

BEYOND THE CLASSROOM: A DESCRIPTIVE SOCIAL
EPIDEMIOLOGICAL STUDY COMPARING TWO SCHOOL
SITES IN MODESTO, CALIFORNIA BY INVESTIGATING
THE RELATIONSHIP AMONG PLACE, HEALTH, AND
EDUCATION

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of
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In Partial Fulfillment
of the Requirements for the Degree
of Doctor of Education in Educational Leadership

By
Talitha Agan, Campbell John Bullock, and Diana Amelia Herrera-Evans
May 2018

CERTIFICATION OF APPROVAL

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DEDICATION

To my wife Joann whose love and support is a continuous blessing. Without her this work would not have been possible.

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ABSTRACT

Modesto City Schools, in Modesto, California, has standardized test scores that are below the state average in California. Scores are even lower for specific schools in the district. Most research regarding student achievement only looks at the educational context, but it is critical to take a more expansive view that includes the larger community. In order to investigate factors that could impact educational success a descriptive social epidemiological case study was utilized to describe an elementary school and its surrounding attendance area in one of the most impoverished areas of Modesto. This site, Orville Wright Elementary, was compared to a second school site and community that was more affluent. Our research question was: What are the socio-structural factors within the Orville Wright Elementary attendance zone and community that may be affecting the health and well-being of the students and how does this compare to these same factors within the Lakewood attendance zone? Descriptive analysis included the use of Geographic Information Systems (GIS) tools to compare one school district attendance area to the other and focused on five indicators associated with child health and well-being necessary for educational success. These indicators are socioeconomic status and poverty, sufficient housing, violence and crime levels, availability of and access to health care and community resources. A range of sources were used to collect quantitative data for this study including the California Department of Education, the American Community Survey, and the City of Modesto Police Department. Results indicated

that even though the attendance areas are less than three miles apart, there were substantial differences between all study indicators. Authors then applied the theories of freedoms and unfreedoms (Sen, 1995) and deformed choices (Nussbaum, 2001) to analyze our findings and interpret what these results mean for children in Orville Wright and other communities facing similar challenges. We conclude by offering recommendations to improve the education of the students at Orville Wright and other schools throughout the district.

CHAPTER I

INTRODUCTION TO THE STUDY

Statement of the Problem and Research Question

Modesto, a city in the Central Valley of California, is the fifth most uneducated city in the United States (Dill, 2014). Modesto City Schools (MCS) is the school district that serves a large proportion of this area since its inception in 1871. MCS is comprised of an elementary district (K-8) and a high school district (9-12) that are governed by one Board of Education, one superintendent and one central administration (Modesto City Schools, About, 2018). Achievement levels on the California Assessment of Student Performance and Progress (CASPP) for the elementary district of MCS for 2014-15 shows that 45% of students met or exceeded the standards for the English Language Arts/Literacy (ELA) test, and 17% of students met or exceeded the Mathematics test (Educational Data Partnership, 2018). This is below the state average of students who met or exceeded these standards of 49% and 33%, respectively, for the same year. Moreover, the percentage of MCS graduates who completed all the courses required for University of California (UC) and/or California State University (CSU) entrance with a grade of a “C” or better for 2014-15 was 36.5%, which was 6.9% below the state average (Educational Data Partnership, 2018).

Of even greater concern is the significant variance in academic achievement among the elementary campuses. For example, in 2014-15 Orville Wright

Elementary, located in one of the poorest areas of Modesto, had only 12% of students who met or exceeded the CASPP ELA standards—and only 5% of students who met or exceeded the standard for mathematics (Orville Wright Elementary, Student Accountability Report, 2016). This compares to Lakewood Elementary, which is located less than three miles away from Orville Wright and is one of the wealthier schools, which had 73% of students who met or exceeded these same standards in ELA, and 52% for mathematics in the same year (Lakewood Elementary, Student Accountability Report, 2016).

The mission of Modesto City Schools (2018b) is “to offer rigorous, relevant and diverse educational programs that engage all students in reaching individual potential for college and career readiness,” (“Mission,” para. 2). This mission, along with MCS’s vision (2018) of “every student will graduate college and career ready, with the knowledge, abilities and character traits needed to thrive in a global society,” (Modesto City Schools, “Vision,” 2018b, para. 1), requires student preparation for this college and career readiness path before reaching high school. Moreover, the large achievement gaps found between Orville Wright and Lakewood elementary schools within MCS, as they relate to the mission and vision of this district, may indicate profound effects on later educational achievement between these two student populations. Duncan et al. (2007) argue that “math and reading skills at the point of school entry are consistently associated with higher levels of academic performance in later grades” (p. 1444), thus any achievement gaps found during these early

educational stages are significant for the overall college and career readiness of these students (Duncan & Magnuson, 2011) and must be a concern of MCS.

Most research regarding student achievement, particularly gaps among student groups and school sites, merely look at the educational context, but it is critical to take a more expansive view that looks at the school as part of the larger community context—and the factors that may be contributing to the disparities. These factors include the geospatial context (place, or where students live) and the social factors associated with that place (socioeconomic status (SES)/levels of poverty, sufficient housing, violence and crime levels, availability of and access to health care and community resources) which can have significant impacts on the students living in these communities, along with their success in school. The interaction of these factors makes educating students living in low SES areas where there is increased crime, insufficient housing, etc. far more difficult for educators and some insist that without changes in the family and community that the challenges in educating the students are just too great and should not be placed solely on the schools.

If this is the case, and cities and school districts want to improve the achievement, and ultimately the life circumstances of their most vulnerable students, then those in positions of leadership in the city, community, and school district need to have a thorough understanding of the challenges within these communities and the potential consequences these challenges portend. These issues have never fully been addressed with a geospatial socio-structural focus for the Orville Wright community, and furthermore, the local knowledge and educational literature related to this is

lacking. Thus, our research question was—What are the socio-structural factors within the Orville Wright Elementary attendance zone and community that may be affecting the health and well-being of the students and how does this compare to these same factors within the Lakewood attendance zone? This information should provide city, community, and school district leaders with the necessary information to work together to make informed and deliberate decisions regarding policy and practices to improve the communities and the schools, and thereby the health, safety, and education of their children.

Therefore, our dissertation team conducted a descriptive social epidemiological case study, using Geographic Information Systems (GIS) tools, to describe the community surrounding Orville Wright, including its attendance zone, and compared it to the Lakewood attendance zone and community, specifically looking at the indicators associated with child health and wellbeing necessary for educational success. These indicators include socioeconomic status (SES)/levels of poverty, sufficient housing, violence and crime levels, availability of and access to health care and community resources. We then applied the theories of freedoms and unfreedoms (Sen, 1995) and deformed choices (Nussbaum, 2001) to analyze and interpret our findings. We hope this information will be useful for city, school and community leaders, as well as community stakeholders, in their efforts to improve the education of the students in the Modesto schools.

Organization of the Study

Relevant literature to our research is examined in chapter two, broken into three segments. The first section explains the importance of place, or where one resides, along with the health measures articulated by national and international health organizations that relate to child well-being and educational success. The second section draws from the national and international health measures and describes the five indicators that potentially affect the health and well-being of students and thus their educational success. These include socioeconomic status (SES)/levels of poverty, sufficient housing, violence and crime levels, and availability of and access to health care and community resources. The third section is a review of U.S. educational policies aimed at educational equal opportunity and equity followed by an examination of the ways in which poverty may create educational achievement barriers.

Chapter three of our research describes the methodology of our study. We begin by describing the context of the study including the history of Modesto. This is followed by sections on the roots of the Airport neighborhood where our case site, Orville Wright Elementary School, is located; the Airport neighborhood of today; the history of the Modesto's Schools, which includes both the Orville Wright Elementary and community and our comparison school, Lakewood Elementary and its community; and the Modesto City School District of today. Next, we describe the design of our study. We begin by explaining descriptive social epidemiological case study, then the research setting—both the Orville Wright and Lakewood attendance

zones and surrounding community. We conclude with a description of our data collection methods including the use of GIS tools and the ways in which we ensured trustworthiness.

Chapter four provides the results of our study with a presentation of our data concerning the five study indicators, and subtopics under these indicators, for child health and well-being necessary for educational success. These five indicators— socioeconomic status (SES)/levels of poverty, sufficient housing, violence and crime levels, availability of and access to health care and community resources—are individually discussed by first considering relevant literature on each indicator. Maps are included in this chapter to further illustrate the data and the complexities surrounding these communities.

Chapter 5 considers the significance of our research study and our interpretation of our findings. It is in this chapter that we examine the differences in data between Orville Wright and Lakewood elementary schools and their communities, and we address the implications for school age children in these two attendance zones. We, then, apply Sen's freedoms and unfreedoms and Nussbaum's deformed choices as analytic tools to offer an interpretation of our findings. We end this chapter by offering recommendations to educational and community leaders who want to ensure equal opportunity and equity to ensure school and life success.

Collaborative Research

This was a collaborative research project comprised of doctoral students in educational leadership at California State University, Stanislaus. The team approach

was deemed most appropriate for this study due the scope of the project and to mirror the actual practices that most educational researchers and practitioners engage in, that is, collaborative work to identify problems, research them, analyze and interpretive the results, and then offer recommendations for educational practice, policy, and research. The research team's varying areas of expertise and experience in education in the Central Valley of California offered multiple lens through which to view this project and ensure the trustworthiness of the research. Moreover, each of the researchers currently work in an educational setting in the Central Valley and is committed to this community and bringing about equal opportunity and equity for all students.

The Research Team

Talitha Agan is from Modesto and is an adjunct professor of history at Modesto Junior College in Modesto, California, where she has been part of the faculty for over six years. Her teaching focus, face-to-face and online, is on women's studies, far western frontier, and American history in general. Since its inception in 2013, she has served on the Student Success and Equity Committee at Modesto Junior College, collaborating with faculty and staff in the planning, implementing, monitoring, and evaluation of the Student Success and Support Program, Student Equity Plans, and Basic Skills Initiative. Her experience in this committee led to her application in the CSUS Ed.D program. Currently, she holds a bachelor's degree in social science and a master's degree in history, both from CSUS. Her concentration within educational leadership is on community college equity planning and assisting

in gaining a greater awareness of the social justice efforts needed in the local Modesto community concerning all students. Through her Ed.D. she hopes to become a community leader working towards reducing inequality levels for P-20 students, either in community college administration, or a community non-profit group.

Campbell Bullock is an adjunct associate professor of sociology at San Joaquin Delta College in Stockton, California. He is also a lecturer in the Sociology and Gerontology Department at California State University, Stanislaus. In addition, Campbell is the executive director for an applied social research and evaluation organization, the San Joaquin Community Data Co-Op. He has fifteen years of applied social research experience and has worked on state, federal, and local evaluation projects. He holds a bachelor's degree in sociology from the University of California, Davis, and a master's degree in sociology from San Jose State University. His interests in the field of educational leadership include combating inequities for P-20 students, education and social change in impoverished communities, and teaching pedagogy and leadership in the community college setting.

Amelia Herrera is a high school English language development teacher within the Language Institute at Grace Davis High School in Modesto, California. She is passionate about her work with immigrant, refugee, and asylum-seeking students, as she is not just their teacher of English, but their advocate, and their biggest cheerleader. This year marks her 10th year doing this work. Leading up to her teaching career, Amelia obtained her bachelor's degrees in both English and Chicano Latino studies from CSU, Fresno and her master's degree in education and her Pupil

Personnel Services Credential from CSU, Stanislaus. Currently, Amelia is also the state treasurer for the United Black Student Unions (BSU) of California, where she is working with the board president and fellow members to develop curriculum surrounding African and African American history with the end goal of it being implemented as core BSU club discussion topics across California. She takes pride in helping to advance and empower all youth but is especially concerned with ensuring youth of color feel a great sense of empowerment. Amelia hopes that her work in the Educational Leadership program at CSU, Stanislaus allows her the opportunity to become a leader in a local educational organization so that she can implement the changes that will provide a more equitable and quality education for each and every student in her schools.

CHAPTER II

REVIEW OF THE LITERATURE

Included in this literature review is a discussion of the measures articulated by national and international health organizations that relate to child well-being and educational success. From these we drew five indicators of focus that are SES/levels of poverty, sufficient housing, violence and crime levels, and availability of and access to health care and community resources. Following this discussion, we reviewed the US educational policies, practices, and the potential barriers to achieving success with all students to complete the picture of what is needed for students to be ready and able to learn and succeed in schools.

Where You Live Matters: The Importance of Place

The direct effect that place, or the environment, has on a person living within it was first mentioned in 1899 by W.E.B. DuBois, when he wrote, “this we must know in regard to the Negro if we would study his social condition. His strange social environment must have immense effect on his thought and life, his work and crime, his wealth and pauperism” (p. 284). Over a century later, people are still connecting place with all facets of a person’s life chances. Stemming from Anthony Iton’s 2016 article “Health Hazards” in *The Crisis* magazine, the California Endowment explains that “you’re zip code shouldn’t determine how long you live, but it does. In fact, health has more to do with place than doctor’s visits. The odds are stacked against low-income communities and communities of color” (The California Endowment,

Building healthy communities, 2018, para. 2). Like DuBois over a hundred years before, Iton's place-based approach is that the neighborhoods where we live, work, play and pray have a profound impact on our health, and that opportunities for well-being—such as healthy food and health care—must be available in the communities where we live (The California Endowment, Building healthy communities, 2018). From stable and sufficient housing, to supportive neighborhood amenities, to the availability of protective health resources—such as good schools—the environment impacts child health and well-being in significant ways, that all may affect their educational success.

Understanding how place affects health, requires identifying why, as Iton states, “the odds are stacked against low-income communities.” Past studies have revealed the association between low SES and negative physical health consequences, such as difficulties with type II diabetes, heart disease, and hypertension (McEwen & Mirsky, 2002; Poulton & Caspi, 2005), all of which can be elevated due to stress levels. However, according to the World Health Organization (WHO) “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity,” (WHO, 1946, p.1). Thus, it is necessary to consider not only how physical health is affected by place and a child's environment, but also the cognitive and psychological effects their immediate surroundings may have on their overall well-being as this relates to educational success. Research has shown that throughout childhood and adulthood, health and educational achievement can be influenced and affected by exposure to low SES environments (Cohen, Doyle,

Turner, Cuneyt, & Skoner, 2004; Commission on Social Determinants of Health, 2008; Melchior, Moffitt, Milne, Poulton, & Caspi, 2007; Miller & Chen, 2007).

Social scientist Robert J. Sampson (2012) notes, “we need to take seriously the neighborhood contexts within which families live and make choices, treating those contexts as independent objects of theory and empirical study” (p. 12). To do this we need to explore what constitutes positive child health and well-being, and thus, we turn to health organizations, foundations, and commissions from across the United States and around the world that have articulated measures necessary for children to reach optimal health and be better prepared for learning. These measures let us know if children are in line for the health and well-being necessary for reaching their educational goals, and many of these measures connect directly with place and poverty. One measure that multiple health organizations agree on is access to health care. The World Health Organization (WHO), The U.S. Department of Health and Human Services (HHS), and the United Health Foundation (UHF) promote and contend that access to health care is vital to a child’s health and wellbeing, although this access is not always a guarantee for various groups, including low-income children.

The first health organization, WHO, known for working in coordinated efforts with the United Nations across the globe, labors to ensure the highest attainable level of health for all people. Created in 2005, the Commission for Social Determinants of Health (CSDH) was a “global network of policy makers, researchers and civil society organizations brought together by WHO to give support in tackling the social causes

of poor health and avoidable health inequalities (health inequities)” (WHO, Social determinants of health, 2018b, para. 1). The CSDH’s 2008 final report of its recommendations, titled “Closing the gap in a generation” advocates universal health care, arguing “inequities in health care are related to a host of socioeconomic and cultural factors, including income, ethnicity, gender, and rural/urban residency,” and concluding that “health-care systems are a vital determinant of health” (CSDH, Closing the gap, 2008, p.94). Moreover, this report cites that to maximize the health of a child, that child, his mother, and his caregivers must have comprehensive packages of quality early health care programs (CSDH, Closing the gap, 2008, p. 50).

