noncore rural counties. Furthermore, many states located in the southern part of the United States had less access to parks when compared to other regions in the United States (Zhang et al., 2011).

## **Conclusions**

The Physical Activity Resource Assessment tool (PARA) was published in 2005 by Dr. Rebecca Lee. The PARA was designed to document and describes the type, features, amenities, and incivilities of a variety of physical activity resources in calculating a quality score. It was designed to audit a variety of spaces in which physical

activity might occur such as parks, fitness clubs, churches, etc. The PARA is a brief, one page tool that was developed to be easy and fast to administer with three main headings: features, amenities, and incivilities. Features are elements specifically used for physical activity such as a baseball field. Amenities are elements that support a feature such as bathrooms and drinking fountains. Incivilities are elements that reduce the pleasure associated with using that physical activity resource such as vandalism and tobacco use (Lee et al., 2005). It is necessary to investigate physical activity resources in order to improve the built environment and promote a more physically active lifestyle among Oklahomans. The overall goal of the project is to inventory and examine the availability and quality of physical activity resources in Comanche County, Oklahoma. Specific objectives include: 1) test the appropriateness of the Physical Activity Resource Assessment instrument (PARA) in assessing physical activity resources, and 2) compare physical activity resources between rural and urban communities in the county.

## CHAPTER III

### METHODOLOGY

The research questions for this study are: 1) will there be significant differences in PARA scores for features, amenities, and incivilities in rural versus urban communities in Comanche, County Oklahoma? and 2) will there be significant differences in number of features, amenities, and incivilities in rural versus urban communities in Comanche, County Oklahoma?

The Physical Activity Resource Assessment (PARA) was conducted by members of the Comanche County Fit Kids of Southwest Oklahoma coalition and volunteers. The physical activity resources and locations were provided by the Program Coordinator. Additional resources were added (e.g., newly opened) or removed (e.g., closed) during the data collection through ground training. The project was funded by the *Tobacco Settlement Endowment Trust* as part of the *Communities of Excellence in Physical Activity and Nutrition*. Thirteen coalition members and health department staff were trained to use the PARA (2010) by Oklahoma State University researchers in February 2014. PARA training was one half day where coalition members and health department staff became more knowledgeable about the PARA instrument and surveying application procedures in the field. The coalition members conducted practice assessments in a

nearby park and reviewed results with trainer. The trained community members or health department staff conducted the PAR assessments in urban community Lawton, Oklahoma. The trained volunteers conducted the PARA in various parks, fitness clubs, sports facilities, trails, community centers, churches and schools in Lawton. Two Oklahoma State University researchers conducted the assessments throughout Comanche County including Sterling, Medicine Park, Indianola, Geronimo, Fletcher, Faxon, Elgin, Chattanooga, and Cache.

## Geography

According to the United States Census Bureau, at the community level populations less than 2,500 people are considered rural while larger populations areas are considered urban. Urban clusters are population's more than 2,500 people and less than 50,000, which is consistent with the criteria use by Dr. Brian Whitacre (personal communication). Urbanized area is defined as a densely settled territory with more than 50,000 people. Rural areas have three defining characteristics: 1) low density and small scale development, 2) distance from large urban centers and 3) specialization of rural economics (Deavers, 1992). Towns in Comanche County were classified as urban or rural using the Oklahoma Department of Commerce 1890-2010 Decennial Census Population by Place by County (Table 1). Communities were selected by lead agency for *TSET*

*Communities of Excellences in Physical Activity and Nutrition* Program Coordinator.

**Table 1: Classification of Communities in Comanche County**

<b>Towns in Comanche County</b>	<b>Population</b>	<b>Urban or Rural</b>
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<b>Sterling</b>	793	Rural
<b>Medicine Park</b>	382	Rural
<b>Indiahoma</b>	344	Rural
<b>Geronimo</b>	1,268	Rural
<b>Fletcher</b>	1,177	Rural
<b>Faxon</b>	136	Rural
<b>Elgin</b>	2,156	Rural
<b>Chattanooga</b>	461	Rural
<b>Cache</b>	2,796	Urban
<b>Lawton</b>	96,867	Urban
<b>Total Rural Population:</b>	6,717	
<b>Total Urban Population:</b>	99,663	

### **Physical Activity Environment**

In total, 158 physical activity resources were assessed by coalition members, health department staff, and researchers in ten different communities throughout Comanche County (Table 1). The ten communities in Comanche County were selected by the lead agency for the *TSET Communities of Excellence in Physical Activity and Nutrition's* Program Coordinator. These ten communities were then classified as rural or urban based on the criteria outlined previously (Table 1). Physical activity resources were

classified by geographic classification with 127 resources in urban communities and 31 in rural communities (Table 2).

**Table 2: Geographic Classification and PAR Count**

<b>Geographic Classification</b>	<b>Physical Activity Resources</b>
<b>Urban</b>	127
<b>Rural</b>	31

### **Resources**

Surveyors assessed the cost of the physical activity resources as free, pay at the door, pay for certain programs only or others such as paying for individuals sport leagues. Resources were categorized into fitness clubs for gyms or health centers. Areas were categorized as parks for neighborhood, city, or skate parks. Sports facilities included multi-purpose sports grounds (e.g., baseball fields, tennis courts, etc.). Trails were classified as a running or biking trail. Community centers were public buildings. Churches were resources where the sole purpose was religious in nature, but produced access to a physical activity resource. Resources were classified as schools if they were part of a school building. Combinations were those resources which fell into 2 or more categories (e.g., school and a park or rodeo ground, waterpark, or skate park) and identify the combined resources. Frequency of physical activity resources (Table 3) and resource type by community (Table 4) were examined. Additions were added to the PARA which

included tobacco and smoke-free signage, a tobacco incivility category, and ADA access per request of coalition and Comanche County Program Coordinator.

**Table 3: Frequency of PARs**

<b>Physical Activity Resource</b>	<b>Frequency</b>	<b>Percent</b>
<b>Fitness Club</b>	8	5.1%
<b>Park</b>	78	49.4%
<b>Sport Facility</b>	18	11.4%
<b>Trail</b>	1	0.6%
<b>Community Center</b>	5	3.2%
<b>Church</b>	4	2.5%
<b>School</b>	26	16.5%
<b>Combination</b>	18	11.4%
<b>Total</b>	<b>158</b>	<b>100.0%</b>

**Table 4: Resource Type by Community**

<b>Community</b>	<b>Fitness Club</b>	<b>Park</b>	<b>Sport Facility</b>	<b>Trail</b>	<b>Community Center</b>	<b>Church</b>	<b>School</b>	<b>Combination</b>	<b>Total</b>
<b>Lawton</b>	7	63	12	1	3	2	23	13	<b>124</b>
<b>Cache</b>	1	2	0	0	0	0	0	0	<b>3</b>
<b><u>Urban Total</u></b>	8	65	12	1	3	2	23	13	127
<b>Chattanooga</b>	0	0	1	0	0	0	0	2	<b>3</b>
<b>Elgin</b>	0	3	1	0	0	1	1	0	<b>6</b>
<b>Faxon</b>	0	1	0	0	1	0	0	0	<b>2</b>
<b>Fletcher</b>	0	1	2	0	0	1	0	1	<b>5</b>
<b>Geronimo</b>	0	1	1	0	1	0	1	0	<b>4</b>
<b>Indiahoma</b>	0	1	1	0	0	0	1	0	<b>3</b>
<b>Medicine Park</b>	0	4	0	0	0	0	0	0	<b>4</b>
<b>Sterling</b>	0	2	0	0	0	0	0	2	<b>4</b>
<b><u>Rural Total</u></b>	0	13	6	0	2	2	3	5	31