The U.S. Department of Health and Human Services (HHS) also promotes access to health care for all. With a mission to “enhance and protect the health and well-being of all Americans...by providing for effective health and human services and fostering advances in medicine, public health, and social services,” (HHS, About HHS, 2018b, para. 1), the HHS launched Healthy People, a science-based objective that strives to improve the health of all Americans (HHS, About Healthy People, 2018b). The latest Healthy People, Healthy People 2020, finds that routine checkups, early screening, and ongoing access to preventative care plays a vital role in the lives of all people, specifically children (HHS, Healthy People 2020: Access to health services, 2018c). HHS contends “to obtain high-quality care, Americans must first gain entry into the health care system,” yet “historically, Americans have experienced variable access to care based on race, ethnicity, socioeconomic status, age, sex, disability status, sexual orientation, gender identity, and residential location” (HHS,

National health care quality report, 2018e). Hence, like the WHO, HHS also argues that although access to health care is vital for the health and well-being of families, this access is not always guaranteed to certain groups, especially those with low SES.

The last health organization discussed that argues for access to health care is the United Health Foundation (UHF). Known for their commitment to partnering with communities around the United States to develop and support innovative and evidence-based ideas that assist in the efficiency of health care systems, the UHF puts forth an annual America's Healthy Rankings report. The 2016 America's Health Rankings Health of Women and Children Report states:

Underinsured children are significantly more likely to have delayed or forgone care and to have difficulty obtaining needed specialist care. Older children, Hispanic and non-Hispanic black children, those with special health care needs, and those who are not in very good or excellent health are also more likely to be underinsured. (p. 53)

Thus, while access to health care is vital, this report states that not all children will have the opportunity for this access, much in line with what the WHO and the HHS contend.

Besides access to health care, there are other measures these health organizations recommend for child health and well-being. While these measures are all interconnected to poverty, the main premises include sufficient housing, protection from violence and crime, and availability and access to healthcare and community resources. Sufficient housing may constitute a protective early home environment.

The UHF's 2016 America's Health Rankings Health of Women and Children Report claims that "the early home environment of children has long term effects on their development and well-being. Young children with a protective home environment have better language development, problem solving and social skills, as well as lower risks of chronic diseases" (p. 52). Protective home, community, and school environments often refer to the protection of children from unhealthy exploitation and abuse, including violence. Moreover, the UHF report (2016) notes that neighborhood amenities "such as playgrounds, sidewalks, walking paths, libraries, and community centers, offer opportunities for recreation, social interaction, and education without traveling far from home" (p. 51), as well as stating that living in supportive neighborhoods—such as ones that offer role models and positive social connections—can impact healthy child development. Thus, place matters, not only because of the physical conditions residents find themselves in, but because place correlates to so many of their possible life chances (Drier, Mollenkopf, & Swanstrom, 2004).

Consequently, where you live determines so much of what your direct environment entails and understanding place as a characteristic of children is critical for determining the health and well-being relative to educational success. The significance of studying community data with a focus on place keeps with the reality that the various social difficulties, such as social and physical disorder, "tend to come bundled together geographically," thus, looking at children's health and well-being as a concept to work towards, should be understood and researched at the neighborhood

level (Sampson, 2012, p. 14). Being able to access health care is one part of place, along with the conditions of a child's family and social environment, as well as their economic circumstances—such as poverty levels and food security. A child's immediate physical environment is a direct part of place, including if there is sufficient housing that is free of health-related problems, such as access to clean water and free of lead contaminants. Place also includes determining levels of safety, and if children are living in neighborhoods free of violence and crime. Sampson (2012) argues “before there can be a robust civic life and the next generation can learn, we must first have safe communities” (p. 12), thus, safety concerns, like other measures, connect directly to education. And this all relates to the immediate educational environment a child is in, from early child educational opportunities available within the community to how school attendance zone boundaries affect the students within them.

Five Health and Well-being Indicators Necessary for Educational Success

A set of five indicators that potentially affect student health and well-being, and thus education, were selected for study and comparison between the two school sites of Orville Wright and Lakewood elementary schools, both within the Modesto City School district. These indicators were selected as they appeared in all of the reports from the previous health organizations (WHO, HHS, UHF) who study factors that affect childhood health. The five indicators are socioeconomic status (SES)/levels of poverty, sufficient housing, violence and crime levels, availability of and access to health care and community resources. These five indicators are

interconnected, and all relate to place because as Galster (2012) declares “where one lives is the most fundamental component of the opportunity structure because it significantly influences every other component,” (p. 52).

Indicator One: Poverty: Socioeconomic Status (SES) & Levels of Poverty

The poverty status of communities is interconnected to a host of health and educational barriers, thus schools in disadvantaged neighborhoods face severe challenges (Berliner, 2005, 2009), and the SES of a neighborhood has been positively associated with educational outcomes (Harding, 2003). Moreover, childhood poverty that is clustered in community settings can produce consequences related to child development and learning (Tate & Hoglebe, 2015), with the geographic placement of poverty being interdependent with educational attainment and health of children, producing experiences differing from those in more affluent communities (Jones, Harris, & Tate, 2015). Among other factors, poverty has been found to negatively impact youth throughout their development (Murry, Berkel, Gaylord-Harden, Copeland-Linder, & Nation, 2011), with high concentrations of poverty within school attendance boundaries producing detrimental impacts on children whose families are already financially disadvantaged (Saporito & Sohoni, 2007). The subtopics discussed in chapter four that relate to this indicator include—poverty level, median incomes, unemployment rates, food insecurities, and existence of government assistance—around these two elementary school sites.

Indicator Two: Sufficient Housing

As defined by the Children's Bureau under the HHS, protective factors to promote well-being "are conditions or attributes in individuals, families, communities, or the larger society that, when present, mitigate or eliminate risk in families and communities that, when present, increase the health and well-being of children and families," (Protective factors to promote well-being, 2018, para. 1). Thus, directly connected to the protective home environment recommended by many of the leading health organizations data concerning sufficient housing, or the lack thereof, has the capability to shed insight on the health and well-being of school children within these communities. Sufficient housing conditions relate to necessary housing features that can affect child health. These may include housing which is free of environmental toxins (such as lead), has acceptable indoor climate conditions (heat, indoor plumbing, electricity, etc.), is structurally sound, includes smoke alarms, has sufficient lighting and safety devices, is clean, and located in safe neighborhoods (Vandivere et al., 2006). Consequently, a lack of sufficient housing is associated with low SES neighborhood concerns related to low levels of home ownership in an area, usually related to a deficiency of homeowner financial investment and the absence of stable environments for child health and well-being (Haurin, Parcel & Haurin, 2002). Moreover, sufficient housing is related to the interdependence of health, education, and place as related to the geography of opportunity (Jones et al., 2015). The notion of geography of opportunity proposes that where individuals live affects their opportunities (Rosenbaum, 1995). Research related to the geography of opportunity

studies the spatial relationship between neighborhood-communities and schools (Green et al., 2017), and includes as a focus poverty, place and educational outcomes (Tate, 2008). Subtopics related to sufficient housing include the effects on children's health and well-being that homeownership, residential stability, quality of the home, and affordability can have, as well as the lack of housing, or homelessness that some children within these communities may be experiencing.

Indicator Three: Violence and Crime Levels

Crime is another key indicator that may expose significant aspects of place that can negatively affect children's health and well-being (Galster, Hayes, & Johnson, 2005). Importantly, crime is considered an "out-of-school factor" that is related to neighborhood characteristics which impact health and educational opportunities for children, especially those living in low SES communities (Berliner, 2009). Related to the overall concept of children's health and well-being, crime can have a significant impact on childhood physical activity, such as when crime and violence creates an indirect influence through fear (Foster & Giles-Corti, 2008; Kneeshaw-Price et al., 2015; Loukaitou-Sideris, 2006; Loukaitou-Sideris & Eck, 2007; Mijannovich & Weitzman, 2003; Roman, Knight, Chalfin, & Popkin, 2009). Additionally, violence and crime can have considerable effects on cognitive and psychological factors relating to child development, with cognitive developmental effects of violence and crime directly influencing a child's academic success (Bowen & Bowen, 1999; Burdick-Will, 2016; Mattarella-Micke & Beilock, 2012; Milam, Furr- Holden, & Leaf, 2010; Sauro, Jorgensen, & Pedlow, 2003; Schwartz & Gorman,

2003; Sharkey, 2010). Consequently, communities and schools with higher levels of violence and crime have a greater negative impact on school performance (Bowen & Bowen, 1999).

Additionally, the impact of neighborhood features and land-use as related to crime and children's overall health and well-being is of significance. Studies have found commercial and other non-residential land-uses, such as industrial areas, are significantly associated with violence and property crime rates (Cahill, 2005; Lockwood, 2007; Stucky & Ottensmann, 2009). Thus, residents in communities that are surrounded by non-residential land-use have been found more likely to perceive their neighborhood and community affected with higher levels crime and social and physical disorders—such as vandalism, vacant lots, and closed-up store fronts (McCord, Ratcliffe, Garcia, & Taylor, 2007; Wilcox, Quisenberry, Cabrera, & Jones, 2004). The subtopics related to crime and violence include its effects on health, its influence on educational outcomes and the land-use of the geographic environment—including a consideration of any commercial and industrial land uses nearby.

Indicator Four: Availability of and Access to Health Care

Child health and well-being, vital for educational success, necessitates gaining entry into the health care system, which requires health insurance coverage and having proper access to the facilities where health care services are provided. Healthy People 2020 defines access to health care as having insurance coverage, the ability to access health services through geographic availability, and a timeliness of care (HHS, Healthy People 2020: Access to health services, 2018c). To realize and sustain good

health for children, the component of having health insurance is critical in providing medical care (United Health Foundation, 2016). Additionally, early health care programs, accessed through health insurance coverage, maximizes the health of children and their families (WHO, 2018a), by providing routine checkups, early screening, and ongoing access to preventative care playing a vital role in the lives of all people, specifically children (HHS, 2018a). Consequently, acquiring access to health insurance for children influences their educational attainment (Cohodes, Grossman, Kleiner, & Lovenheim, 2014), with reading test scores increasing for children with health insurance coverage and with the expansion of health care improving overall classroom performance (Levin & Schanzenbach, 2009). While the leading health organizations—such as WHO, HHS, and UHF—all promote and contend that access to health care is vital to a child’s health and wellbeing, this access is not always a guarantee for various groups, including low-income children. High insurance costs, absence of coverage by employers, a lack of knowledge regarding eligibility by individuals, or undocumented and the inability to obtain insurance are all reasons that people may remain uninsured (Alameda County Public Health Department, 2008), and thus live without access to health care and the critical services they provide in assisting children in staying healthy for school. In areas where residents who are underinsured, and thus have a shortfall of coverage to meet their medical needs, the availability of community health centers are critical (Pancholi, 2001). Consequently, in these areas without community health centers, a lack of transportation can compound access to health care. Thus, subtopics for this

section in chapter four include health insurance coverage and access to health care facilities.

Indicator Five: Availability of and Access to Community Resources

Playing an indispensable role in childhood health and well-being for educational success is living within a community where there is access to the resources and opportunities to make healthy choices. Health may be influenced by a combination of access to health care, genetics, and personal choices (Bay Area Regional Health Inequalities Initiative, 2017), thus, health outcomes can be more heavily impacted by the available resources and choices in one's community and less from the amount of health coverage one has (The California Endowment, 2018). Living in a community rich in social, physical, and economic resources is a key indicator for childhood wellness and academic success. Resource-rich communities are where residents have the resources and opportunities to make healthy choices and have access to healthy foods and transportation, feel safe, and where the environment has a solid infrastructure or built environment. In relation to healthy food, nourishing communities provide not only accessible food, but also food that is affordable and nutritious (California Department of Health, 2014). And while children whose nutritional needs are met have fewer attendance and discipline problems and are more attentive in class (CDE, National School Lunch Program, 2017), the lack of healthy foods in a child's diet—such as fruits, vegetables, or dairy products—is associated with lower grades among students (Centers for Disease Control, Health and Academic Achievement, 2014). Accessing healthy food and other resources is

dependent upon a community which provides transportation efficiency and high levels of walkability, or “appealing and comfortable pedestrian street environments” (National Center for Environmental Health, LEED-ND and Healthy Neighborhoods, 2011, para. 2). Neighborhoods maintain feelings of safety by, among other measures, maintaining easily accessible transportation or safe walkable areas to and from school or work.

Overall, the built environment, or the physical design of our neighborhoods and communities, can improve or worsen child health and well-being (National Center for Environmental Health, Built Environment and Health Initiative, para. 1 2011). A built community is comprised of almost all the places in which children live, grow, learn and play (Frumkin & Dannenburg, 2007), including neighborhood parks (Ginsburg, 2007). The subtopics within the community resources section include: the access to healthy foods, safety concerns, transportation availability, and an examination of the solid infrastructure and built environment—such as the presence of sidewalks, community organizations and open green spaces.

These five indicators are all crucial for educational success for the children living within the two communities of Airport and Lakewood. While poverty may be the most influential factor in unequitable educational outcomes, the housing environment, along with violence and crime levels, also play significant roles. Moreover, access to health care and insurance, and having the opportunity to utilize positive community resources is vital to child health and well-being relative to

educational success. The next section discusses the social and educational contexts and the ways the US has attempted to ensure equal educational outcomes.

U.S. Educational Policy, Practice, and Equal Opportunity and Equity

Success later in life, in college and/or in career, has a correlation with a person's educational journey. In this section, we look at some of the various academic markers that educators strive to get students to reach, along with some of the barriers students may face in reaching these educational goals and measurements. However, to put these indicators and barriers into context, it is important to note some of the key changes in education over time intended to bring about equal opportunity and for all students.

Beginning in 1965 with the passage of the Elementary and Secondary Education Act (ESEA), including the Title I provisions, the US has attempted to legislate and fund efforts to bring about equal educational opportunity for all students. The purpose of Title I is “to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State [sic] academic achievement standards and state academic assessments” (U.S. Department of Education, Title I, 2004, para. 2). This same year Head Start was established, designed “to help break the cycle of poverty, providing preschool children of low-income families with a comprehensive program to meet their emotional, social, health, nutritional and psychological needs” (HHS: Office of Head Start, History of Head Start, 2018, para. 2), to level the playing field and ensure equal educational opportunity. Following in 1972 was the passage of Title IX, which

the U.S. Department of Justice explains, “is a comprehensive federal law that prohibits discrimination on the basis of sex in any federally funded education program or activity” (U.S. Department of Justice, Overview of Title IX, 2015, para. 1) and another effort to bring about equal opportunity in education. Additionally, to ameliorate discrimination and provide equity opportunity for all students there was the passage of the Equal Educational Opportunities Act in 1974. This act prohibited states from denying equal educational opportunity to students because of their race, color, sex, or national origin.

Continuing the legislative attempts to ensure equal educational opportunity, in 2002 President George Bush signed into law a reauthorization of the ESEA—the No Child Left Behind (NCLB) Act of 2001—which put into place a set of performance criteria for K-12 general education in the United States—and remained law from 2002-2015 (U.S. Department of Education, No child left behind, 2018). NCLB, criticized for its heavy reliance on standardized testing, was replaced by the Every Student Succeeds Act (ESSA) in 2015 and signed into law by President Barack Obama. The new law shifts a larger amount of school performance accountability from the federal government to the states. According to the U.S. Department of Education the law supports critical protections for “disadvantaged and high need students,” and thus progresses equity, as well as “requires—for the first time—that all students in America be taught to high academic standards that will prepare them to succeed in college and careers” (U.S. Department of Education, Every student succeeds act, 2018). Thus, from the ESEA in 1965 to ESSA in 2018, the federal

government has made key changes in educational policy in hopes of bringing about equal opportunity and high standards for all students. While these efforts have been important steps in assisting students to attain a fair and equal education, school readiness demands have been increasingly growing. Early endeavors in a student's life by parents and schools may help in ensuring academic success throughout a child's educational pathway and assist in a foundation for completion of later college and career readiness goals.

School Readiness, Preschool and Early Childhood Education

Success in school and later starts early on for a child. Levin (2012) argues “even prior to school attendance there must be an effort to provide quality preschools and adequate nutrition, health status, and housing as preconditions to school success” (p. 228). Thus, again place connects with every facet of the opportunity structure of a child to lead a healthy life, especially in building the groundwork for later educational success. Researchers at the Center for the Developing Child at Harvard University indicate that “by creating and implementing effective early childhood programs and policies, society can ensure that children have a solid foundation for a productive future” (Harvard, Inbrief: Early childhood program effectiveness, 2007, p.1). This foundation allows students to build the skills and mastery of language and concepts. Accordingly, as noted by Coley, “researchers...have found that students who enter kindergarten with certain basic reading skills are more likely to advance rapidly in their reading abilities” (2002, p. 8).

As well as the essential basic needs of children, educational systems, practices, and policies in the United States focus on the importance of early childhood education with the aim of increasing academic success. This includes access to preschool, and, a high quality preschool education. These high quality preschool programs can generate significant positive impacts on later student performance, particularly for families from minority, immigrant, and low-SES backgrounds (Magnuson, Meyers, Ruhm, & Waldfogel, 2007). Magnuson, Meyers, Ruhm, & Waldfogel (2004) found that “children in center-based preschool programs in the year prior to school entry have better reading and math skills, and this advantage persists to the spring of first grade. These children were also less likely to repeat kindergarten” (p. 141). These center-based preschool programs are a type of early education delivered in a community or school-based setting, thus Magnuson et al., argues this type of setting and entrance to the educational environment for preschoolers helps to improve educational success in the near future. Engle and Black (2008) add that “in developed countries, an increasing body of evidence suggests that providing high-quality preschool experiences, combined with parent involvement and improvement of health status, can have significant effects on children’s language and cognitive skills by age 5” (p. 6). Accordingly, Levin (2012) notes that “it is clear that early deficiencies in health care and exposure to skills required for success in school can be compensated for by quality preschools and health services” (p. 221). A central question is whose children have access to high quality health care and early education and does this differ by the communities in which these children live?

Common Core and College and Career Readiness Standards

Beyond school readiness, with ESSA there is now a keener focus on readiness for college and/or career. To prepare students for college and career many states have implemented the Common Core State Standards (CCSS). The CCSS “describe what students should know and be able to do in each subject [and] in each grade” and in California are in place for all K-12 students (California Department of Education, Common Core State Standards, 2017, para. 1). These standards include a focus on being “research- and evidence-based” as well as “clear, understandable, and consistent” and they are designed to be “aligned with college and career expectations” (Common Core State Standards Initiative, About the standards, 2018, para. 6). The Common Core Standards were designed to provide students, regardless of where they live, the skills and knowledge essential to succeed in college and in careers (Common Core State Standards Initiative, About the standards, 2018).

In addition to the Common Core Standards, the United States Department of Education has a set of College and Career Ready Standards. The United States Department of Education notes that “it's critical that, collectively, we raise the bar so that every student in this country—regardless of socioeconomic status, race, or geographic location—is held to high learning standards that will ensure students have the skills to compete in today's global, knowledge-based economy” (United States Department of Education, College- and career-ready standards, 2018, para. 1).

Along with the Common Core framework, a key marker of academic success is the ability to read with proficiency by the third grade. Musen (2010) explains, “by

third grade, students are expected to know the fundamentals of reading and be able to apply their reading skills across the curriculum. Students are not being taught how to read anymore in third grade” (p. 1). A longitudinal study by Lesnick, Goerge, Smithgall, and Gwynne (2010) found that third grade reading level was a predictor of graduation and college attendance. Moreover, third grade reading proficiency is so important due to the changes in the learning environment that take place from third to fourth grade. Up to fourth grade, students are learning to read, and once in fourth grade, they transition to reading to learn (Fiester, 2010). In addition, the Children’s Reading Foundation (2018) states:

Without a strong foundation in reading, children are left behind at the beginning of their education. They lag in every class, year after year because more than 85 percent of the curriculum is taught by reading. And by the end of third grade, 74 percent of struggling readers won’t ever catch up. In fact, one of the most important predictors of graduating from high school is reading proficiently by the end of third grade. (Third grade reading success matters, para. 3)

Thus, third grade reading proficiency is a significant indicator concerning educational success.

In conjunction with reading proficiency, math proficiency is an indicator of academic success. A full range of research indicates that math proficiency at an early age is crucial for success in school. Watts, Duncan, Siegler, and Davis-Kean (2014) found that the development of math skills in preschool predicts later success with

math up to the age of 15, and Geary, Hoard, Nugent, and Bailey (2013) indicated that early knowledge with numbers and math “contributes to individual differences in adolescents’ functional numeracy and demonstrated that performance on mathematical achievement tests underestimates the importance of this early knowledge” (n.p.). In addition, Pellegrino and Hilton (2012) indicate that for children to be able to reach their “full potential as adults...[they] need to develop a range of skills and knowledge that facilitate mastery and application of English, mathematics, and other school subjects” (Summary, p. 1).

Consequently, as these are essential indicators of success, the question here is does where a child live have an effect on academic proficiency rates?

Poverty and Educational Outcomes

The ways in which researchers have studied and viewed educational contexts over time illuminates the significance place and community can have on students from marginalized neighborhoods. The perceived isolation and detachment of the Airport community has led to concerns related to low SES areas and the health and well-being of children within them relative to their educational success. A brief review of how socioeconomic constraints affect educational contexts is necessary because when childhood poverty is isolated in areas this can have a negative impact on child development and learning (Jones et al., 2015; Tate & Hoglebe, 2015; Ventegodt, Merrick &, Andersen, 2003). Wells et al. (2012) reminds us:

When boundaries divide people not just in terms of which public utilities they use or the value of property they own, but also the quality and reputation of

the public schools their children attend, they have long-term implications for the health and well-being of the society as a whole. (p. 126)

Review of socioeconomical influence on educational contexts begins with the notable, albeit controversial, Coleman Report in 1966, which found through extensive surveys requested by the Civil Rights Act of 1964 that minority students who were insulated from their White counterparts had lower academic achievement and ultimately found these racial disparities were due to socioeconomic differences within their relative contexts (Coleman et al., 1966). Moreover, Jencks (1972) continued the focus on the importance of socioeconomic factors for students and found greater academic achievement was reached for both Black and White students as long as they attended schools where a large percent of the students were from higher socioeconomic backgrounds. By the 1970s Bourdieu's cultural capital concept was adding new dimensions to the understanding of social structure influences in education. Bourdieu's argument gives weight to social class distinctions and ties with geographic concerns because he suggests people belonging to similar social classes share community contexts; he adds that they also have the desire to enroll their children in analogous schools with shared learning goals (Bourdieu, 1977).

The cultural and social capital ideas theorized by those like Bourdieu were further applied to educational theory in the 1980s. Johnson (2012) elaborates on how during this time theorists defined social capital as "the human capital, relationship norms, and possible mobility one acquires from interacting with another who possesses greater human or social capital" (p. 35). Accordingly, from these theories

we have come to understand how the capital of growing an individual's or community's social resources was either heightened in neighborhoods possessing large amounts of resources or diminished in neighborhoods with few to no resources or educational opportunities. Research studies conducted in the 1990s continued to discover that correlations between student and school socioeconomic levels affected academic achievement (Caldas & Bankston, 1997; Crane, 1991; Entwisle, Alexander & Olson, 1997; Mayer, 1991; Rumberger & Willms, 1992; Rusk & Mosley, 1994; Schellenberg, 1999). In addition, some studies at this time concluded that student SES outweighed race in influencing educational outcomes (Chubb & Moe, 1997). More contemporary studies continue to find that marginalized children are likely to be found enrolled in schools in neighborhoods that have high levels of poverty (Orfield & Lee, 2005). For example, Saporito and Sohoni (2007) analyzed attendance boundaries of high poverty schools using GIS and census data concluding, "elevated concentrations of poverty in public schools are likely to have a particularly deleterious impact on young children whose families are already economically disadvantaged" (p. 1246). Consequently, efforts made in closing the achievement gaps between the various socioeconomic statuses of students need to incorporate an understanding of how underprivileged students become socially isolated, stress Saporito and Sohoni (2007).

In addition to understanding how we have studied educational outcomes as they relate to community levels of SES, it is important to understand how poverty can be a barrier for children in reaching their educational goals. Through effecting

children's health and well-being, poverty can have significant impacts on educational success. Research has suggested a positive relationship concerning neighborhood SES and educational attainment (Ceballo, McLoyd, & Toyokawa, 2004). Thus, highlighting the significance place has for many low SES families and communities. Students do not live in a school environment vacuum, but in a larger community full of environmental facets that all may affect their direct school environment and educational outcomes. Levin notes:

Education takes place in a far larger context than schools. Most of the waking hours of a child between the ages of 0 and 18 are accounted for by out-of-school experiences. Children are subjected to influences outside of schools that can either promote or blunt productive learning and that can either support or undermine the efforts of schools. (2012, p.217).

Thus, to improve the education of low-SES students, improvements are needed in all areas that may affect their educational success, not just by improving the schools themselves.

Of significance is that many of the dynamics concerning poverty are found in these out of the core school environment settings. According to Berliner (2009), out-of-school factors (OSFs) “play a powerful role in generating existing achievement gaps,” with these OSFs being common among lower SES student populations and can “significantly affect the health and learning opportunities of children, and accordingly limit what schools can accomplish *on their own*” (p. 1). The six OSFs Berliner (2009) addressed are: low birth-weight and prenatal influences (non-genetic), inadequate

health care, food insecurity, pollution, stress within families, and characteristics in neighborhoods. Berliner's argument is that these OSFs are correlated with "poverty-induced physical, sociological, and psychological problems that children often bring to school" (p. 1) and adds:

Because America's schools are so highly segregated by income, race, and ethnicity, problems related to poverty occur simultaneously, with greater frequency, and act cumulatively in schools serving disadvantaged communities. These schools therefore face significantly greater challenges than schools serving wealthier children, and their limited resources are often overwhelmed. (p. 1)

Therefore, poverty has a powerful and negative impact on a community's resources which in turn have a negative impact on a child's school readiness and later achievement (Hair, Halle, Terry-Humen, Levelle, & Calkins, 2006).

Through the research of national and international health organizations our team has found that place matters in association to a child's health and well-being relative to their educational success. Health organizations, like WHO, promote and contend that certain measures are vital to a child's physical, cognitive and psychological health. While these measures are all interconnected to poverty, the main premises include access to health care, sufficient housing, protection from violence and crime, and availability of and access to community resources. Thus, our team's five indicators for the health and well-being relative to educational success for children are directly based on these measures. The interdependency of these

indicators on poverty has serious implications for a child's educational success and later achievement in college and career. While efforts by the US related to providing educational opportunity for all students have attempted to level the educational playing field, the reality is that students may continue to face challenges and encounter barriers in their educational pathways, often put into place due to geographic circumstances. City, community, and school district leaders need to have a thorough understanding of these geographic challenges within these communities and the potential consequences these challenges portend for the educational outcomes of students. These geospatial socio-structural issues have never fully been addressed with a focus on the Orville Wright community, and furthermore, the local knowledge and educational literature related to this is lacking.

CHAPTER III

METHODOLOGY

The fifth most uneducated city in the United States (Dill, 2014), Modesto, is largely served by the Modesto City School (MCS) district. The mission of Modesto City Schools (2018) is “to offer rigorous, relevant and diverse educational programs that engage all students in reaching individual potential for college and career readiness,” (Modesto City Schools, Mission, para. 2). The elementary district of MCS had 25% of students who met or exceeded the California Assessment of Student Performance and Progress (CASPP) standards for the English Language Arts (ELA) test and 15% of students who met or exceeded the Mathematics test for 2014-15, which is below the state average of students who met or exceeded these standards of 44% and 33%, respectively, for the same year (Education Data Partnership, 2017). Furthermore, only 36.5% of MCS graduates completed all the courses (referred to as the A-G requirements) required for UC and/or CSU entrance for 2014-15, 6.9% below the state average (Education Data Partnership, 2017). Of even greater concern is the significant variance in academic achievement among the Modesto elementary campuses. For example Orville Wright Elementary, located in one of the poorest areas of Modesto, had only 17% of students who met or exceeded the ELA standards and only 13% of who met or exceeded the mathematics standards for 2014-15 (Orville Wright Elementary, Student Accountability Report, 2016); whereas Lakewood Elementary, which is located less than three miles away from Orville

Wright and is one of the wealthier schools, had 76% of students who met or exceeded these same standards in ELA and 65% for mathematics in the same year (Lakewood Elementary, Student Accountability Report, 2016).

Factors often associated with communities of concentrated poverty, like the Airport neighborhood where Wright Elementary is located, include insufficient housing, high violence and crime levels, low socioeconomic status (SES)/levels of poverty, and lack of availability of and access to health care and community resources, which can have significant impacts on the students living in these communities and affect their success in school (Berliner, 2005, 2009; Bowen & Bowen, 1999; Burdick-Will, 2016; Cohodes, et al., 2014; Harding, 2003; Levine & Schanzenbach, 2009; Tate, 2008; Tate & Hogrebe, 2015; Saporito & Sohoni, 2007; Vandivere et al., 2006). The interaction of these factors makes educating students living in these areas far more difficult for educators and some insist that without changes in the family and community that the challenges in educating the students are just too great and should not be placed solely on the schools.

If this is the case and cities and school districts want to improve the achievement and ultimately the life circumstances of their most vulnerable students, then those in positions of leadership in the city, community, and school district need to have a thorough understanding of the challenges within these communities and the potential consequences these challenges portend. This will provide them with the necessary information to work together to make informed and deliberate decisions

regarding policy and practices to improve the communities and the schools and thereby the health, safety, and education of their children.

The issues associated with the health and well-being of children relative to educational success have never fully been addressed with a descriptive social epidemiological approach for the Orville Wright community and, furthermore, the local knowledge and educational literature related to this is lacking. Therefore, our research question was—What are the socio-structural factors within the Orville Wright Elementary attendance zone and community that may be affecting the health and well-being of the students and how does this compare to these same factors within the Lakewood attendance zone?

Context

The History of Modesto

The 18th largest city in California, Modesto, had a population of 207,482 in 2015 (U.S. Census Bureau, 2016) and is the county seat for the surrounding agriculturally diverse Stanislaus County in the San Joaquin Valley. With San Francisco to the northwest, Sacramento and Stockton to the north, and the historic Gold Country and Yosemite National Park to the east, Modesto's central location provides its residents with many advantages. The multiple state highways and major railroads in or near Modesto, along with its mild climate, allow the city to continue to attract newcomers and industry.

Carved out of the existing Tuolumne County, the founding of Stanislaus County in 1854 signaled the start of Modesto's historical roots. Originally vast wheat

fields (Cox & Cox, 1977; Harrison, D, 1977; Tatum, 1994), the would-be town was envisioned by the Central Pacific Railroad and its owners, the Big Four— Charles Crocker, Collis Huntington, Mark Hopkins, and Leland Stanford (Bare, 2010; Tatum, 1994). Their aspiration to build a railroad through the Central Valley, with the completion of the first transcontinental railroad in 1869, set in motion the existence and future of Modesto. By 1870 the railroad had purchased 160 acres of land in the area, which provided ample room for the anticipated town to be built around a new railroad station (Bare, 1999). In the final months of 1870 the first train reached the fated township that by December had 75 buildings, many of which were relocated from neighboring small villages and towns (Bare, 1999; Brotherton, 1978; Jensen, 1983).

When the financier and director of the railroad, William C. Ralston, modestly objected to the new town being named after him, the town was named Modesto, Spanish for modest (Baggese, 2009; Bare, 2010; Tatum, 1994). Like other railroad towns, the early occupants of the settlement included nearly 500 Chinese, who had helped build the railroad (Bare, 1999). Before officially becoming a chartered city in 1884, the town was known for its lawlessness and vigilante justice (Baggese, 2009; Maino, 1978; Rader, 1978; Tatum, 1994). Governed by Stanislaus County law, it was often left on its own with its dance halls, gambling parlors, prostitution houses, opium dens, and red-light district (Baggese, 2009; Bare, 1999; Rader, 1978; Tatum, 1994).