<b>Overall Total</b>	<b>8</b>	<b>78</b>	<b>18</b>	<b>1</b>	<b>5</b>	<b>4</b>	<b>26</b>	<b>18</b>	<b>158</b>
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## Features

Features were items specifically used for physical activity within the different resources (e.g., baseball field, basketball court, soccer field, football field, exercise station, play equipment, pool, sandbox, sidewalk, tennis court, running/biking trail, volleyball court, and open fields). The Oklahoma State University PARA provided 13 different features with two optional write-ins for features (Figure 1). If a feature was not present, it was scored a 0. If the feature was present, then it was scored a 1 (poor quality), 2 (mediocre quality), or 3 (good quality) which was adapted from Lee's (2005) materials (Figure 7). Surveyors were trained how to properly rate the quality on certain standards. Surveyors were also provided a protocol with pictures (Appendix C) that provided visual and written quality criteria for each feature. Although, the optional features were provided and used, the maximum number of total features per physical activity resource was seven. The maximum feature score was 39 (i.e., quality score (1, 2 or 3)  $\times$  13 *features*) while the minimum score was 0 (i.e., no *features* present). The higher the features score the better the quality of that physical activity resource.

**Figure 1: PARA Features**

Feature	#	NP	Rating <sup>a, b</sup>		
14) Baseball Fields		0	1	2	3
15) Basketball Courts		0	1	2	3
16) Soccer Fields		0	1	2	3
17) Football Fields		0	1	2	3
18) Exercise Stations		0	1	2	3
19) Play Equipment		0	1	2	3
20) Pool > 3 FT Deep		0	1	2	3
21) Sandboxes		0	1	2	3
22) Sidewalks		0	1	2	3
23) Tennis Courts		0	1	2	3
24) Trails – Running / Biking / Track		0	1	2	3
25) Volley Ball Courts		0	1	2	3
26) Wading Pool < 3 Ft.		0	1	2	3
27) Other _____		0	1	2	3
28) Other _____		0	1	2	3

### **Amenities**

Amenities were items that support a feature and provide comfort and convenience to a physical activity resource user such as access points, bathrooms, benches, drinking fountains, landscaping efforts, lighting, picnic tables, shelters, locker rooms, showers, trash containers, and bike racks. The Oklahoma State University PARA provided 13 different amenities with two optional write ins for

amenities (Figure 2). If an amenity was not present, it was scored a 0. If the amenity was present, then it was scored a 1 (poor quality), 2 (mediocre quality), or 3 (good quality) which was adapted from Lee's (2005) material and scores were comparable to features (Figure 3). Surveyors were trained how to properly rate the quality on certain standards. Surveyors were also provided a protocol with pictures (Appendix C) that provided visual and written quality criteria for each amenity. Although, the optional amenities were provided and used, the maximum number of total amenities per physical activity resource was thirteen. The maximum amenity score was 39 (i.e., quality score (1, 2 or 3)  $\times$  13 *amenities*) while the minimum score was 0 (i.e., no *amenities* present). Similar to feature scores higher the amenity scores indicated better quality of the physical activity resource.



**Figure 2: PARA Amenities**

Amenity	#	NP	Rating <sup>a, b</sup>		
29) Access Points		0	1	2	3
30) Bathrooms		0	1	2	3
31) Benches		0	1	2	3
32) Drinking Fountains		0	1	2	3
33) Fountains		0	1	2	3
34) Landscaping Efforts		0	1	2	3
35) Lighting		0	1	2	3
36) <b>Shade</b> – Picnic Tables		0	1	2	3
37) <b>No-shade</b> – Picnic Tables		0	1	2	3
38) Shelters		0	1	2	3
39) Shower / Locker Rooms		0	1	2	3
40) Trash Containers		0	1	2	3
41) Bike Racks		0	1	2	3
42) Other _____		0	1	2	3
43) Other _____		0	1	2	3

**Figure 3: Example scoring system for Features and Amenities (Lee, 2005)**



1-Poor: Grass coverage may be poor in 50% or > of the field, rough surface, hazards, holes, and/or trash on the field



2- Mediocre: Grass coverage may be sparse in a few places, grass may be too high, some trash or debris on field



3-Good: Field has uniform grass coverage and is well-mowed, no trash or debris on field; nets, furnished

## **Incivilities**

Incivilities are items that reduce the pleasure associated with using that physical activity resource such as vandalism, auditory annoyance, broken glass, dog refuse, litter, no grass, over grown grass, graffiti, sex paraphernalia, evidence of alcohol use, tobacco or substance use. The Oklahoma State University PARA provided 13 different incivilities (Figure 4). If an *incivility* was not present, it was scored a 0 (not present). If an incivility was present, then it was scored a 1 (few / little), 2 (moderate), or 3 (numerous) which was adapted from Lee's (2005) materials. Surveyors were trained how to properly rate the quality on certain standards. Surveyors were also provided a protocol with pictures (Appendix C) that provided visual and written quality criteria for each incivility. The maximum number of incivilities per a particular physical activity resource was thirteen. The maximum *incivility* score was 39 (i.e., score (1, 2 or 3)  $\times$  13 *incivilities*) while the minimum score was 0 (i.e., no *incivilities* present). The higher the scores for incivilities the worse the quality of the physical activity resource, which is different from feature and amenities scoring. The lower score the better for incivility physical activities resource.

**Figure 4: PARA Incivilities**

Incivilities	#	NP	Rating <sup>c, b</sup>			Incivilities	#	NP	Rating <sup>c, b</sup>		
44) Auditory Annoyance		0	1	2	3	51) Litter		0	1	2	3
45) Broken Glass		0	1	2	3	52) No Grass		0	1	2	3
46) Dog Refuse		0	1	2	3	53) Overgrown Grass		0	1	2	3
47) Dogs Unattended		0	1	2	3	54) Sex Paraphernalia		0	1	2	3
48) Evidence of Alcohol Use		0	1	2	3	55) Vandalism		0	1	2	3
49) Evidence of Substance Abuse		0	1	2	3	56) Evidence of Tobacco Use		0	1	2	3
50) Graffiti / Tagging		0	1	2	3						

### Statistical analysis

Overall there are three separate scores for features, amenities, and incivilities. The scores range from 0-39. Higher scores are better for features and amenities and lower scores are better for incivilities. Data was examined using IBM Statistical Package for the Social Sciences (SPSS version 21). Descriptive information was examined with Frequency and Descriptive Analysis. The dependent variables were examined regarding meeting the assumptions of the statistical tests. If an assumption(s) was not met, the nonparametric version of the test was utilized. Total number of features, amenities, and incivilities were examined with independent t-tests and Mann-Whitney tests comparing rural versus urban groups. Feature, amenity, and incivility scores were calculated and compared by rural versus urban geography using independent t-test and Mann-Whitney tests. Statistical significance was examined at the  $p \leq 0.05$  level for each analysis.

**Data Collection Pictures**

**Figure 5: Geronimo Rural Drinking Fountain**



**Figure 6: Elgin Rural Splash Pad**



**Figure 7: Faxon Rural Cache Creek**





**Figure 8: Faxon Rural Basketball Court**



**Figure 9: Geronimo Rural Baseball Field**



## CHAPTER IV

### FINDINGS

The total number of physical activity resources analyzed was 158. One hundred and twenty seven physical activity resources were located in urban communities (78.5%) and thirty-one physical activity resources were located in rural communities (21.5%).