By the early 1900s its rough and tumbling days were dwindling, yet “China Alley” between 7th and 8th and G and H streets still caused problems for city officials

and law enforcement (Bare, 1999). In 1910 the population of Modesto (4,034) had doubled from the 2,204 population of 1900, and citizens who wanted further development voted for a new city charter, which included elections for city councilmen in charge of departments for public health and safety, public works, finance and revenue, and public supplies (Bare, 1999). The 1910 charter also mandated an election of a school board and included the intention to build the nation's first municipally owned airport (Bare, 1999; Tatum, 1994).

By the 1920s, due to the successful implementation of one of the first and largest irrigation districts in 1904, Modesto's surrounding agricultural economy, including multiple dairies and fruit and nut orchards, were profitably diversified (Bare, 1999; Bare 2010). The newly implemented irrigation districts endorsed this drive for diversification and ushered in the city's "booster" period during the early 1910s, when local civic groups pushed to increase the town's population. One of the booster slogans was "From Stanislaus' rich plains, foothills and mountains grow oranges, peaches, walnuts and olive oil fountains" (Bare, 2010, p. 108).

The flourishing agricultural economy also allowed residents to better weather the Great Depression that hit other farming communities hard in the 1930s (Bare, 1999; Bare 2010). The agricultural success brought more canneries, processing plants, and packing sheds along with the laboring jobs, including seasonal help needed to operate them (Creisler, 1940; Modesto Bee, Modesto memories, 2015), and many established their productions near the airport due to the availability of air freight service (Maino, 1970). This reflects greatly the ways Modesto had grown by

the 1910s and 1920s from an unruly wheat field to a diverse railroad town and the reasons the Dust Bowl refugees may have found the county and city so attractive during the 1930s, less than a generation later.

The Roots of the Airport Neighborhood

One of the first people to define a neighborhood was the American urban sociologist Robert E. Park, who considered a neighborhood an assemblage of people, and the institutions that occupied the area spatially (Park, 1915). Spatial location denotes “the relative position and distance of things in the context of neighborhood, community, region, or state” (Tate & Hoglebe, 2015, p. 380). For Park (1915) a neighborhood, and the people and institutions within it, are shaped by the ecological, cultural, market, and political forces around it. Park’s later work shifts to a focus on community, where he defines community as “the term which is applied to societies and social groups where they are considered from the point of view of the geographical distribution of the individuals and institutions of which they are composed” (1921, p. 163)¹. His community institutions include homes, churches, schools, playgrounds, and business and industrial enterprises (Park, Burgess, & McKenzie, 1925). Thus, neighborhoods and communities have been defined spatially for some time, and the Airport community, which has long been referred to as the “Airport District,” meets these criteria. The establishment of this community’s early roots is integral in constructing a thorough assessment of what this area entails.

¹ We use the terms neighborhood and community interchangeably.

Many of the people who settled the Airport area were Dust Bowl refugees, often labeled “Okies,” pushed from the mid-western and south-western states due to various hardships caused by the Great Depression. The thirties for many Americans were a time when serious droughts threatened livelihoods, especially for farmers in twelve mid-western and southern plain states, where overall seventeen million people were affected (Worster, 2004). Years like 1935, argued as one of the worst, saw black blizzards—dust storms as high as 8,000 feet—roll through areas, leaving financial ruin in their wake causing crops to wither and farm losses of millions every day along with hundreds dying from respiratory illnesses (Worster, 2004). As people lost their mortgages and unemployment rates soared poverty set in for many states, including the Dust Bowl area of Oklahoma, Texas and Kansas. With rumors of economic incentives, such as farm labor and a mild climate, many migrated to California, and for a majority this was the Central Valley of California (Gregory, 1989).

Modesto historian, C. S. Bare, explained how many newly arrived migrants, including Dust Bowl refugees, settled in the south side of town or near the airport “where they lived in tents and shacks” (Bare, 2010, p. 130). A survey of residents in “Little Oklahoma,” as this area near the Airport was often called by Lillian Creisler in 1938, found “the droughts of 1934 and 1936, dust storms, displacement due to mechanization on farms, and inability to pay debts were given as the major reasons for leaving their former residence” (p.10). Creisler learned the large majority of families in the area were “agricultural people” who came to this particular area of

California due to the hope of finding agricultural related work and re-establishing themselves (1940, p. 11).

The actual Airport community had been created in 1935 when a large tract of county land near the airport was subdivided and sold by the Beard Land and Investment Company (Creisler, 1940; Gregory, 1989). Originally, part of the land in the area had been purchased by T.K. Beard in 1887 from his father Elihu Beard, who was at the time a large land holder in the area who had made his way to California during the Gold Rush (Boer, Gray, & Maino, 2015). T.K Beard played an instrumental part in developing irrigation districts, along with the construction of a short-line railroad in Modesto to serve his real estate holdings, such as the Beard Industrial Tract (Boer et al., 2015).

Further subdivisions, labeled the Sierra subdivisions, in the area were acquired by T. K. Beard in 1915, and by 1935 the Beard Land and Investment Company was selling lots for an average price of \$190, with purchasers making \$10 down payments and five-dollar monthly payments thereafter (Creisler, 1940; Gregory, 1989). Figure 1 shows this area in 1924 when T.K. Beard owned the area that would be sold as the Sierra subdivisions. It also reflects that the municipal airport was not part of the area yet. In 1929, after moving from its original location on Tuolumne Boulevard, the Modesto Municipal Aviation Field that was built in 1920 was relocated and named the Modesto City-County airport in the area that became known as the Airport community (Bare, 1999).



Figure 1. Excerpt from the official map of Stanislaus County, California 1924. Compiled from official records and surveys by the county surveyor Hoskins, J.H. and drawn by Steger, J.E. Notice the land owned at this time by T.K. Beard, near the large 34. The dashed line running through the large number 34 is a canal. “Special Collections and University Archives, University Library, Stanislaus.”

Many of the actual houses were built in the Airport neighborhood in the late 1930s and early 1940s by the new “Okie” population that by 1939 consisted of roughly 1300 residents (Creisler, 1940). Like this area, towns just outside of Modesto such as Bakersfield, Stockton, Fresno, and Sacramento all had community developments labeled “Little Oklahomas” that were located just beyond their incorporated city limits (Gregory, 1989). City officials were often concerned about these new improvised communities that Gregory says were “called ‘Little Oklahomas’ or ‘Okieville’ by Californians who resented their makeshift, typically squalid appearance, the migrant subdivisions appeared wherever there were concentrations of Southwesterners eager to buy property, landowners willing to sell, and no building codes to interfere” (1989, p. 72).

Many of the Sierra subdivision lots in the Airport area were sold by the Beard Land and Investment Company in 1936, although the clear majority were sold in 1937, and by January 1939, 384 lots had been sold (Creisler, 1940). A stipulation in the contract of sale for lots stated, “only American born persons or naturalized citizens are permitted to build,” and “purchasers are given ten (10) years in which to build homes valued at a \$2000 minimum,” although no provisions for how the \$2,000 evaluations would be conducted were provided in the contract (Creisler, 1940, p. 18). Any regulations in the actual building of the homes was lacking in the contract of sale that did state “the party of the second part has the right to build and occupy temporarily a building which may be used later as a garage” (as cited in Creisler, 1940, p. 19). The vast majority of the buyers of these lots built their own homes, with the cost of materials averaging \$150 (Creisler, 1940), although some were able to build smaller homes with lumber costing around \$48 (Department of Agriculture, 1940). These self-built homes were often constructed with local materials, such as the rocks in the nearby Tuolumne River, and since they were built on an unincorporated area of the city, these houses were not subject to state or county building regulations (Creisler, 1940; Department of Agriculture, 1940).

Dorothea Lange also visited this community at this time and photographed it for her work with the Bureau of Agricultural Economics and labeled it “a new shacktown community” (Department of Agriculture, 1940). Lange’s work in this neighborhood shows that by May 1940 many of the homes on streets like Conejo, between Canal and Tenaya, were indeed self-built by the recent residents who only a

year earlier were living in tents (see Figure 2) (Department of Agriculture, 1940; Maino, 1985). Lange's photographs demonstrate how residents not only built homes, but planted vegetable gardens and fruit trees, and raised chickens—all in hopes of permanent settlement (Department of Agriculture, 1940, photographs 521630 & 521631).



Figure 2. Photograph 521626 (Photographer Dorothea Lange) [Electronic record]; “Airport tract, near Modesto, Stanislaus County, California,” May 5, 1940; Photographic prints documenting programs and activities of the Bureau of Agricultural Economics and predecessor agencies, ca. 1922- ca. 1947; Record group 83, Records of the Bureau of Agricultural Economics, 1876-1959; National Archives at College Park, College Park, MD. Original full caption reads as follows: “Airport tract, near Modesto, Stanislaus County, California. Shows self-built home on Conejo Street in airport community. Family who own homes on the left boxcar type, migrated to Imperial Valley, a distance of 600 miles, this spring to work in the pea harvest and returned when the work was over. ‘Every house on this side of the road is new this year. People a year ago were living in tents.’”

Other Lange photographs taken in May of 1940 show houses were built during various time periods, with some in the process of being built, which lent this community its makeshift appearance as well as reflecting that residents in this area

were at different stages of becoming part of the community. Creisler (1940) observed that some of the newly arrived construct their homes and transition from a tent to house:

At the time of arrival, the newcomers would put up a quasi-tent lean-to attached to their automobile; then a separate tent would be set up close to the spot where the work was to be done and the house built. Soon the tent was boarded up the sides and perhaps another tent added. As it grew colder, a shack patched up with various materials would be hurriedly constructed. Meanwhile all members of the family would be searching and bringing home materials and equipment, pulling up the obstinate Johnson grass, and performing necessary tasks prior to the actual building of their next house. Husband and wife worked together as a team, mixing the cement, hammering boards, digging the foundation, until finally the more-or-less permanent home had been built. The fact that not all the houses were in the same stage of construction at any one time contributed to the shanty-town appearance of the community. (p. 21)

Thus, the fluidity of the outmigration from the mid-western and south-western states to this area was reflected in the various stages of community development. However, Creisler characterized the refugees living in “Little Oklahoma” as “imbued with the philosophy of ‘rugged individualism’” (p. 81) when she described their connection with the American pioneers who pushed westward hoping to establish themselves in the future as independent farmers. The newly arrived emigrants seemed

to pull themselves up by their bootstraps and turned economic tragedy into a hopeful and successful future. Nonetheless, they continued to have struggles. There were concerns regarding the lack of health regulations that resulted in poor sanitation facilities and garbage removal (Creisler, 1940), perhaps due to the community being unincorporated and located on Modesto's outskirts. Creisler's survey also revealed health concerns in that many in the community had unhealthy diets consisting mainly of canned foods and cheap meat (1940).

During this time the real estate agent for Beard Land and Investment Company, Joseph A. Moore, received "sever criticisms" related to the selling of lots in the Airport subdivisions to the Dust Bowl refugees (Creisler, 1940, p. 71). Those in the new Airport community in Modesto seemed to have been given the opportunity to re-settle by the Beard Land and Investment Company, yet social mistrust of the general "Okie" population was still prevalent in Stanislaus county during this time (Creisler, 1940). These extreme prejudices towards the Dust Bowl refugees, or "Okies," were evident from a San Joaquin Valley theater sign during the 1930s that read "Negroes and Okies upstairs," (Worster, 2004, p. 52).

Not only were the residents of the Airport community looked down on because they were Okies, but they posed a threat to the surrounding communities because they were a new labor source, particularly for the canneries (Creisler, 1940). Lower employment seasons in the canneries, such as when a flood destroyed crops in 1938 and an unusually poor pea season and grasshopper plague in 1939, created further economic hostility toward the new labor pool from the Airport community,

especially when they worked these cannery jobs for less wages, longer hours and acted as strike breakers during the 1939 Pacific Grape Cannery Strike (Creisler, 1940). A letter published in the Modesto Bee on March 13, 1938 reflected this economic antagonism. The author stated, “one of the principal objections to these people flocking here is the fact that they persistently cut wages and lower the standard of living,” and continues later in the letter to say “the South and bordering states have contended for decades with this class of people and as a result poverty, indolence and ignorance have flourished. California should be appreciated for taking thousands off their hands” (The Modesto Bee, Public Thinks Column, 1938). Moreover, Okie accents, cultural differences, and utilization of relief services caused many Modesto citizens to claim those living in the Airport community to be “stupid, lazy, dirty, and immoral,” (Creisler, 1940, p.65). This hostility created isolation for residents in “Little Oklahoma,” but further united them as a community (Creisler, 1940) and provided them a refuge. According to Gregory (1989) “in the fringe neighborhoods where many built homes, the migrants found refuge from some of the more demeaning interactions with members of the dominant society and the space to create their own social life” (p. 128). And Creisler found that although social and economic antagonisms were prevalent during her initial survey data collection, less than a year later these prejudices had somewhat subsided with some in the larger Modesto community—including the police and teachers— became more accepting of this new population.

Although some in the larger Modesto community became more accepting of the residents living in the Airport area and often assisted in charitable efforts there, many families struggled financially. Early on, relief aid was applied for by families who were unable to obtain employment or who found themselves out of work due to irregular seasonal farm labor, and this often increased during the winter months (Creisler, 1940). Many who applied for relief at local social agencies, such as the State Relief Administration, discovered one year's residence in the state as a requirement, however, once residency was established over 60% of residents in the community found themselves on relief (Creisler, 1940). As of 1938, of those Airport residents who were receiving relief 30% were receiving food only, 28.9% were receiving work only, 23.3% were receiving cash only, 10% were receiving clothing only, and 7.8% were receiving medical only relief (Creisler, 1940, p.112). In addition, as part of the Depression Era New Deal programs, the Works Progress Administration (WPA) employed workers to construct public works projects after its inception in 1935, and by April of 1939 the WPA Stanislaus County director stated that nearly 95% of residents from "Little Oklahoma" had either been or were working on WPA projects (Creisler, 1940), including the construction of rock walls in their own community along the Tuolumne river (The Living New Deal, 2018). The Lange photograph in shows one such Airport resident working for the WPA who is in the process of building a home by using the available materials, including the nearby river rocks from the Tuolumne River.

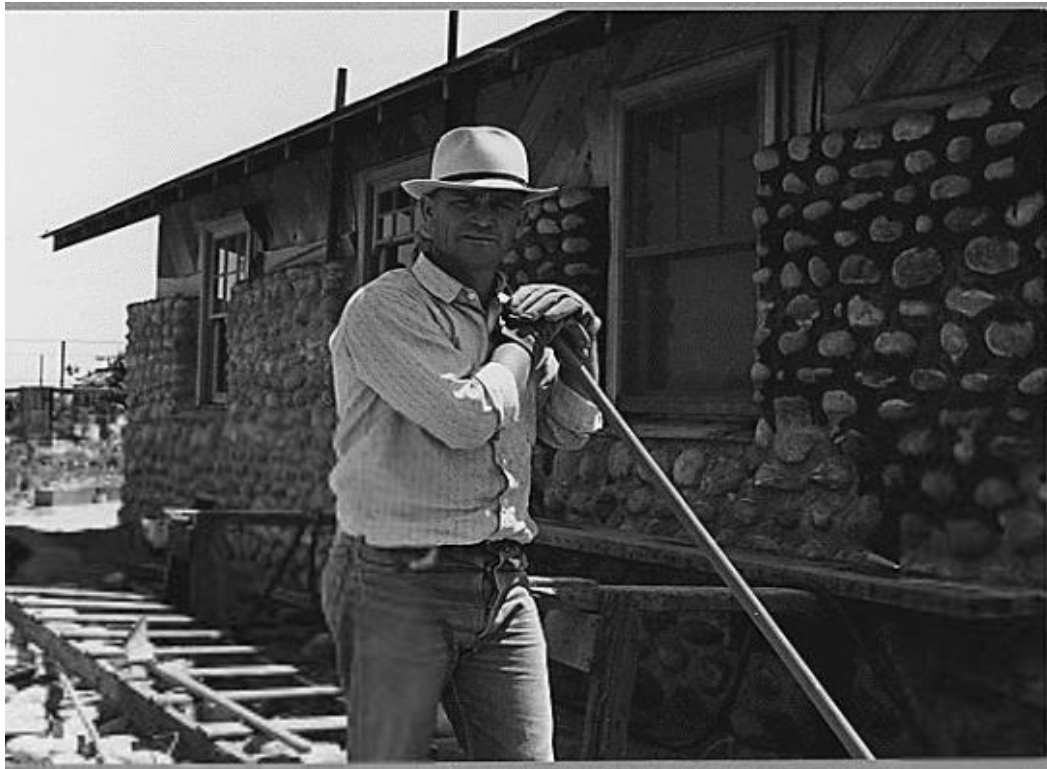


Figure 3. Photograph 521619 (Photographer Dorothea Lange) [Electronic record]; “Airport tract, near Modesto, Stanislaus County, California,” May 5, 1940; Photographic prints documenting programs and activities of the Bureau of Agricultural Economics and predecessor agencies, ca. 1922- ca. 1947; Record group 83, Records of the Bureau of Agricultural Economics, 1876-1959; National Archives at College Park, College Park, MD. Original full caption reads as follows: “Airport tract, near Modesto, Stanislaus County, California. He works on W.P.A. On that budget he is building himself a stone house...in the airport tract, a new shacktown.”

Many of Dorothea Lange’s subjects in the Airport community were school age children, who without a local school (as Orville Wright would not be built until 1948), walked the nearly mile long trip to Wilson Elementary School, making up nearly half of the school’s enrolled students in 1940. Wilson was also attended by children from a nearby more affluent suburban subdivision, today known as the La Loma area, causing what Lange described as “social antagonisms” (Department of Agriculture, 1940). Creisler reported the daily attendance of Wilson had increased by

nearly 80% between 1932 and 1938 (1940, p. 53). Many of the school age children from the Airport community adjusted well to changing schools due to emigrating to California, however, some had a harder time with the transition (Creisler, 1940). In the 1938 survey, parents blamed poverty for their children's mal-adjustment to the educational environment, writing "the listed reasons included insufficiency of clothing or books, poor health, and lack of transportation" (Creisler, 1940, p. 52). Lange's photograph in Figure 4 shows two young boys from the Airport community on their way to Wilson elementary school.



Figure 4. Photograph 521633 (Photographer Dorothea Lange) [Electronic record]; “Airport tract, near Modesto, Stanislaus County, California,” May 5, 1940; Photographic prints documenting programs and activities of the Bureau of Agricultural Economics and predecessor agencies, ca. 1922- ca. 1947; Record group 83, Records of the Bureau of Agricultural Economics, 1876-1959; National Archives at College Park, College Park, MD. Original full caption reads as follows: “Airport tract, near Modesto, Stanislaus County, California. Boys on their way to school in the morning. They live in the airport community. They attend a school where forty-seven percent of the enrollment come from migrant families.”

Of importance to the parents and other residents of the new community was the establishment of clubs and programs to service the needs of local children and address the health regulations plaguing the neighborhood. Community organizations and support centers were established by the early residents in the Airport neighborhood in hopes of finding answers to the resident concerns. The Airport Community Club, organized soon after the Airport area was settled, was established

to “foster civic pride, to make the community a cleaner and more attractive place in which to live” (Creisler, 1940, p.56). Other organizations included the Airport Improvement League and a Parent’s Club, along with a small resident- established circulating library, a community center, a Sierra Kindergarten-Clubhouse, and a parent-education program (Creisler, 1940). The American Legion Hall next to Legion Park was part of the community as well. This American Legion post had donated land to Modesto along the Tuolumne river in 1933 for recreational use, and in 1936 and 1940 additional parcels nearby were purchased by the city for “picnics, boating, and riding trails” (Maino, 1970, p. 142).

Creisler’s 1938 survey and Lange’s 1940 photographs illuminate the early roots of this Airport community, from its self-built houses, to its future hopes in such forms as gardens and community clubs. Creisler (1940) noted attitudes and prejudices towards residents in the community changed after time, with the real estate agent Joseph A. Moore, writing in January 1939:

I think this is a decidedly successful community. I believe the people will become absorbed into the larger community, socially and economically. They will be able to find enough work. They are the average laboring class, desiring a home, and will make good citizens. (as cited in Creisler, p.75)

However, Creisler warns that these new residents may not have been completely “accepted as social equals” and that “they may become a submerged lower class in the population” (1940, p.82).

The Airport Community of Today

Today, the Airport community lies east of Modesto's downtown area with its north end lined by Yosemite Boulevard, where commercial businesses line the street. The Gospel Mission that serves the Airport community is also located on Yosemite Boulevard. The Modesto City-County Airport borders the district to the east, and the industrial businesses of E. & J. Gallo Winery and Glass Plant border its west side. Brothers Ernest and Julio Gallo founded the winery—now the largest in the U.S.—in downtown Modesto in 1933 and expanded to the location near the Airport community and across the creek from Beard Brook Park in 1936 (E & J Gallo Winery, 2018; Tatum, 1994). To the south of the Airport community is the Tuolumne River and Legion Park, where in recent years the Tuolumne River Trust, a nonprofit group, has been collaborating with the neighborhood in revitalization efforts (Tuolumne River Trust, Our work, 2018a). MCS district built this community an elementary school, Orville Wright in 1948, when the nearby Wilson elementary school continued to be overcrowded due to this new Airport population, thus, resident children are educated within the neighborhood limits. However, a small northwest portion of this community still sends their children to Wilson Elementary school, less than a mile away.

The Airport community had a population of 3,707 in 2015², with 35.4% of this population living below the poverty level (U.S. Census Bureau, 2016). Modesto city as a whole had 20.5% of its population living below the poverty level in 2015

² Unless otherwise cited, census data is from the 2011-2015 American Community Survey 5-Year Estimates, which were reported in 2016 and will be cited as (ACS, 2016).

according to the same ACS data. Creisler (1940) discovered as of April 1938 there was a 22.5% unemployment rate in the Airport community (p. 28), while ACS data for 2015 shows an unemployment rate of 19.2% for the population 16 years and older living in this area today.

While Creisler found the large majority of those working in the Airport community in the occupation of agricultural work—with those who were presently in the occupation at 28.7% and those who considered it their regular occupation at 67.4%—in 1938, the ACS found this to represent only the third largest occupational category in the community with 11.8% working in this same occupation today (ACS, 2016). The largest industry by occupation now is retail for this community, representing 21.7% of those employed (ACS, 2016). As in the 1930s, many families in this community struggle to secure employment and turn to public assistance. For families with children under 18 years of age, 31.3% receive relief in the form of Supplemental Security Income (SSI), 15.5% received cash public assistance income, and 50.0% received food stamps from the Supplemental Nutrition Assistance Program (SNAP) (ACS, 2016).

The high percentage of low-income families prompted the city of Modesto to consult with the Airport community and through talks and a windshield survey assessed the needs of the community for a neighborhood revitalization strategy in 2010. They described the community as “an area with disproportionate poverty, poor infrastructure, criminal activity, and few economic resources” (City of Modesto, Airport Neighborhood Revitalization Strategy, 2010, p. 1). One of the discoveries

from their talks and surveys with the community was that although the area had a small number of corner stores, the nearest major grocery store was several miles away. The city disclosed:

Due to the poor socioeconomic conditions of the area, lack of transportation is a major issue and therefore getting across town to a supermarket is a problem for a lot of residents...with absence of a supermarket there is a lack of fresh produce and healthy food choices readily available to the residents which in turn could lead to serious health related issues. (City of Modesto, Airport Neighborhood Revitalization Strategy, 2010, p. 6-7)

The city's neighborhood revitalization efforts were not a new occurrence for this community, where throughout the years planning and development efforts have been formed and abandoned. Of importance, the city's 2010 revitalization strategy was only for the parts of the Airport community within the city limits. However, a large majority of this community was never actually incorporated into the city limits and thus remained part of Stanislaus County, but not Modesto city, and is often referred to as an unincorporated county "island" by city and county planning departments (Modesto, Community and economic development department planning division, 2015; Stanislaus County, Planning and community development department, 2012). Rubin, Chandler, Bernabei, and Lizardo (2007) define "island" neighborhoods as having once been "semi-rural, but have now been literally surrounded by the city limits" (p. 3).

The Stanislaus County Planning and Community Development Department identified both the Airport neighborhood and another area, the Parklawn neighborhood, as unincorporated county islands in need of revitalization in 2012.

This department describes these areas:

Both the Airport and Parklawn Neighborhoods are unincorporated pockets of Stanislaus County, surrounded by City of Modesto industrial and residential properties. Like so many “unincorporated islands,” the Neighborhoods lack adequate infrastructure, such as storm drain, sidewalks and sewer. Residents are predominantly extremely low-income and Latino; many are undocumented and monolingual Spanish-speaking. Sidewalks and curbs are intermittent, street trees are scarce, and a lack of a storm water system in the unincorporated portion of the Neighborhoods causes muddy walkways and puddles throughout the streets and alleys. (2012, p. 1)

As an unincorporated county island, confusion often occurs when residents in the Airport community need to seek municipal or health resources and services. There is often uncertainty over whether to call the city or the county (Hatfield, 2008). Figure 5 is a map that shows the part of Airport community that is an unincorporated county island, which includes some of the attendance zone of Orville Wright.

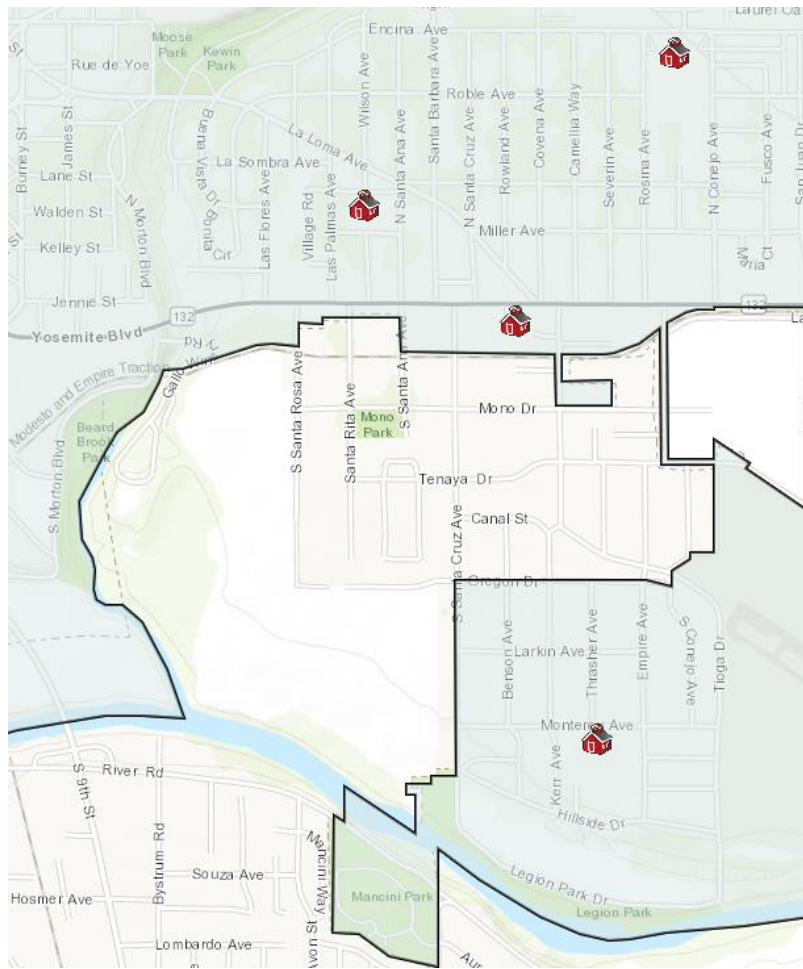


Figure 5. Map showing airport community as an unincorporated county island. The lighter areas are outside of Modesto city limits. Note the four buildings depicted in the map: Orville Wright elementary on Monterey Avenue, Wilson elementary on Wilson Avenue above Yosemite Boulevard, the Modesto Gospel Mission on Yosemite Boulevard, and La Loma Junior High on Encina Avenue. Created using Stanislaus County GIS central website.

Due to geographic isolation—with the river, airport, and industrial buildings encircling most of the area—along with the recent economic recession, the Airport community’s real estate opportunities have been negatively impacted. Moreover, there has been an increase in foreclosures and bank repossessions of homes after the last recession (City of Modesto, Airport Neighborhood Revitalization Strategy, 2010).

Today, there are only 32.0% of housing in the Airport community that is owner occupied; the rest are occupied by renters (ACS, 2016). The median value of an owner-occupied house in the Airport community is just \$97,800 compared to \$208,000 for the Modesto area as a whole (ACS, 2016).

Adding to these difficulties, some of the community organizations that were founded in the 1930s and 1940s in the Airport community have long since disappeared, and there have been many grassroots and community organizations that have come and gone over the years. In recent years the Airport Neighborhood Collaborative (ANC) has worked to share resources with other organizations and non-profits with a goal of making the Airport a healthier place (Stanislaus County Planning and Community Development Department, 2012). A recent effort of ANC was the Legion park community clean up event in April 2017 as part of the Love Modesto project, where they collaborated with the Healthy Start program at Orville Wright and the Tuolumne River Trust.

The Legion Park in the area has long served as a place for nearby residents to enjoy various recreational activities and attracted many community organizations and clubs throughout the years. The close proximity of the Tuolumne River to the Airport community and its large percentage of under-served youth has given reason for the Tuolumne River Trust—a non-profit that promotes stewardship of the river through education and community outreach—to start the Tuolumne River Adventure Club (TRAC). This club targets 12-18-year-old youths in the community, who despite having the river literally in their backyard, often struggle with finding access to

extracurricular activities and positive adult role models (Tuolumne River Trust, TRAC, 2018b). The TRAC club “provides transformative experiences for underserved youth by getting them outside, exploring the river and having fun” with the goal to “encourage youth to stay healthy and active, develop leadership skills, and become more engaged in and connected to their community” (Tuolumne River Trust, TRAC, 2018b, para. 1).

Oftentimes community efforts relate to the lack of a grocery store in the area and the inability for many families to afford and access healthy nutritious food. Inter-Faith Ministries on Kerr Avenue in the community has the message of “food is health...health is hope...hope changes lives in more ways than we can count,” and has the goal of meeting two of the most basic human needs of food and clothing (Inter-Faith Ministries, About us, para. 7). Not only do they give out healthy groceries to the those in need in the community, they also give out educational information about how to prepare healthy and wholesome meals. Among the various services they offer, they operate a food pantry that provides three days of emergency groceries for those who are in need and a free mobile farmers market that supplies fresh fruit and vegetables at Orville Wright on the fourth Friday of every month. This provides a needed resource for low-income families in the community who are having a difficult time accessing fresh produce due to a lack of transportation or money.

Two other community efforts are associated with Orville Wright. The first is a Healthy Start Family Resource center at the school that helps parents learn how to support their children as students, connects residents to crucial services, and functions

as a base for neighborhood organizing (Orville Wright School Accountability Report Card, 2018; Stanislaus County Planning and Community Development Department, 2012). Another effort is the Second Harvest Food 4 Thought Program at the school designed to address the nutritional needs of students. Orville Wright is one of two schools in MCS that were chosen by the district, based on free and reduced lunch levels, to be served by this program (Foster Farms, 2015). The Second Harvest Food Bank and Foster Farms partnered up in 2009 to bring the program to Stanislaus County and supply students who participated in eight hours of weekly after-school programs—four academic, four extracurricular—with a 15-18-pound bag of healthy food twice a month (Foster Farms, 2015; Stanislaus County Planning and Community Development Department, 2012). A survey of parents in 2015 whose children participated in the program found:

Ninety-seven percent reported that Food 4 Thought significantly helped their family's grocery budget; 93 percent reported that their child's grades improved as a result of participating in Food 4 Thought; 96 percent said the program improved their child's personal life; and 95 percent responded that their child had a better understanding of his/her school work. (Foster Farms, 2015, para. 5)

Thus, the Airport area has a long history of low-income families often seeking relief through not only public assistance programs but from local community organizations as well. Although there is a presence of local community efforts, the health and well-

being of the children in this community continues to need assistance in relation to achieving educational success.