#### **Physical Activity Resource Description**

Surveyors assessed the cost of the physical activity resources as free, pay at the door, pay for certain programs only or others such as paying for individuals sport leagues. Overall, most physical activity resources were free of cost (81.0%) while (8.2%) were pay at the door, (3.2%) were pay for specific programs, and (7.6%) were other for e.g. gym membership. Park hours were not posted in (71.5%) of physical activity resource but (28.5%) of physical activity resources did have park hours posted. Also, (74.1%) of physical activity resources did not post signage rules while (25.9%) of physical activity resources did have signage rules posted. In addition to rules, most of the physical activity resources did not have tobacco and/or smoke-free



signage (66.5%). Finally, numerous physical activity resources did not have any ADA access as reported by the surveyor (59.9%).

### **Total Number of Features, Amenities, and Incivilities Available**

The maximum total possible number of features was thirteen. The range of features per physical activity resource was zero to eight for the sample (Table 5). The mean number of features was 2.72 with a standard deviation of  $\pm 1.58$ . The most common features present were baseball fields, basketball courts, play equipment, and sidewalks. Baseball fields were present in 32.3% (n=51) of all physical activity resource features. Basketball courts were present in 36.1% (n=57) of all the physical activity resource features. Play equipment were present in 60.8% (n=96) of all physical activity and sidewalks were present in 39.9% (n=63) of all physical activity resources (Table 5).

The maximum total possible number of amenities was thirteen. The range of amenities per physical activity resource was zero to thirteen (Table 5). The mean number of amenities was 5.11 and a standard deviation of  $\pm 2.63$ . The most common amenities present were access points, benches, and trash containers. Designated access points were present in 93.0% (n=147) of all physical activity resource amenities. Benches were present in 75.3% (n=119) and trash containers were present in 70.9% (n=112) of all physical activity resource amenities (Table 5).

The maximum total possible number of incivilities was thirteen. The range of incivilities per physical activity resources was zero to ten (Table 5). The mean number of incivilities per physical activity resource was 2.66 and the standard deviation was  $\pm 1.94$ . The most common incivilities present were auditory annoyance, litter, and evidence of tobacco use. Auditory annoyance was present in 39.9% (n=63) of all physical activity resources incivilities. Litter was present in 67.7% (n=107) of all physical activity resources and tobacco was present in 34.8% (n=55) of all physical activity resources incivilities (Table 5).

**Table 5: Minimum, Maximum, Mean, Standard Deviation of Resource Features, Amenities, & Incivilities**

	<b>Min</b>	<b>Max</b>	<b>Mean (+/-SD)</b>
<b>Feature</b>	0	8	2.72 (+/-1.58)
<b>Amenity</b>	0	13	5.11 (+/- 2.63)
<b>Incivility</b>	0	10	2.66 (+/- 1.94)

The maximum possible feature score was 39. The overall feature score range was zero to 24, with a mean of 6.03 and standard deviation  $\pm 4.12$  (Table 6). The higher the feature scores the better the quality. The maximum possible amenity score was 39. The overall range amenity score was zero to 36. The mean overall amenity score was 11.78 and standard deviation of  $\pm 7.50$  (Table 6). The higher the amenity score, the better the quality. The overall range incivility score was zero to 30. The

overall mean incivility score was 4.68 and standard deviation +/-4.54 (Table 6). The higher the score for incivilities the worse the quality of the physical activity resource, which is different from feature and amenities scoring.

**Table 6: Overall Feature, Amenity, Incivility Scores**

	Min	Max	Mean (+/-SD)
<b>Feature</b>	0	24	6.03 (+/-4.12)
<b>Amenity</b>	0	36	11.78 (+/-7.50)
<b>Incivility</b>	0	30	4.68 (+/-4.54)

There were no significant findings between the total number of features ( $p=0.054$ ) in urban ( $M= 2.83$ ,  $SD=1.60$ ) versus rural ( $M=2.23$ ,  $SD=1.41$ ;  $t(158) = 1.95$   $p=0.054$ , two-tailed) physical activity resources (Table 7). There was a significant difference between the total number of amenities ( $p=0.003$ ) in urban ( $M=4.80$ ,  $SD=2.55$ ) versus rural ( $M=6.35$ ,  $SD=2.67$ ;  $t(158) = -3.02$   $p=0.003$ , two-tailed) physical activity resources (Table 7). There was a non-significant finding between the feature score in urban ( $M=6.32$ ,  $SD=4.20$ ) versus rural ( $M= 4.90$ ,  $SD= 3.63$ ;  $t(158) = 1.72$   $p = 0.088$ , two-tailed) physical activity resources. There was a non-significant finding between the amenity score in urban ( $M=11.49$ ,  $SD=7.49$ ) versus rural ( $M= 12.97$ ,  $SD= 7.57$ ;  $t(158) = -0.984$ ,  $p = 0.372$ , two-tailed) physical activity resources (Table 7).

**Table 7: Features and Amenities Totals and Scores with Urban versus Rural**

	<b>Geography</b>		<b>t</b>	<b>p</b>
	<b>Urban (n = 127)</b>	<b>Rural (n = 31)</b>		
	<b>Mean (+/-SD)</b>	<b>Mean (+/-SD)</b>		
Total # Features (0-13)	2.83(+/-1.60)	2.23(+/-1.41)	1.95	0.054
	4.80(+/-2.55)	6.35(+/- 2.67)	-3.02	0.003*
Total # Amenities (0-13)				
Feature Score (0-39)	6.32(+/- 4.20)	4.90(+/- 3.63)	1.72	0.088
Amenity Score (0-39)	11.49(+/- 7.49)	12.98(+/- 7.57)	-0.98	0.372

Incivility numbers and scores were highly positively skewed. A Mann-Whitney U Test showed no significant difference between the number of incivilities

( $p = 0.447$ ) in urban ( $Md = 3.00$ ,  $n = 127$ ) versus rural ( $Md = 2.00$ ,  $n = 31$ ),  $U = 1797.50$ ,  $z = -0.76$ ,  $p = 0.419$ . A Mann-Whitney U Test revealed no significant difference in incivility scores ( $p=0.666$ ) for urban ( $Md = 4.00$ ,  $n = 127$ ) versus rural ( $Md = 4.00$ ,  $n = 31$ ),  $U = 1967.00$ ,  $z = -0.007$ ,  $p = 0.995$ ) scores (Table 8).

**Table 8: Incivilities Totals and Score with Urban versus Rural**

Geography				
Urban (n=127)			Rural (n=31)	
<hr/>				
Total #				
Incivilities	3.00	3.00	2.00	2.00
(0-13)				
Incivility Score				
(0-39)	4.00	6.00	4.00	5.00
<hr/>				

**Table 9: Overall Means for Quality Scaled To PARA metric**

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	<b>Mean</b>	<b>Range</b>
Features (1-3)(n=158)	2.13	Mediocre
Amenities(1-3)(n=158)	2.16	Mediocre
Incivilities(1-3)(n=158)	1.44	Little/Few

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**Table 10: Overall Means for Quality Scaled To PARA metic**

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	<b>Urban (n = 127)</b>	<b>Rural (n = 31)</b>
	<b>Mean</b>	<b>Mean</b>
Features (1-3)	2.14	2.09
Amenities (1-3)	2.21	1.96
Incivilities (1-3)	1.39	1.61

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Overall Means= Overall quality scored divided by the total number of features, amenities, or incivilities to see the data scaled back to the original scale (1-3) (Table 9 &10).