The History of Modesto's Schools

Before we discuss the contemporary district of MCS, it is important to include the history of the educational system of Modesto, including the growth of the MCS district. Modesto's education history goes back to its early roots with the first school—a small wooden school house—started in 1871 at Tenth and I streets (Tatum, 1994). A new elementary school referred to as the “Brick Schoolhouse” was built on 14th street in the fall of 1874, along with the formation of the first school board (Baggese, 2009; Bare, 1999; Tatum, 1994). Used until 1909, this first school weathered the turbulent early days of Modesto. By 1911 the city found its small number of schools in the MCS district overcrowded, and voters approved school bond measures to construct new schools into the 1920s, including Modesto Junior College that opened in 1921 (Bare, 1999). Segregationist policies were present early in the educational context of Stanislaus county. The continuance of “China Alley” in Modesto, and perhaps the beginnings of the country's paranoia and fervent Nationalism as WWI approached, created an education code in 1917 in Stanislaus County that included:

The governing body of the school district shall have the power to exclude any child of filthy or vicious habits, or children suffering from contagious or infectious diseases and also to establish a separate school for Indian children and for children of Chinese or Mongolian descent. When such separate

schools are established, Indian, Mongolian or Chinese children must not be admitted into any other school. (as cited in Harrison, September 1977, p. 46-47)

While the early part of the 20th century proved a transitional time for Modesto and its school history, the large numbers of families with children who poured into the Central Valley in the 1930s fostered the need for further school growth and expansion. Modesto's successful economic diversification in the 1920s created the necessary pull of migrant workers to the area in the 1930s during the Great Depression. These large migrant numbers of the 1930s, combined with the Baby Boom Era of the late 1940s, created a need for expansion of Modesto's schools and districts. The organization of Sylvan Union Elementary School District in 1946 provided further educational facilities for this population increase, and the formation of another district—Stanislaus Union School District in 1950—ushered in a decade of continued growth for schools. Of community interest was a collective park policy adopted between the city and MCS requiring the inclusion of parks adjacent to all new school buildings, also in 1950 (Bare, 1999), allowing for school and community expansion. Modesto's school districts sustained their development into the 1960s and through the 1980s, with new elementary schools—including Lakewood in 1978—high schools, junior highs, and an alternative education center. By the 1990s there were 56 individual languages being used by MCS students, and out of the 34,000 enrolled students, nearly 7,000 spoke little to no English (Bare, 1999).

The Modesto City School District of Today

Modesto City Schools has been providing education services since 1871 and “is the third largest employer in Stanislaus County” (Modesto City Schools, Fast facts, 2017, p. 14). The district includes 22 kindergarten through sixth grade elementary schools and four seventh through eighth grade junior high schools. The district also has seven comprehensive high schools and an alternative education program. The student enrollment for the 2014-15 academic year was 29,916 with a total of 15,258 of this population enrolled in the elementary school district (California Department of Education, CALPADS, 2017). The district’s boundary lines are shown in Figure 6, along with the location of the district office.

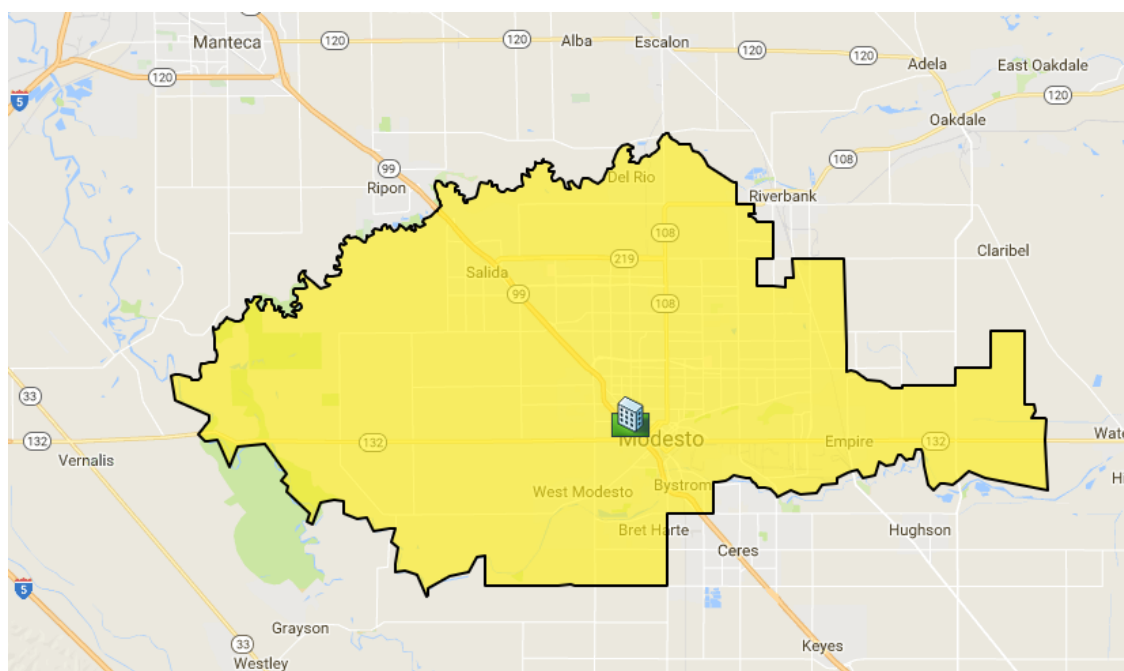


Figure 6. Map showing the Modesto City School District boundary line. This map shows the District office at 426 Locust Street in Modesto. Modesto City Schools. (2017). Locate my school.

In terms of race and ethnicity for the MCS elementary district during the academic year 2014-15 68.2% of the students were Hispanic or Latino, 17.2% were White, 3.8% were Asian, 2.9 % were African American, and 3.1% were more than one race, while there were less than 1% of students in each of the following categories: Pacific Islander (0.6%), Filipino (0.4%), and American Indian (0.5%) and there was a not-reported category of 3.4 % (California Department of Education, 2014/15 Enrollment Data by Ethnicity, 2018). The elementary district had 6,002 students who were considered English language learners in 2014-2015, most of whom were Spanish speaking; this represented 39.3% of elementary students (California Department of Education, CALPADS, 2017). Students enrolled who received free

lunch based on annual income for a family of four making less than \$23,850 or reduced lunch based on annual income of a family of four making less than \$44,123 (Federal Register, 2014) for the entire MCS district was at 72.9 % for the 2014-15 academic year, while this percentage was 85.2% for the K-6 elementary campuses (California Department of Education, 2017). In addition to the K-12 student population, the district also offers Transitional Kindergarten (T-K) and a Pre-formal Child Development Program that assists nearly 1,400 3-5-year-olds that includes part-day California State Preschool Programs, part-day and full-day Head Start Programs and Family Child Care Providers at 18 different Modesto sites (Modesto City Schools, 2014-2017 strategic plan, 2014).

Along with early education programs, the district has a School to Career Program and a Regional Occupation Program. In addition, the MCS district provides regular academic measurements in the form of interval and benchmark assessments, as well as district and state tests, to ascertain student progress toward college and career ready goals (MCS, 2017, Fast facts). The district also “strives to ensure that students receive the best education possible, regardless of the path he/she selects, guaranteeing success the day after graduation” (MCS, 2017, Fast facts, p. 1).

A review of the MCS vision, mission, and values is important in identifying the district’s strategies for ensuring their goal of college and career readiness. As mentioned previously, the MCS vision states “every student will graduate college and career ready, with the knowledge, abilities and character traits needed to thrive in a

global society” (MCS, vision, 2018, para. 1). The mission of the district centers on the following:

To offer rigorous, relevant and diverse educational programs that engage all students in reaching individual potential for college and career readiness, we [the district] will:

- Provide a safe and secure learning environment
- Deliver high-quality, first-time instruction
- Model high expectations
- Make data-driven decisions
- Ensure academic equity and access. (MCS, mission, 2018, para. 2)

In addition, the district ascribes to specific values:

As employees of Modesto City Schools, we [staff] must:

- Exhibit the skills, knowledge and behavior expected from members of a highly trained profession
- Work together for the benefit of our students, our parents, our community and ourselves, as we understand that collaboration is the key to success at every level
- Model our nine character traits, adhering to high moral principles
- Acquire and share new knowledge and information to provide the best to our students
- Communicate to our students that they are the focus of our work.

(MCS, Strategic plan, 2014, p. 2)

Also of importance are Modesto City School district's strategic Local Control and Accountability Plan (LCAP) goals. As part of the LCAP, which describes how the MCS district plans to meet its annual goals for all students, the district's three strategic goals are:

1. Provide facilities that are safe and welcoming to enhance and maximize learning opportunities
2. Increase student achievement to ensure each student demonstrates success with Common Core State Standards (CCSS) and be college and career ready
3. Support students' academic and social success by providing access to remediation and enrichment opportunities and promoting positive well-being. (MCS, Strategic plan, 2014, p. 1)

It is important to note that even though Modesto City Schools has a set of comprehensive goals, the district was found, as of December 2015, to be in Program Improvement (PI) Year 3 under Title I, Adequate Yearly Progress (AYP) of the No Child Left Behind (NCLB) Act of 2001 (MCS, MCS program improvement status, 2018, para. 2). According to the district, "this designation means that Modesto City School District (MCS) is assigned Corrective Action 6 by the State Board Education for failure to meet AYP for Students with disabilities, Socioeconomically Disadvantaged, English Learners, and Hispanic/Latino students" (MCS, MCS program improvement status, 2018, para.

2). Via the Modesto City Schools' webpage, due to this designation, it was noted that the district is "instituting and implementing a new curriculum that is based on state academic content and achievement standards, including providing professional development based on scientifically based research for all relevant staff that offers substantial promise of improving educational achievement for high-priority pupils" (MCS, MCS program improvement status, 2018, para. 2). As of the 2016-17 school year, Modesto City Elementary district had 16 schools still under the Program Improvement Status by the California Department of Education, including Orville Wright elementary (California Department of Education, Program improvement data, 2018). However, it is important to note that under ESSA and beginning in the 2017-18 school year, schools were no longer identified as being in Program Improvement and, therefore, not required to implement the previously required improvement initiatives. They were, however, encouraged to establish evidence-based interventions to improve student achievement until their state completed and submitted the federally required education plans to address the ESSA assurances.

Design of the Study

Social Epidemiological Case Study

This research is a descriptive social epidemiological case study of the Airport neighborhood in Modesto, California focusing on child health and well-being indicators as they relate to educational success. More specifically, we focus specifically on the Orville Wright Elementary School attendance area. This design

also includes a description of a second school site and attendance zone, Lakewood Elementary School, for general comparisons. Case study is the appropriate methodology for this study as we examined what Merriam describes as an “intrinsically bounded” topic (2001, p. 27). Merriam notes that a case “could be a person such as a student, a teacher, a principal; a program; a group such as a class, a school, a community; a specific policy; and so on” (2001, p. 27). Moreover, we engaged in social epidemiological research in that this research “focuses particularly on the effects of sociostructural factors on states of health” (Honjo, 2004, p. 193). This approach moves beyond the biological to focusing on “the distribution, determinants, and control of health and well-being” (Jones et al., 2015, p. 236). As explained by Honjo (2004), the essential idea of social epidemiology is that the social conditions people find themselves in affects their overall health. The basic definition is that it “is a branch of epidemiology that studies the distribution and determinants of health and disease in populations” with an overall focus on sociocultural factors relating to health (Honjo, 2004, p. 193). Thus, the use of social epidemiology can aid in implications concerning social and political interventions for individuals and communities because it questions the consequences of social factors such as structure, culture and environment (Honjo, 2004).

Research Setting and Comparison Site

The Orville Wright Elementary School attendance zone and the surrounding area in the Airport community of Modesto was chosen as the research site as it has faced substantial poverty over its history and thereby provided an ideal opportunity to

investigate the potential negative impact of social determinates of health on low-income school age children. In fact, Orville Wright had one of the highest levels of poverty within Modesto City Schools as illustrated by free and reduced meal data. For the 2014-15 school year Orville Wright had 96.6% of students enrolled in the Free and Reduced Meal Program, as compared to only 27.6% for Lakewood (California Department of Education, 2017). The comparison site of Lakewood Elementary was chosen due to its membership in the Modesto City School District, close proximity to Wright Elementary—less than three miles, and approximately equal student population size and yet it is a significantly more affluent area than the Wright community and afforded a comparison of socioeconomic, health, and resources in one community versus another. The Orville Wright attendance zone, seen near the center of the map in Figure 7 below, comprises the clear majority of the Airport community. The Lakewood attendance zone is comprised of a suburban neighborhood along Scenic Drive between Oakdale Road and almost to Claus Road. This district was created when Lakewood opened in 1978. Orville Wright Elementary School first opened in 1948.

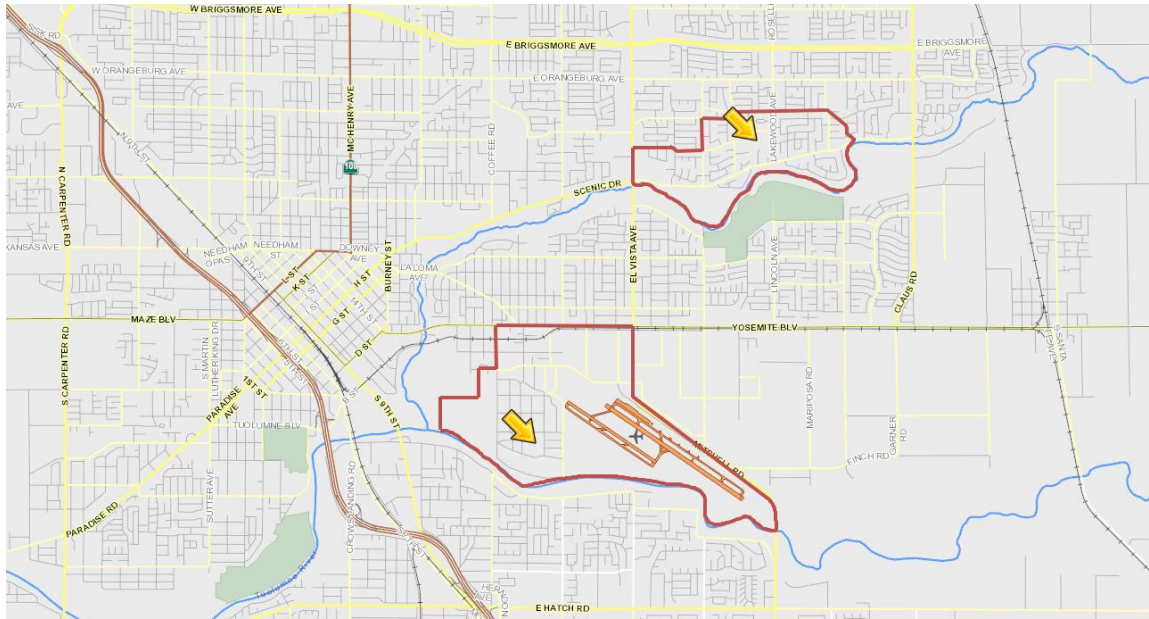


Figure 7. Map of Orville Wright (center) and Lakewood Elementary (top right) attendance zones within the Modesto City School District. The two yellow arrows are pointing to the school sites within their respective attendance zones. Map created using Modesto GIS website.

To provide a detailed set of descriptive data to compare academic outcomes for Orville Wright and Lakewood Elementary Schools, we collected a range of educational data. In some instances, we compare these data to Modesto City Schools, California, and the United States. Some of the data we analyzed were from Orville Wright and Lakewood’s School Accountability Reports, including Local Control Accountability Plans, and various other educational resources from the district to state level. A sampling of the education data, documents, and sources is found below in Appendix A.

In order to provide overall data and context for the research setting, we have offered data in Table 1 for the Airport community as compared to the City of Modesto, the State of California, and the United States. The median income for

Airport community residents was \$27,796 and was much lower than Modesto, California and the United States, which all had median incomes of \$48,577 or higher. In addition, the poverty status for families with children under 18 years was much higher at 37.1% compared to 24.8% for Modesto and approximately 18.0% for both California and the nation as a whole. For those in the Airport neighborhood who were employed, 24.4% were also living below the poverty level; this compares to only 11.3% for this same group in Modesto and less than 9% for California and the US. In terms of educational attainment, only 3.2% of residents in the Airport community had a bachelor's degree or higher compared to 18.6% for the City of Modesto and 31.4% for California. In addition, 13.5% of residents in the Airport community had no formal schooling compared to 2.94% for Modesto, 2.6% for the state and 1.4% for the nation, while 31.6%, 9.5%, 10.0% and 5.7%, respectively, completed less than 9th grade. As shown in this table, the Airport community had a much larger percentage of Latino residents as well as a much higher percentage of residents that speak languages at home other than English. With respect to race and ethnicity, only Latinos and Whites are listed in this table as these two demographic groups represent the majority of residents in the Airport community.

Table 1

Socioeconomic and Demographic Data for the Airport Community, Modesto, California, and the United States

Variable	Airport (Census Tract 21)	Modesto City	California	United States
Median Income	\$27,796	\$48,577	\$61,818	\$53,889
Percentage below poverty level	37.1%	24.8%	18.2%	18.0%
Percentage College Educated	3.2%	18.6%	31.4%	29.8%
Hispanic or Latino origin (of any race)	71.4%	37.5%	38.4%	17.1%
White alone, not Hispanic or Latino	26.3%	47.6%	38.7%	62.3%
Speak language other than English	68.6%	34.8%	43.9%	21.0%

Note: Data are from the 2011-2015 American Community Survey 5-Year Estimates. Poverty status in the past 12 months of all families with related children under 18 years. College educated is the population with a bachelor's degree or higher.

To provide comparison information for Orville Wright and Lakewood Elementary Schools, Table 2 presents student-level data. At Orville Wright eight in

ten students, 82.8%, were Hispanic or Latino, and 10.4% were White as indicated by the School Accountability Report Cards for 2014-2015. At Lakewood 30.1% of the students were Latino and 50.6% were White. In terms of the level of poverty, at Orville Wright almost all students, 99.2%, were socioeconomically disadvantaged compared to only 28.1% of students at Lakewood. Also, at Orville Wright, about half, 51%, of the students were English Learners in comparison to 8.1% at Lakewood.

Table 2

Student-Level Data for Orville Wright and Lakewood

	Orville Wright	Lakewood
Race/Ethnicity		
Hispanic or Latino	82.8%	30.1%
White	10.4%	50.6%
Socioeconomically Disadvantaged	99.2%	28.1%
English Learners	51.0%	8.1%

Note: Data are from 2014-2015 School Accountability Report Cards for Orville Wright and Lakewood Elementary.

Additionally, the California Department of Education provides student data from the California Longitudinal Pupil Achievement Data System (CALPADS). Table 3 shows the data for the 2014-2015 school year for Orville Wright, Lakewood, and Modesto City Schools as a whole. The school enrollment was nearly identical at approximately 384 students at both Orville Wright and 395 at Lakewood. With respect to free and reduced meals, 98.4% of students are eligible for this program at Orville Wright compared to only 27.8% at Lakewood, which is the same measure

used for determining which students are socioeconomically disadvantaged in Table 3. About five percent, 4.9%, of the students at Orville Wright were part of the Migrant Program compared to no students at Lakewood. Fifty students at Orville Wright were also identified as being homeless during the 2014-2015 school year compared to 11 students at Lakewood.

Table 3

CALPADS Data for Orville Wright and Lakewood for the 2014-2015 School Year

	Total Enrollment	Free and Reduced Meal Program	Migrant Program	Homeless
Orville Wright	384	378 (98.4%)	19 (4.9%)	50 (13%)
Lakewood	395	110 (27.8%)	0 (0%)	11 (2.8%)
Modesto City Elementary District	15,259	13,006 (85.2%)	449 (2.9%)	1,212 (8.6%)

Note: Data from California Department of Education, CALPADS UPC Source File (K-12) for the 2014-2015 school year, 2017.

In Table 4 we offer data on student academic outcomes for both school sites along with data from Modesto City Schools and California, as this is another important area of comparison and correlates with student educational success. These data are from the California Assessment of Student Performance and Progress (CAASPP) System, which includes assessments that are linked with the Common Core State Standards (CCSS) and are specific to the 2014-2015 school year. The data indicate that while 73.0% of students at Lakewood met or exceeded English and Language Arts state standards, only 12.0% of students at Orville Wright met these standards. In addition, while about two-thirds, 52.0%, of the students at Lakewood

met or exceeded standards for mathematics, only 5.0% of the students at Orville Wright met these same standards. As shown, Lakewood far exceeds the district and the state in having met both ELA and mathematics standards during the 2014-2015 school year.

Table 4

Percent of Students Meeting or Exceeding the State Standards (CAASPP) 2014-2015

Subject	Orville Wright	Lakewood	MCS District	California
ELA	12.0%	73.0%	25.0%	44.0%
Mathematics	5.0%	52.0%	15.0%	35.0%

Note: Data are from School Accountability Report Cards from both schools (2014-2015 school year). Statewide assessments are from the California Assessment of Student Performance and Progress (CAASPP) System. Percentages are not calculated when the number of students tested is ten or less, either because the number of students in this category is too small for statistical accuracy or to protect student privacy.

In Table 5 student outcomes for ELA and mathematics from the CAASPP System are offered for those who were socioeconomically disadvantaged, by race and ethnic groups, and for those who are English Learners in third grade. These data indicate that students in each of these groups from Orville Wright were behind those from Lakewood. In some instances, such as for White students, Lakewood students were performing at a rate of 45.0% higher on both the ELA and mathematics standardized assessments. For those who are socioeconomically disadvantaged at Orville Wright, 15.0% met or exceeded ELA standards as compared to 60.0% at Lakewood. For mathematics, only 11.0% of students at Orville Wright who were identified as being socioeconomically disadvantaged met or exceeded state standards as compared to 40% at Lakewood. For Latino students at Orville Wright, 18.0% met ELA standards and 14% met mathematics standards. This was compared to 67.0% for

ELA and 53.0% for mathematics standards for Latino students at Lakewood. For English Learners at Orville Wright, 8.0% met ELA standards and 0.0% met mathematics standards. This could not be compared to Lakewood as they reported less than 10 students in this category.

Table 5

Percent of Students Meeting or Exceeding the State Standards (CAASPP) in 2014-2015 by Socioeconomic Status, Race/Ethnicity, and for English Learners for 3rd Grade

Student Group	Orville Wright ELA	Lakewood ELA	Orville Wright Mathematics	Lakewood Mathematics
Socioeconomically Disadvantaged	15.0%	60.0%	11.0%	40.0%
Hispanic or Latino	18.0%	67.0%	14.0%	53.0%
White	--	79.0%	--	68.0%
English Learners	8.0%	--	0.0%	--

Note: Data are from School Accountability Report Cards for both school sites from the 2014-2015 school year for third grade. The report cites “Double dashes (--) appear in the table when the number of students is ten or less, either because the number of students in this category is too small for statistical accuracy or to protect student privacy” (Orville Wright, p. 7).

Data Collection

Our methods for this study included the collection of a full range of secondary data from the U.S. Census and other sources. In their social epidemiological study, Jones et al. (2015) emphasize that “good health positively influences cognition, learning achievement, and educational attainment. Similarly, a quality education is associated with better health outcomes” (p. 231). Thus, the indicators we selected

relate to health and well-being and the ways social infrastructure may affect the relationships of health distribution and the interrelationships involved (Honjo, 2004). This study focused on five indicators to investigate the status of health and well-being for school children in the Orville Wright attendance area, and we compared these data with the Lakewood attendance zone. As addressed in Chapter 2, these indicators are SES/levels of poverty, sufficient housing, violence and crime levels, availability of and access to health care and community resources.

To collect data for our study, multiple sources were used. One of the most important sources for this effort was the U.S. Census. The U.S. Census is mandated by Article I, Section 2, of the U.S. Constitution and counts every resident of the United States every ten years. Decennial Census data is used to determine congressional seats for the U.S. House of Representatives and the allocation of federal funds to local communities (U.S. Census Bureau, n.d.). More specifically, we used the census to compare demographic and community indicators for the Orville Wright and Lakewood attendance zones and communities. To obtain the most current census data, we collected information from the American Community Survey (ACS), which provides data for a five-year estimate. As explained by the U.S. Census Bureau, “the American Community Survey (ACS) helps local officials, community leaders, and businesses understand the changes taking place in their communities. It is the premier source for detailed population and housing information about [the U.S.]” (U.S. Census Bureau, ACS, n.d., para. 1). For our research we utilized the 2011-2015 ACS.

In utilizing census data, Spencer, Tinsley, Dupree, and Fegley (2012) warns that “census tracts are inherently flawed neighborhood approximations due to the boundaries that they statistically impose” (p. 310). While the Orville Wright attendance area includes a considerable portion, 78.2%, of census tract 21 in Modesto, this census tract does not consist of the precise school boundary. In addition, the Lakewood attendance zone is found mainly within two census tracts, 9.05 and 9.06. If we relied just on existing census tracts, this would lead to what Robinson terms an “ecological fallacy” (1950, p. 357) and, as such, results from these tract areas could not be used to make inferences about the attendance zones in our study (Hogrebe, 2012). Thus, to avoid inaccuracies, the precise geographic school boundaries were captured using a Geographic Information Systems (GIS) mapping software tool, the Calculate Geometry Tool. In doing so, it was determined that there are seven census tracts that are part of the Orville Wright attendance area and five in Lakewood. For each of these tracts a portion is found within the school attendance zone which in many cases is a very small portion. As an example, while the Orville Wright attendance area is made up of census tracts 18, 19, 20.2, 21, 27.01, 27.02, and 30.01, the percentage of each census tract making up the attendance zone consists of 78.15% of tract 21, 0.62% of tract 27.01 and less than 0.03% of each of the other five tracts. What this means is that the Orville Wright attendance zone is comprised predominantly of tract 21 (99.14%) and tract 27.01 (0.79%) with the other five tracts making up just 0.07%. Similarly, the Lakewood attendance zone is predominantly made up of census tracts 9.05 (45.41%), 9.06 (48.64%) and 20.04 (5.95%) with the

other two tracts making up only 0.01%. Then to obtain the final percentage for each census variable studied for each attendance zone, calculations were made specific for each tract making up the zone. For example, in the case of poverty level, the percentage of people living in poverty was taken from the census data for each tract and calculated for the attendance zone using each specific tract percentage. For example, for tract 21, the percent of people living at or below the poverty level was multiplied by 0.9914 to find the percentage of people in poverty in the Orville Wright attendance area from tract 21. This same process was used for each of the tracts and the totals were added up to determine an overall number.

Along with the U.S. Census, data specific to the study indicators were also collected from additional sources such as the following: the City of Modesto GIS webpage, the Stanislaus County GIS webpage, the City of Modesto Community and Economic Development and Planning Departments, the California Department of Education, the City of Modesto's Crime Map webpage, the California Endowment, and the Centers for Disease Control. A detailed listing of indicators, sources, and relevant literature for community-level data is found in Appendix B.

Beyond the secondary sources such as census data, primary data collection methods were also utilized. These included direct observations of both the case study site of the Orville Wright attendance area and the Airport neighborhood as well as the Lakewood Elementary School attendance zone. As we collected data from numerous sources we assessed what data was missing from our research. This primary data provided important information such as verifying the stores that were in or around

community areas as well as whether fresh foods were available. The collection of these data, and the observations made while in these communities, strengthened our overall knowledge of the Orville Wright and Lakewood attendance zones.

Geographic Information Systems (GIS)

To capture the geographic context of the Orville Wright and Lakewood attendance areas, we utilized a range of GIS software and data sources. In showcasing our work via maps, this permits the complexities of data and any existing inequality, to be presented in a more understandable manner (Sieber, 2006).

ArcGIS software (2018) was used to connect and visualize U.S. Census data. Furthermore, we utilized federal and local GIS websites for additional mapping. These sources included on-line mapping websites maintained by Stanislaus County, the City of Modesto, and the Modesto Police Department. While data relating to education are characteristically “nonspatial” or “aspatial,” these data can nearly always be linked with a geographic area, providing a richer and more complex description of the phenomenon (Hogrebe, 2012). Therefore, it was very useful and important to employ a geospatial perspective to our education research to better understand the two attendance zones and the surrounding community areas. Hogrebe (2012) contends that the “geospatial perspective introduces regional, community, or neighborhood context as a factor that potentially moderates the relationships between the nonspatial education variables that are typically studied” (p. 151). Data used this way provides even greater meaning, specifically, with respect to the ways specific school districts or attendance zones differ.

Moreover, GIS is an analytical tool that relies on the geographic importance of place, such as an attendance area and neighborhood and produces maps as descriptive data outputs. As explained by Maantay and Ziegler (2006), the elements of GIS are “the real world, abstracted and simplified into a database, which in conjunction with specialized software and computer hardware, and the expert judgment of the GIS user/analyst, produces results such as solutions to a problem” (p. 9). Essentially, GIS uses sophisticated software that combines geographic, or spatial, data such as a census tract and nonspatial data such as community resources to create maps for addressing a range of concerns, usually related to a community.

The spatial feature, or the geographic location of data, was important for our research as it added a considerable amount of information and provided an essential lens for our descriptive social epidemiological case study. The geographic features, such as school location, were examined in conjunction with variables such as poverty. As an example, data associated with the indicator of health, such as the availability of fresh food, can be understood more completely by using spatial data to determine whether fresh food is available in a community. Therefore, the use of GIS in examining the complexities of social educational contexts provides new opportunities to merge geographic features of neighborhoods in measuring such concepts as access to community resources like grocery stores and allows the researcher to further understand many aspects of neighborhood health as they relate to issues of equity (Pearce, Witten, & Bartie, 2006). Hoglebe and Tate (2012) explain that:

The geospatial context of location may serve as a proxy variable to represent the effects of many factors and their complicated interactions. If schools differ by location, it may be that the local or neighborhood contexts in which the schools exist have an important influence on the student, teacher, and school variables and outcomes. (p. 152)

For this study, geospatial maps helped us to understand the sociocultural factors within the Airport and Lakewood attendance areas as they relate to child health and well-being. The decision to include a geospatial perspective and maps in our research was thus influenced by Hoglebe and Tate (2012) who state “by locating data in the context of place, issues become more familiar and understandable to those who may not have experiences in data analysis,” such as parents, community leaders, and, in some cases, school district administrators (p.70).

However, social scientists like Tate (2008) have expressed concern about the lack of geography and community context in educational studies. Furthermore, Wilson (1998) noted that geographic influences of neighborhoods and communities have been essentially overlooked when considering educational outcomes. Wilson’s implication that the ecological context affects academic achievement is highly relevant today, although the consideration that every community has different unique characteristics and concerns is required. Additionally, Soja (2010) adds that researchers should not only delve into the historical circumstances and social aspects of community inequality, but to add the spatial, or geographical, perspective as well. Although not utilized by all social scientists and researchers, the geographical

perspective using GIS can deepen the levels of understanding, add visually appealing maps, enhance the overall importance of the study's results and can encourage the need for civic action specific to any educational concerns discussed. This sense of civic responsibility pervades what Tate (2008) labels the "geography of opportunity" and the requirement of education researchers to ask, how does geography influence opportunity? Tate (2008) encapsulates the importance of this in the following quote:

As education researchers, we have a civic responsibility to provide relevant and rigorous research that informs how we come to understand the interdependencies of the social, cultural, and economic institutions in our communities and how they relate to education processes and outcomes. (p. 408)

Trustworthiness

With respect to our study design and trustworthiness, we used U.S. Census data as these are representative of the U.S. population, are validated by the U.S. government and are statistically reliable. Moreover, these data are "gold standard" measures. We used the American Community Survey 5-year estimates as this was the dataset that could be used for our specific case. Data from this source are the most reliable and precise for populations less than 20,000 people (American Community Survey, 2016). Along with census data we collected other data from additional validated sources such as the California Department of Education and by conducting direct observations in the two school attendance zones. Furthermore, the procedures

that we used and the literature we drew from to determine indicators of health and well-being could be used by others to do a similar case study in their communities.

Merriam and Tisdell (2016) believe that “to a large extent, the validity and reliability of a study depend upon the ethics of the investigator” (p. 260). Despite our research using mainly quantitative data, the human element of researching a neighborhood was also part of our work. To capture the “complexity-the full range-of community activity toward a deeper analysis of the community’s ecology, constraints, and the influences on everyday practices” (Gutierrez & Arzubriaga, 2012, p. 204) research was conducted on the history of the Airport district. This included local history and the sociocultural influences which have created the Airport community over time. With two of the three research team members being native Modestans, personal experiences with the neighborhood were also at the root of this study. However, beyond our past experiences with this neighborhood, researchers updated their lived experiences and walked and drove through the neighborhoods on several occasions. With these efforts the aim was to learn more about the geographical aspects within both communities. We engaged in this direct observation to take on a personal approach in researching this community.