## CHAPTER V

### DISCUSSION

The availability and quality of physical activity resources were examined in rural and urban communities in Comanche County, Oklahoma. This study used the Physical Activity Resources Assessment tool (PARA) to assess the built environment and physical activity resources in ten communities by describing the features, amenities, and incivilities. Research questions include: 1) Will there be significant differences in PARA scores for features, amenities, and incivilities in rural versus urban communities in Comanche, County Oklahoma? 2) Will there be significant differences in number of features, amenities, and incivilities in rural versus urban communities in Comanche County, Oklahoma?

Overall, the numbers of features within resources were similar for rural and urban areas. However, the rural had more amenities compared to urban in Comanche County, Oklahoma. There was a significant difference in total number of amenities in rural versus urban communities in the county. There were significantly more amenities in rural communities than urban communities. No significant difference in total number of features was seen in rural versus urban communities. When assessing incivilities rural and urban physical activity resources were similar. Overall PARA scores showed there were no significant difference in feature scores, amenity scores,



and incivility scores in rural versus urban communities. Rural and urban geography data has shown that people who live near attractive built environments with public open spaces are almost twice more likely to walk at moderate intensity active levels than those who do not have access to public open spaces as are found in urban environments (Carnegie et al., 2002).

## **Features**

The research question shows that there were no significant differences in total number and overall feature scores on the quality of physical activity resource features in rural versus urban communities in the county. Overall, there were a total of 419 features present in both rural and urban communities in Comanche County. There were no significant findings between the total number of features in urban versus rural physical activity resources. The mean number of features was about three per physical activity resource from a possible 13 options such as baseball fields, basketball courts, soccer fields, football fields, exercise stations, play equipment, pool, sandbox, sidewalk, tennis courts, trails, volleyball courts, and a wading pool.

There was no significance between the feature scores in urban versus rural physical activity resources. However, the quality of these features as assessed by feature score was scored higher in urban communities than rural communities. The overall mean was in mediocre range. This when scaled to the PARA metric (Table 10) when you scale back, you remove number of features. However, after personally

visiting these physical activity resources in the rural communities, they were mostly clean and of good quality as well. The rural physical activity resources had very little usage when we surveyed the rural physical activity resources for this study.

One possible way to increase usage would be to start a daytime program such as a summer camp or after school program to use these physical activity resources more often. Park features and amenities have an impact on physical activity and influence health behaviors (Kaczynski et al., 2008). The most common features in this study were baseball fields, basketball courts, and play equipment. The two most common features found in the current study often need others to participate in order to be physically active. An addition of a running trail or exercise station in the urban and rural physical activity resources would allow for more individual physical activity instead of team sports. Similar results were found by Lee et al. (2005) found that neighborhood parks had the most physical activity features than other physical activity resources. However, the rural physical activity resources had very little usage when we surveyed the rural physical activity resources for this study. More programming needs to be implemented in the country for these features to be used.

### **Amenities**

The research findings show there were no significant differences in PARA quality score on park amenities in rural versus urban communities in Comanche County. However, the findings showed a significant difference in total number of

amenities in rural versus urban communities in Comanche County, Oklahoma. There was a significant difference between the total numbers of amenities in urban versus rural physical activity resource. Rural physical activity resources had significantly more amenities than urban physical activity resources. Literature suggests that since rural communities have a smaller population density, they can have one neighborhood park with all the amenities since that could be the only physical activity resource in that community. Urban communities like Lawton and Cache need to add more amenities to their physical activity resources in order to increase usage and improve the built environment. Drinking fountains, shaded picnic tables, and bathrooms were the least common amenities found at the physical activity resources.

Overall, there were a total of 761 amenities present in all the physical activity resources in rural and urban communities in Comanche County, Oklahoma. The overall quality of these amenities at the physical activity resources was rated higher than the features. The overall mean for amenities was in mediocre range (Table 9). There was a non-significant finding between the amenity score in urban versus rural physical activity resources. The number of amenities was significant but the score was not significant in urban versus rural. This is due to the fact that after personally visiting the resources both had very little usage, which could be why they were in mediocre condition because the physical activity resources were not being used frequently.

The amenity quality score was rated higher in the rural communities than the urban communities. Urban community planners could use this information to gain more money to make their physical activity resources better. The most common amenities present were access points, benches, and trash container. According to Kaczynski et al.

(2008), the most common amenities observed were similar to the most common amenities observed in this study. The most common amenities Kaczynski et al. (2008) observed were trash cans, benches, more than one entrance, rules sign, landscaping, tables, bike racks, parking lots, historical or educational feature, roadway through the park, shelter or pavilion, restrooms, drinking fountain, and picnic area. Lee et al. (2005) found that housing developments neighborhoods had more amenities per resources on average than other neighborhoods.

### **Incivilities**

The research findings showed there were no significant differences in total number of incivilities and incivility score on park incivilities in rural versus urban communities in Comanche County, Oklahoma. A Mann-Whitney U Test showed no significant difference between the number of incivilities in urban versus rural physical activity resources. A Mann-Whitney U Test revealed no significant difference in incivility scores for urban versus rural scores. The overall mean quality

score was little/few incivilities per physical activity resource which shows that people are paying attention to the physical activity resources.

Lee et al. (2005) found that litter was the most common incivility for housing development neighborhoods. However, from personally surveying the rural physical activity resources they were very clean. The common incivilities was broken glass, evidence of alcohol use, auditory annoyance, graffiti, lack of grass, overgrown grass, dog refuse, unattended dogs, evidence of substance use, vandalism, and sex paraphernalia.

These findings are consistent with the findings in this study which auditory annoyance, litter, and evidence of tobacco use were the most common incivilities in rural and urban communities in Comanche County, Oklahoma. In Lee et al. (2005) incivilities were constantly present and noticeably bad and offensive at physical activity resources in low income and higher ethnic concentration neighborhoods. High proportions of incivilities suggest lack of attention to an area and do not promote favorable conditions for physical activity (Brownson et al., 2001). Communities could start a neighborhood clean the park event to keep parks clean and bring more community members to use the parks.

There is limited research which compares physical activity resources features, amenities, and incivilities between rural and urban communities. More research needs to be done in this field as there are changes that could to be made to the built

environment to increase usage. This study also showed that there are significantly more amenities in rural versus urban communities in the Comanche County, Oklahoma sample, which previous research has not found.

### **PARA Additions**

Additions were added to the PARA which included tobacco and smoke-free signage, incivility tobacco, and ADA access per request of coalition and Comanche County Program Director. Most of the physical activity resources did not have tobacco and/or smoke free signage (66.5%). More tobacco free signage needs to be added to decrease smoking rates, decrease incivilities, and improve the built environment. The high tobacco incivilities could be due to the low tobacco free signage. There was no ADA access in (59.9%) of all physical activity resources; ramps can be installed in order to let everyone in the community have the opportunity to be physically activity. In addition, there was no park hours posted (71.5%) and no rules posted (74.1%) this needs to be added improved in order to decrease crime and violence rates.

### **Implications for Practice and Future Research**

Using the PARA as a baseline, researchers could reassess the same rural and urban communities in Comanche County, Oklahoma a few years after efforts have been made to increase the quality of parks. The PARA will influence changes in physical activity resources based on a variety of people such as parents who want to

get involved in the built environment or policy makers who want to see how Oklahoma compares to other states or to reduce obesity rates. The PARA aids in increasing physical activity, reducing obesity rates in Oklahoma, and creating a healthier built environment in both rural and urban communities.

Overall, there is very limited research comparing physical activity resources features, amenities, and incivilities with in rural versus urban community. In the future the PARA tool can be used throughout the state in all counties to improve the built environment and more physical activity resources. Another aspect is how the quality of the resources affects the use in Oklahoma communities, which can be measured using the System for Observing Play and Leisure Activity in Youth (SOPLAY). The SOPLAY is a valid tool for directly observing physical activity and associated environmental characterizes in free play setting (Active Living Research, 2014). The SOPLAY observes physical activity and provides data on the number of participants and their physical activity level. Different variables are taken into account such as gender, accessibility, usability, supervision, organized activity or equipment provides. After examining usage with the SOPLAY for example, behavior change needs to be assessed.

The PARA data could be used by Comanche County Community Program Coordinator to: 1) see a holistic view of the opportunities for improvement in the physical activity resources and prioritize the work to be done; 2) give an insight to

visit with parks and recreation, city council, city planning, to show connections of how the built environment affects the community and advocate for improvements; 3) allow Comanche County to promote the need for capital improvements projects and funding when community involvement program issues come up for a vote with residences. Three years ago, Comanche County was not funded for a grant they applied for to upgrade parks with splash pads, new playgrounds, landscaping, shaded picnic tables, and walking tracks. The PARA will prepare Comanche County for the next meeting and show that changes need to be made. The PARA will also show people what actually does exist in the community and the condition it is in; 4) the city has limited funding so partnerships with private businesses need to be made or implementation of an adopt a park projects to show what is exactly needed.

Finally, Comanche County would like to show all opportunities to be physically active with pictures and comments of the physical activity resources by creating a Google Map with all the opportunities and highlight what is available, how to find it, what to expect there, times open, cost associated etc. This will develop into an online opportunity to show residents what is available from parks, gyms, community centers, open spaces, walking trails, bike trails, unique opportunities like a skate park and also how to get there such as bus stop locations etc.



## **Conclusion**

In conclusion, the PARA proved to be an appropriate method to assess the features, amenities, and incivilities of physical activity resources of rural and urban communities in Comanche County, Oklahoma. The PARA can aid in providing a picture of the built environment in both rural and urban communities, which allows for advocacy and change.

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APPEDXIX A: PARA FORM

Physical Activity Resource Assessment Instrument

Adapted by Oklahoma State University

1) <b>Date:</b> _____		2) <b>Rater ID:</b> _____		3) <b>Physical Activity Resource ID:</b> _____  CountyCode-ResourceType-RaterInitials-PAOutlet#  Example: 16-2-KF-100							
4) <b>Time (US Military):</b>  <b>Start:</b> _____ <b>Stop:</b> _____		5) <b>Phone Call:</b>  <b>Departure:</b> _____ <b>Arrival:</b> _____									
6) <b>Type of Resource</b> (Check One):  _____ 1 Fitness Club      _____ 2 Park _____ 3 Sport Facility      _____ 4 Trail _____ 5 Community Center      _____ 6 Church _____ 7 School _____ 8 Combination _____				7) <b>Approximate Size</b> (Check One):  _____ 1 Small ( ½ sq. block) _____ 2 Medium ( > ½ sq. block to 1 sq. block) _____ 3 Large ( > 1 sq. block)							
				8) <b>Maximum Capacity</b> (Indoor): _____							
10) <b>Hours</b> (US Military Time):  <b>Open:</b> _____ <b>Close:</b> _____				9) <b>Cost:</b>  _____ 1 Free _____ 2 Pay at the Door _____ 3 Pay for Only Certain Programs _____ 4 Other _____							
11) <b>Signage – Hours Posted:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				12) <b>Signage – Rules Posted:</b> Yes    No <input type="checkbox"/>							
13) <b>Signage – Tobacco / Smoke – Free</b> Yes <input type="checkbox"/> No <input type="checkbox"/>											
Feature	#	NP	Rating <sup>a, b</sup>			Amenity	#	NP	Rating <sup>a, b</sup>		
14) Baseball Fields		0	1	2	3	29) Access Points		0	1	2	3



15) Basketball Courts		0	1	2	3	30) Bathrooms		0	1	2	3
16) Soccer Fields		0	1	2	3	31) Benches		0	1	2	3
17) Football Fields		0	1	2	3	32) Drinking Fountains		0	1	2	3
18) Exercise Stations		0	1	2	3	33) Fountains		0	1	2	3
19) Play Equipment		0	1	2	3	34) Landscaping Efforts		0	1	2	3
20) Pool > 3 FT Deep		0	1	2	3	35) Lighting		0	1	2	3
21) Sandboxes		0	1	2	3	36) <b>Shade</b> – Picnic Tables		0	1	2	3
22) Sidewalks		0	1	2	3	37) <b>No-shade</b> – Picnic Tables		0	1	2	3
23) Tennis Courts		0	1	2	3	38) Shelters		0	1	2	3
24) Trails – Running / Biking / Track		0	1	2	3	39) Shower / Locker Rooms		0	1	2	3
25) Volley Ball Courts		0	1	2	3	40) Trash Containers		0	1	2	3
26) Wading Pool < 3 Ft.		0	1	2	3	41) Bike Racks		0	1	2	3
27) Other _____		0	1	2	3	42) Other _____		0	1	2	3
28) Other _____		0	1	2	3	43) Other _____		0	1	2	3

<sup>a</sup> 0 = Not Present; 1 = Poor; 2 = Mediocre; 3 = Good    <sup>b</sup> Remember to utilize your PARA Operational Guide

Incivilities	#	NP	Rating <sub>c, b</sub>			Incivilities	#	NP	Rating <sub>c, b</sub>		
44) Auditory Annoyance		0	1	2	3	51) Litter		0	1	2	3
45) Broken Glass		0	1	2	3	52) No Grass		0	1	2	3
46) Dog Refuse		0	1	2	3	53) Overgrown Grass		0	1	2	3
47) Dogs Unattended		0	1	2	3	54) Sex Paraphernalia		0	1	2	3
48) Evidence of Alcohol Use		0	1	2	3	55) Vandalism		0	1	2	3
49) Evidence of Substance Abuse		0	1	2	3	56) Evidence of Tobacco Use		0	1	2	3
50) Graffiti / Tagging		0	1	2	3						

<sup>c</sup> 0 = None Present; 1 = Few / Little; 2 = Moderate; 3 = Numerous <sup>b</sup>

Remember to utilize your PARA Operational Guide

Additional Items:			
57) Are there concessions, food, and/or vending machines available at this Physical Activity Resource?			
Yes	<input type="checkbox"/>	No	<input type="checkbox"/> Type: _____
(Description)			
58) How much of the Physical Activity Resource is shaded from direct sun?			
<25%	<input type="checkbox"/>	25 – 75%	<input type="checkbox"/> >75% <input checked="" type="checkbox"/> NA <input type="checkbox"/>
59) Is the facility monitored (e.g., lifeguards, staff, police, cameras, etc.)?			
Yes	<input type="checkbox"/>	No	<input type="checkbox"/> I Don't Know <input type="checkbox"/>
60) Overall, is the Physical Activity Resource ADA-Accessible?			
Yes	<input type="checkbox"/>	No	<input type="checkbox"/> I Don't Know <input type="checkbox"/>
Comments / Observations:			
_____			
61) If <b>trails</b> (walking / biking / track) <b>are available</b> then:			
a) What is the distance of the trails? Trail 1 _____ Trail 2 <sup>e</sup> _____ Trail 3 <sup>e</sup> _____			
b) What is the surface of the trail <sup>d</sup> ? Trail 1 _____ Trail 2 <sup>e</sup> _____ Trail 3 <sup>e</sup> _____			
62) If the <b>Type of Resource</b> is a <b>School</b> then:			
a) Does the School or School District have a Joint-Use / Shared-Use Agreement with the Public?			
Yes	<input type="checkbox"/>	No	<input type="checkbox"/> I Don't Know <input type="checkbox"/>
b) If not, what is / are perceived barriers?			
_____			
_____			
_____			

63) Are **classes / programs** available at this Physical Activity Resource?  

Yes ☐No ☐

If **Yes**; please determine the **amount** of programs / classes offered and **list 3 – 6** examples:  

Amount: \_\_\_\_\_  

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

<sup>d</sup> Options Include: **Mulch/Wood Chips; Concrete/Asphalt; Dirt; Crushed Granite/Rock; Rubber; Other**  
**(Write-In)** <sup>e</sup> Mark “**NA**” if multiple trails are not present (e.g., Trail 2 NA)

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Multiple items adapted from the Community Park Audit Tool (Kazcynski, 2010) and the Recreation Facility Evaluation Tool (Cavnar Kirtland, Evans, Wilson, Mixon, & Henderson, 2004)

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## APPENDIX B: PARA PROTOCOL

### Physical Activity Resource Assessment (PARA) Form Protocol and Operational Definitions Author Revisions: July 21<sup>st</sup>, 2010, OSU Revision: June 20<sup>th</sup>, 2013

#### Protocol

##### *General Directions*

- A. At an indoor facility, stop at the reception area and introduce yourself to desk staff and/or management.
  1. Briefly describe the project, and explain the purpose of your visit.
- B. If an outdoor location, drive around the resource perimeter to assess the safety before getting out of the car.
- C. If anything looks dangerous or suspicious, write a note on the assessment form and report to Project Manager.
  1. Move onto the next physical activity resource to be assessed.
  2. If at any time conditions become unsafe, return to the car and continue to the next assessment.
- D. If there is a physical activity resource that is not on the list, collect data for it in a blank Physical Activity Resource Assessment form.
  1. Include resource name and street address.
- E. The outlying boundary for a physical activity resource(s) will be as follows:
  1. If a **gate** is surrounding the physical activity resource, then the physical activity resource will be **assessed from the gate in**.
  2. If there is **no gate**, but there is a **sidewalk**, then the physical activity resource will be **assessed from the outer edge of the sidewalk in**.
  3. If there are no consecutive **posts** that signify a boundary, then the physical activity resource will be **assessed from those posts in**.
  4. If there is **no clear indicating boundary** for the physical activity resource, then the physical activity resource will be **assessed from the end of the adjacent street(s) in**.
  5. If there is an outlying **ditch** that signifies a boundary and there is no sidewalk, gate, or posts, then the physical activity resource will still be **assessed from the adjacent street(s) in**.
  6. If there is an activity resource that starts **inside the 1 mile diameter boundary** and extends beyond the boundary, then that **activity resource should be fully surveyed and assessed**.

*At top of form:*

- A. If the form is to assess a pre-identified physical activity resource, there will be a **Physical Activity Resource ID** produced. If a physical activity resource was not preidentified, fill in the PARA form and a **Physical Activity Resource ID will be assigned by the lead researcher.**
- B. **Complete each field as specified (Items 1 – 12):**
- 1) **Date** = Date of data collection.
  - 2) **Rater ID** = First Name and Last Name Initials of the person who collects the data (e.g., Kevin Fink = KF).
  - 3) **Physical Activity Resource ID** = Unique physical activity resource identifying number.
  - 4) **Time** = Starting and Stopping time of data collection in US Military Time (see Item 10 for Definition).
  - 5) **Phone Call** = Call the project manager at departure from the office and arrival back to the office, and write in a time of when the phone calls were made, **if the rater feels this is necessary.**
  - 6) **Type of Resource** (Check One):
    - 1 Fitness Club (e.g., health clubs)
    - 2 Park (e.g., City, Neighborhood Park, etc.)
    - 3 Sport Facility (e.g., baseball fields, basketball and tennis courts, soccer fields)
    - 4 Trail (e.g., walking or biking trail (**other than sidewalk that is part of a street curb**))
    - 5 Community Center (e.g., public building, may include outdoor space)
    - 6 Church or Other Religious Organizations
    - 7 School (e.g., school playground)
    - 8 Combination of 2 or More Resources: **Describe in Detail**
  - 7) **Approximate Size** (Check One):
    - 1 Small = ½ square block,
    - 2 Medium = > ½ square block up to 1 square block,
    - 3 Large = > 1 sq. block
  - 8) **Capacity** (for an indoor facility) = Maximum capacity number; should be posted or ask the management
  - 9) **Cost** = Cost for Use of Facility
    - 1 Free, No Charge to Use (e.g., park, playground, grass field)
    - 2 Pay at the Door (You must pay to gain entry into the facility)
    - 3 Pay only for Certain Program (You can use the facility for free, but certain program/classes have a fee)
    - 4 Other (List any other type of cost or payment fee)

- 10) *Hours of Operation* = Hour that the resource opens and closes (write in US Military Time):  
 5am = 0500, 6am = 0600, 7am = 0700, 8am = 0800, 9am = 0900, 10am = 1000,  
 11am = 1100, 12pm = 1200, 1pm = 1300, 2pm = 1400, 3pm = 1500, 4pm = 1600,  
 5pm = 1700, 6pm = 1800, 7pm = 1900, 8pm = 2000, 9pm = 2100, 10pm = 2200,  
 11pm = 2300, 12am = 2400)
- 11) **Signage – Hours of Operation** = Place a check on the appropriate box
- 12) **Signage – Rules of Use** = Place a check on the appropriate box
- 13) **Signage – Tobacco / Smoke-Free** = Place a check on the appropriate box

**Features (Items 14 – 28):**

- A. Operational definitions describing each are found below, in the section on *Operational Definitions*.
- B. Determine how many of a *Particular Feature* is Present (#).
- C. **Rate each item** by circling a number or darkening the appropriate box (if more than 1 Feature, determine quality as an average of all).

**0 = Not Present (NP) 1 = Poor 2 = Mediocre 3 = Good**

**D. Special Note:**

**1. Item 18) Play Equipment:**

- a. If it is ‘typical’ equipment such as a slide, swings, horizontal bar; no description is necessary.
- b. If the **equipment is unusual, please describe** in the *Comments* space as necessary. **E. Special Note:**

**1. Items 27) Other \_\_\_\_\_**

- a. Write-in for Features seen, but not outlined in the PARA (e.g., Frisbee Golf, lake, Skate Park, ice rink, etc.) **Amenities (Items 29 – 43):**

- A. Operational definitions describing each are found below, in the section on *Operational Definitions*.
- B. Determine how many of a *Particular Amenity* is Present (#).
1. **Do not count if the box is darkened out.**
- C. **Rate each item** by circling a number or darkening the appropriate box (if more than 1 Amenity, determine quality as an average of all).

**0 = Not Present 1 = Poor 2 = Mediocre  
 3 = Good**

**D. Special Note:**

**1. Item 41 & 42) Other \_\_\_\_\_**

- a. Write-in for Amenities seen, but not outlined in the PARA (e.g., Sculptures, Artwork)

**Incivilities (Items 44 – 56):**

- A. Operational definitions describing each are found below, in the section on *Operational Definitions*.
- B. Determine how many of a *Particular Incivility* is Present (#).
  - a. **Do not count if the box is darkened out.**
- C. **Rate each item by circling a number or darkening the appropriate box.**  
**0 = Not Present   1 = Few / Little Incivilities Present   2 = Moderate Number of Incivilities Present   3 = Numerous of Incivilities Present**

**Additional Items (57 – 63):**

- A. Answer questions 55 – 57 to the best of your ability and what you see.
- B. **Special Note** (From the ADA Checklist: [www.ada.gov/recheck.pdf](http://www.ada.gov/recheck.pdf)):
  - a. **Item 60) Overall, is the Physical Activity Resources ADA-Accessible? Examples of Some Things that You May Look For:**
    - 1. Are stairs required to enter? Can anyone approach the area freely? At least one route into the facility should be available for everyone.
    - 2. Are items protruding upon entrance that may trip or prevent a wheelchair or visually-impaired person?
    - 3. Is wheelchair accessible parking available (1 Accessible Space for every 25 spaces)?
    - 4. Are handles able to be opened with **closed fists**?
    - 5. Access to public spaces is provided for all persons.
    - 6. Signs have Braille and/or are high-contrast.
    - 7. Are tables usable for wheelchairs? Proper surfaces provided for access?
    - 8. Ramps/lifts/elevators provided for multiple floors? Stairs with rails? Stairs with non-slip surfaces?
    - 9. Wheelchair accessible stall? Stall doors closed fist operable?
    - 10. Soap dispensers operable with closed fist? Within reach?
    - 11. Hi-lo water fountain present?
- C. **Special Note:** Item 61) If trails (walking / biking / track) are available...
  - a. **There are spaces for up to 3 trail distances (in miles).**
    - 1. **If there are more than 3 trails, please add in comment sections.**
  - b. **There are spaces for up to 3 trail surfaces.**
    - 1. **If there are more than 3 trails, please add in comment sections.**

- 2. Trail Surfaces include:** a. Mulch/Wood Chips b. Concrete/Asphalt  
c. Dirt d. Crushed Granite/Rock e. Rubber f. Other (Write-In)

Mark “NA” if there is not more than 1 trail present (Trail 2 NA).










D. Questions 62 – 63 may involve asking a staff or school employee if the information is not easily available.

**E. Additional Comments:**







Please utilize this to make any additional comments regarding the Physical Activity Resource Area (e.g., exercise stations were not properly cleaned; football goalposts were damaged or missing; lifeguards are asleep).









## APPENDIX C: Pictionary

<b>OPERATIONAL DEFINITIONS: FEATURES</b>	<b>1 – Poor</b>	<b>2 - Mediocre</b>	<b>3 – Good</b>
<b>Baseball field – Count</b>	<p>Surface of fields is uneven, unsafe, no overhead lighting, no benches for players, fencing in poor condition or nonexistent</p> 	<p>Surface of fields is uneven, slightly unsafe, no overhead lighting, + benches for dugouts. Some fencing existent, but not 100% intact</p> 	<p>Surface of fields is uniform, no rocks/barriers to running bases, have overhead lighting, + benches for dugouts. Have bleachers for spectators, intact backstop fencing</p> 
<b>Basketball courts – Count</b>	<p>Court or hoop is in very bad condition (numerous cracks / weeds), hoop is almost unstable</p> 	<p>Hoop is missing a net, rim is bent, court has cracks or weeds</p> 	<p>Hoop is straight and has a net or chain, court is playable</p> 
<b>Soccer fields – Count</b>	<p>Grass coverage may be poor in 50% or &gt; of the field, rough surface, hazards, holes, and/or trash on the field</p> 	<p>Grass coverage may be sparse in a few places, grass may be too high, some trash or debris on field</p> 	<p>Field has uniform grass coverage and is well-mowed, no trash or debris on field; nets, if furnished, are intact</p> 


<b>Exercise Stations with Signage (Exer. Station)</b>	4 or > stations need major repair – are not safe to use. Signage may be missing or in poor condition for several stations. Path between stations is unsafe.	3 or < stations may need minor repair or maintenance, path between stations need minor improvement	Stations themselves are in good condition and safe. 5 or > stations with safe path between them. Clean.
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	Unclean / dirty.		
<b>Play equipment</b> (describe if different than traditional play equipment – slide, swings, monkey bars)	Several pieces are in need of major repair and is almost or unstable, there is a lot of trash, and the ground is overgrown or barren	Some equipment is in need of minor repair, there is some trash, and the ground needs some improvement 	In good condition, variety of pieces, ground in good condition, well-kept and clean 
<b>Pool &gt; 3 ft deep</b>	Swimming pool has very discolored water or too little water, surrounding surface is in need of repair, trash in or around pool – not safe for use 	Swimming pool or deck needs minor cleaning or treatment	Swimming pool is clean, welllit. surrounding surface is safe as well as exit/entry points 



<b>Sandbox</b>	Sandbox is < or ½ full, and/or needs cleaning (replacement sand). Box itself needs major repair, and is almost unusable	Sandbox is only ¾ full, and is mostly clean; the box or edging could use minor repair 	Sandbox has adequate clean sand, all sides/edging are sturdy and there are safe places for children to sit 
<b>Sidewalk</b>	Sidewalk has major damage and needs repair, almost unusable	Sidewalk has some debris, cracks or uneven surfaces, but	Sidewalk is smooth, clear of debris

		otherwise usable 	
<b>Tennis courts – Counts</b>	Courts have cracked surface, nets are in major need of repair, debris is evident; almost unusable 	Court surface and nets are in need of some repair, but otherwise usable	Tennis court surface and nets are in fairly good condition
<b>Trails – Running / Biking / Track – Count</b>	Surface is unsafe in many places, there is a lot of debris, no signage about appropriate use 	Surface is in places uneven or in need of minor repair, may be a few hazards or avoidable debris	Surface is smooth, without unmarked hazards or debris, has signage re: appropriate users


<b>Volley Ball (VB) Courts – Count</b>	Playing surface has debris or cracks or bumps all over, net is almost unusable or missing	Playing surface has some debris or cracks or has 1 – 5 bumps, net is sagging or has holes	Playing surface is free of debris and smooth, net is in good condition
<b>Wading Pool &lt; 3 ft.</b>	Wading pool has discolored water, or no water, trash in or around pool – not safe for use	Wading pool needs minor cleaning or repair	Wading pool is clean and wellkept
<b>Football Fields</b>	Grass coverage may be poor in 50% or > of the field, rough surface, hazards, holes, trash on the field, and/or goal posts / yardage markers are missing	Grass coverage may be sparse in a few places, grass may be too high, some trash or debris on field	Field has uniform grass coverage and is well-mowed, no trash or debris on field; goals, if provided, are intact or yardage markers are present

<b>OPERATIONAL DEFINITIONS: AMENITIES</b>	<b>1 – Poor</b>	<b>2 - Mediocre</b>	<b>3 - Good</b>
<b>Access Points – Count</b>	Some appear as potentially unsafe areas, unkempt, not well-marked	Not all access points are clearly marked. Some may have trash or overgrown grass.	Clearly visible, safe, free of debris or overgrown grass. If gated, works properly.
<b>Bathrooms – Count</b>	Bathroom is not clean, not well-stocked. More than 50% of fixtures are in disrepair	Bathroom is fairly clean, stocked, and most sinks' and toilets' plumbing is in good working order.	Bathroom is clean, well-lit, stocked, all plumbing is functioning well.
<b>Benches – Count</b> (All types of affixed seating).	Benches are in bad condition, unusable 	Benches are missing some paint or boards, may be crooked, but otherwise usable	In good condition but could have minor cosmetic flaws




<b>Drinking fountains</b> – Count	Either all or most (50%) are broken	At least 1 of the total fountains not in working	Working, clean fountains with clean surrounding area
<b>Fountains</b> – Count (Decorative)	Water is unclean or not flowing. Fountain itself is in disrepair. Area at base is in poor shape	Water is clean; fountain itself is in adequate repair. Area at base could use a little improvement	Water is clean; fountain is in good condition (working). Area at base of fountain is well-kept
<b>Landscaping Efforts</b> (This does not include Grass)	Shrubs or flowering plants appear dead or more than 50% overgrown with weeds. (Does not include grass)	Shrubs or flowering plants in ground, but do not appear healthy and/or colorful. Weeds	Attractive live shrubs and/or flowering plants, perhaps decorative material such as rock or mulch
<b>Lighting</b> – Count (For an outdoor resource such as a park, this is within the boundaries)	Area has limited lighting, inadequate for safety	They are usable, but need minor repair, partially clean	Area or building has effective overhead lighting which sufficient for safety
<b>Shaded - Picnic Tables</b> – Count	Tables are in need of major repair, unclean, almost unusable	Tables are usable, but need minor repair, partially clean	Tables are sturdy and in good condition, clean





			
<b>No-Shade Picnic Tables</b> – Count	Same as above	Same as above	Same as above 





<b>Shelters – Count</b>	Structures are not intact – so rain would get into area. If seating/tables are present, they are in major need of repair or are missing	Structures are in need of some repair, provide protection from weather. If seating/tables are present they are usable but need minor repair	Structures are intact, provide protection from weather. If seating/tables are present they are clean.
<b>Shower / Locker Room – Count</b>	Unclean, may not be welllit, inadequate dressing space or receptacles provided, plumbing is almost unusable	Most areas are clean, lockers and/or dressing space provided (but is inadequate), plumbing works (needs imprv.)	Clean, well-lit, lockers and/or dressing space provided, plumbing works well
<b>Trash containers – Count</b>	Unclean and/or in poor condition, more care needed, Full with trash or overflowing. 	Partially unclean or in < perfect condition, but scattered, and unstable	Clean on exterior, scattered throughout, not overflowing with trash
<b>Bike Rack</b>	Rack is in poor condition, almost unstable or has poor access	Rack is bent, or missing paint, but otherwise usable	Rack is sturdy, usable, may have a few cosmetic blemishes

			
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<b>OPERATIONAL DEFINITIONS: INCIVILITIES</b>	<b>1 – FEW / LITTLE PRESENT</b>	<b>2 – MODERATE NUMBER PRESENT</b>	<b>3 – NUMEROUS INCIVILITIES PRESENT</b>
<b>Auditory annoyance</b>	Sound is not irritating and/or is hardly noticeable	Sound(s) is (are) noticeable and interfere(s) with enjoyment of resources	Noticeable sounds which are unpleasant. Reaction is to leave area.
<b>Broken glass</b>	A few pieces of broken glass (the equivalent of 1 bottle) 	Several pieces of broken glass (the equivalent of 2 – 4 bottles)	Many pieces of broken glass (5+ bottles)
<b>Dog refuse</b>	1 refuse pile from dog 	2 – 4 dogs refuse piles from dogs	5 or > refuse piles from dogs
<b>Dogs Unattended</b>	1 dog unattended	2 – 4 dogs unattended; may be associated noise	5 or > dogs unattended, definitely unsafe, may be associated noise
<b>Evidence of alcohol use</b>	1 bottles, cans, or bottle caps visible	2 – 4 bottles, cans, or bottle caps visible	5 or > bottles, cans, or bottle caps visible
<b>Evidence of substance use</b>	1 piece: syringes, paint cans, rags, baggies, rolling papers	2 – 4 pieces: syringes, paint cans, rags, baggies, rolling papers	5 or > pieces: syringes, paint cans, rags, baggies, rolling papers 

<b>Graffiti/tagging</b>	1-3 small 	4+ small or 1 large	2 + large 
<b>Litter</b>	A few items (<5) are on the ground (e.g., trash, cigarette butts, etc.)	Several items (5-10) are on the ground	Many items are on the ground (11+) 
<b>No grass</b>	A small area without grass	A moderate portion of the area without grass	A large area without grass (more than with grass)
<b>Overgrown grass</b>	A little bit, hardly noticeable	A moderate amount, noticeable 	A lot, very noticeable, may be obstructing some equipment
<b>Sex paraphernalia</b>	1 used or unused contraceptive devices and/or 1 pieces of pornographic reading material visible	2 - 4 used or unused contraceptive devices and/or 2 - 4 pieces of pornographic reading material visible	5 or > used or unused contraceptive devices and/or 5 or > pieces of pornographic reading material visible



<b>Vandalism</b>	Hardly noticeable, but it appears up to a few pieces of equipment or an area of indoor space has been defaced	Noticeable, more than a few pieces of equipment are vandalized, or < 50 % of the space has been rendered unusable by vandalism	Very noticeable, more equipment in disrepair than in good order, between 50%100%, because of vandalism. Signs of vandalism are obvious 
<b>Evidence of Tobacco Use</b>	A few items (<5) are on the ground (e.g., cigarette butts, etc.)	Several butts (5-10) are on the ground	Many butts are on the ground (11+) 

#### APPENDIX D: INSTITUTIONAL REVIEW BOARD APPROVAL

### Oklahoma State University Institutional Review Board

Date Monday, June 17, 2013 Protocol Expires: 6/16/2014  
IRB Application No: HE1138  
Proposal Title: Evaluation of the TSET Nutrition and Fitness Initiative (NFI)

Reviewed and Exempt  
Processed as: Continuation

Status Recommended by Reviewer(s) **Approved**

Principal Investigator(s)

Deana Hildebrand  
315 HES  
Stillwater, OK 74078

Nancy Betts  
301 HS  
Stillwater, OK 74078

Christi Erwin  
301 HS  
Stillwater, OK 74078

Kevin Fink  
180 Colvin Center  
Stillwater, OK 74078

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Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

- ☐ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

Enrollment closed, but subjects are still undergoing study procedures. The following measures are added to the protocol: NEMS-S, NEMS-V, CPAT, PARA, SOPARC, SOPLAY, SOFIT. None of these measures involve interaction with humans. Addition of two new co-PI's: Kevin Fink and Christi Erwin

Signature :



Shelia Kennison, Chair, Institutional Review Board

Monday, June 17, 2013  
Date

## VITA

Alexandra E. Pyles

Candidate for the Degree of

Master of Science

Thesis: AVAILABILITY AND QUALITY OF PHYSICAL ACTIVITY RESOURCES  
THROUGHOUT RURAL VERSUS URBAN COMMUNITIES IN  
COMANCHE COUNTY, OKLAHOMA

Major Field: Nutritional Sciences

Biographical:

Education:

Completed the requirements for the Master of Science in Nutritional Sciences at Oklahoma State University, Stillwater, Oklahoma in May, 2015.

Completed the requirements for the Bachelor of Science in Dietetics at Bradley University, Peoria, Illinois in May, 2013.

Experience:

Nutritional Sciences Graduate Research Assistant, Oklahoma State University  
January 2014-December 2014

- Assistant for the evaluation team funded by the\* Oklahoma Tobacco Settlement Endowment Trust Nutrition and Fitness Initiative
- Organized, completed, and statistically analyzed the physical activity resource assessments of 10 OK counties

Professional Memberships:

Academy of Nutrition and Dietetics, Oklahoma Dietetic Association, Illinois  
Dietetic Association, Oklahoma State University Graduate Student in  
Nutritional Science Club Member