With respect to dependability, having a combined research team strengthened our work immensely. One researcher is a historian by training, another has expertise in the K-12 educational system, and the third is a sociologist; this allowed each of us to bring key insights to the work. Our team also worked with a GIS consultant who

trained and assisted us with the harvesting of U.S. census data and created a range of maps.

Limitations

While the data that we collected consist of a sweeping array of measures that connect with health and well-being, given the scope and time we had for this project we were unable to conduct extensive observations of the community or to interview residents who live in the Orville Wright attendance area to learn firsthand about any challenges they were facing with respect to poverty levels, levels of crime and violence, access and availability of health care and community resources.

In this chapter we reviewed the history of Modesto and the Orville Wright attendance zone. We also described the design of our study which is a case study site of Orville Wright and the comparison site of Lakewood. In addition, we included details on our data collection steps and specifics on secondary and primary data. In the next chapter, we provide an analysis of data and the results of our study.

CHAPTER IV

RESULTS

In this chapter, we describe our results based on the five indicators that are associated with child health and well-being. We begin with socioeconomic status and levels of poverty and follow with sufficient housing, violence and crime levels, and availability of and access to health care and community resources.

Socioeconomic Status and Levels of Poverty

One of the key indicators chosen for this study that affects child development and life chances is poverty. The subtopics associated with poverty and that are detailed in this section are: poverty level, household income, unemployment, food security, and receipt of government assistance.

Poverty Level

Poverty level is an indicator of childhood health and well-being that may impact levels of educational success. Poverty is defined as a family of four earning \$24,250 per year as a household (U.S. Department of Health and Human Services, 2018d). Household is defined as “all the people occupying a housing unit... [and this] includes the family householder and all other people in the living quarters who are related to the householder by birth, marriage, or adoption” (U.S. Census, 2015, n.p.). The poverty status of communities is correlated to a host of health and educational barriers, thus schools in disadvantaged neighborhoods face severe challenges (Berliner, 2005; Berliner, 2009; Murry et al., 2011). Murry et al. found

that “characteristics of disadvantaged neighborhoods, including proportion of low-income neighbors, unemployment rate, and residential instability, predicted academic outcomes such as time spent on homework, math and reading test scores, and dropping out of school” (2011, p. 117).

According to the American Community Survey, 3,707 individuals lived in the Orville Wright School attendance area in 2015 (ACS, 2016). Data from the ACS 2015 indicate that there were exceedingly high levels of poverty in the Orville Wright attendance area. More specifically, over one-third (35.4%) of these residents were living below the poverty level. In comparison, 4,703 residents were residing in the Lakewood School attendance area in 2015. There was a much lower rate of poverty in this area as only 11.5% of residents were living below the poverty level. Figure 8 provides an illustration of this difference in the poverty rate.

**POPULATION BELOW POVERTY LEVEL
STANISLAUS COUNTY, MODESTO, 2015**

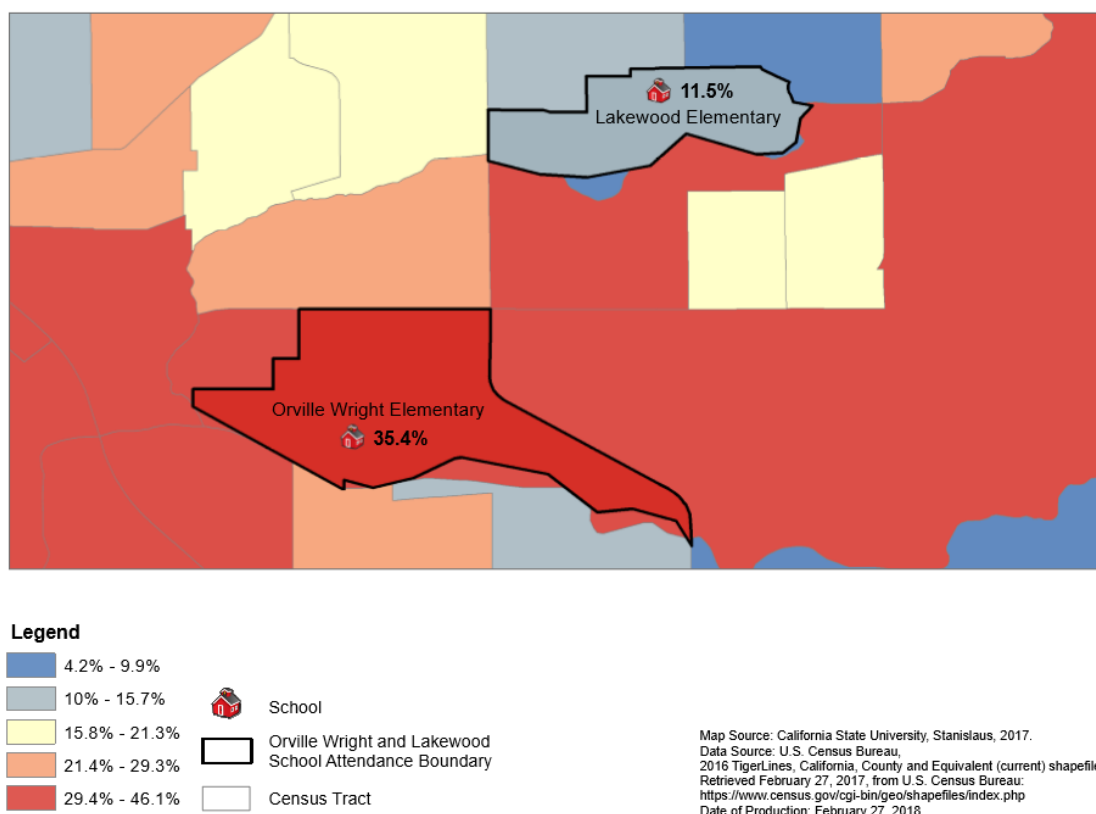


Figure 8. Population below poverty level by attendance zone.

In Figure 9 poverty levels for children under the age of 18 are compared between the Orville Wright and Lakewood attendance areas. As was the case with overall poverty, these data show that the childhood poverty rate is higher for Orville Wright as compared to the Lakewood attendance zone. The percentage of children living in poverty within the Orville Wright attendance area was 37.6% as compared to a much lower rate for Lakewood at 17.6%.

**PERCENT OF CHILDREN BELOW POVERTY LEVEL
STANISLAUS COUNTY, MODESTO, 2015**

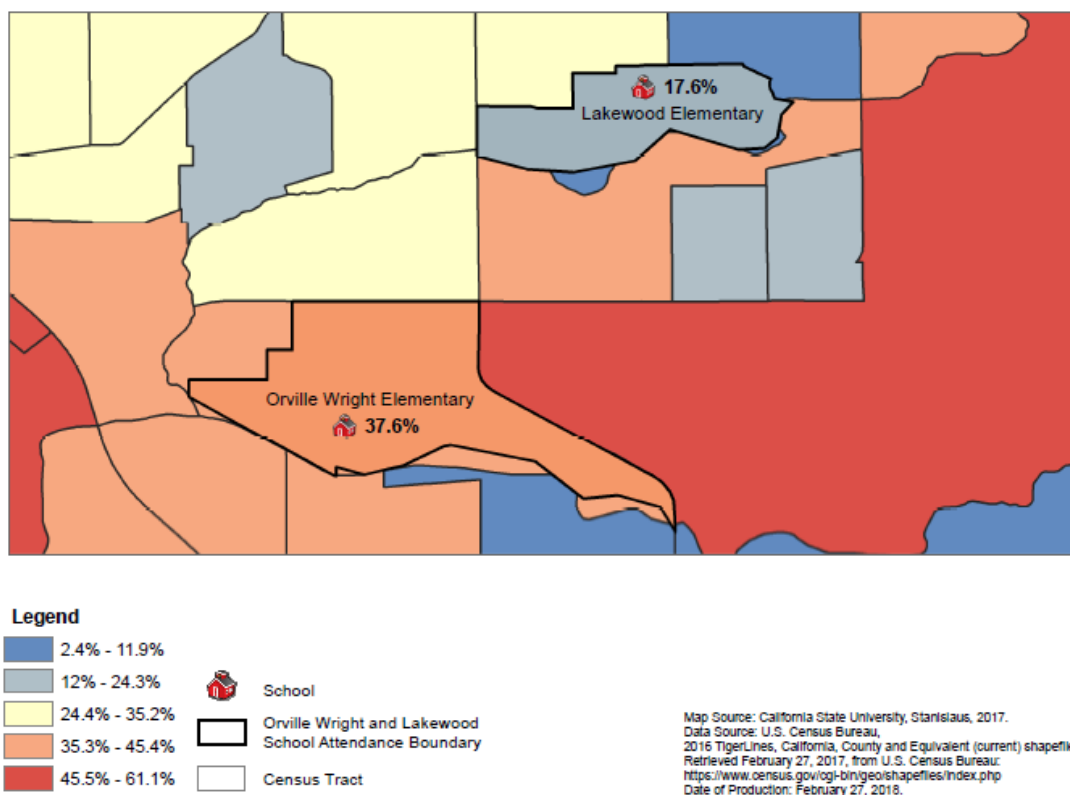


Figure 9. Percent of children living below the poverty level by attendance zone.

In addition to the poverty data above, 28.1% of students at Lakewood Elementary School were identified as being socioeconomically disadvantaged during the 2014-2015 school year compared to 99.2 % of the students at Orville Wright (School Accountability Report Cards for Orville Wright and Lakewood, 2016). The California Department of Education defines students as socioeconomically disadvantaged if “both parents have not received a high school diploma or students who were eligible for the Free and Reduced Meal Program...or

students who are migrant, homeless, or foster youth” (California School Dashboard, 2017, p. 18).

Household Income

Another indicator of childhood health and well-being necessary for educational success is household income due to this variable’s association with family resources. Data on household income are collected by the ACS and are reported in \$5,000 increments for household incomes under \$5,000 to \$150,000 or more. This census variable “includes income of the householder and all other people 15 years and older in the household, whether or not they are related to the householder” (Posey, 2016, p. 1). Brooks-Gunn and Duncan (1997) note that “income poverty is the condition of not having enough income to meet basic needs for food, clothing, and shelter” (p. 55). Saporito and Sohoni (2007) add that high concentrations of poverty within school attendance boundaries can produce detrimental impacts on children whose families are already financially disadvantaged. “The concept of concentrated poverty reflects the fact that while pockets of deep neighborhood poverty can affect the well-being of all residents, they are especially troubling for poor families who already face burdens associated with their low incomes, and who may have fewer housing and neighborhood choices available to them” (Kneebone & Holmes, 2016, n.p.).

A high concentration of poverty is found in the census data for the Orville Wright attendance zone. In Orville Wright 43.4% of households had an income of \$24,999 or less. This is compared to Lakewood at only 13.6%. Dramatic differences

were also found for higher income brackets in that only 17.1% of the households in the Orville Wright attendance area had an income of \$50,000 to \$99,999 compared to 34.5% in Lakewood. Also, one-fourth, 24.7%, of households in Lakewood had a household income of \$100,000 or more compared to just 3.8% in the Orville Wright attendance area (see Table 6).

Table 6

Percentages for Household Income in the Past 12 Months for Attendance Zones

Income Level	Orville Wright Attendance Zone	Lakewood Attendance Zone
\$24,999 or less	43.4%	13.6%
\$25,000 to \$49,999	36.2%	27.1%
\$50,000 to \$99,999	17.1%	34.5%
\$100,000 or more	3.8%	24.7%

Note: U.S. Census, 2011-2015 American Community Survey 5-Year Estimates

Unemployment

Along with household income, levels of unemployment within communities affect childhood health and well-being. Within the ACS, “people are classified as unemployed if they do not have a job, have actively looked for work in the prior 4 weeks, and are currently available for work” (Bureau of Labor Statistics, 2015, n.p.). The presence of poverty in a community would indicate higher levels of unemployment, potentially impact educational attainment and the health of children, and produce experiences that differ from those in more affluent communities (Jones et al., 2015). More specifically, Engle and Black (2008) note that “children raised in

low-income families are at risk for academic and social problems as well as poor health and well-being, which can in turn undermine educational achievement” (p. 244).

Figure 10 provides data on the unemployment rate across census tracts. For the Orville Wright attendance area, the unemployment rate was 19.2%. This rate is compared to lower rates of unemployment for the Lakewood Elementary School attendance area at 12.0%.

**UNEMPLOYMENT RATE FOR POPULATION 16 YEARS AND OLDER
STANISLAUS COUNTY, MODESTO, 2015**

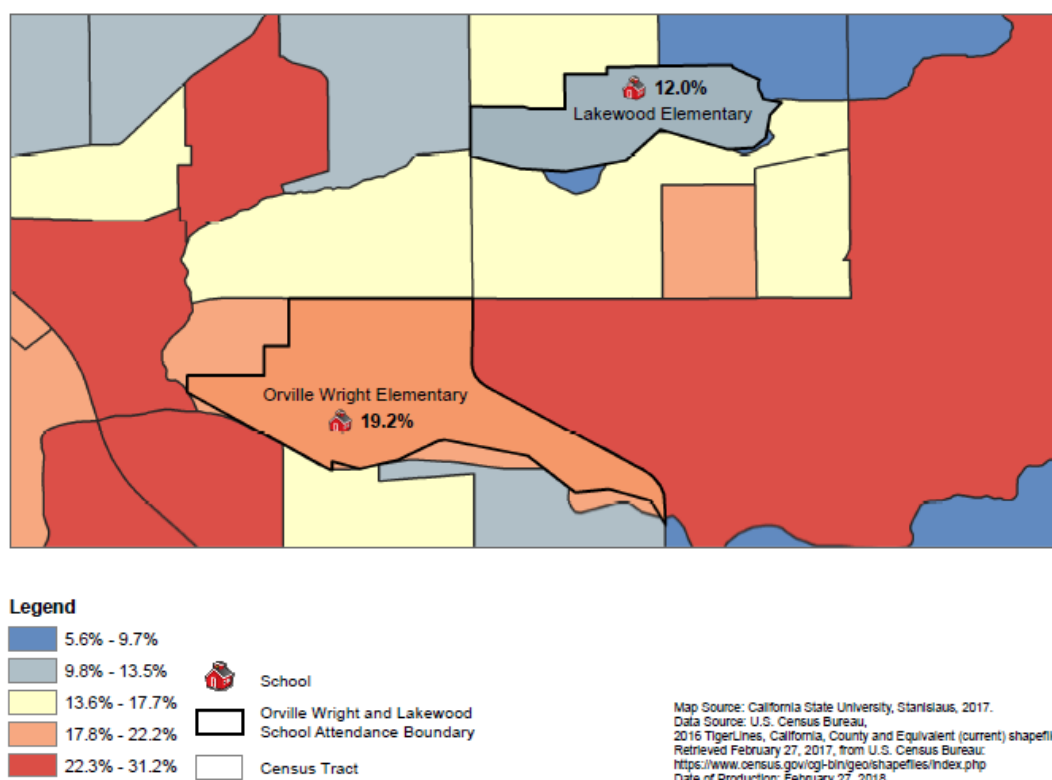


Figure 10. Unemployment rate for the population under 16 years old by attendance zone.

Along with unemployment differences by geography, findings also indicate an association between unemployment and levels of poverty. Within the Orville Wright attendance area, the percentage of those who were living in poverty and who were also unemployed was 36.6% compared to only 15.8% who were living in poverty yet employed. The rates of poverty were also high at 33.3% for those who were unemployed and living in the Lakewood attendance area; however, this rate was much lower for those that were employed and in poverty at 5.8%. With respect to race and ethnicity, the unemployment rates for Asians, Blacks, Latinos, and Whites was higher in the Orville Wright attendance zone as compared to Lakewood. As one example, 17.2% of Latinos were unemployed in Orville Wright as compared to only 9.1% of Latinos in the Lakewood attendance area (see Table 7).

Table 7

*Percentage of Residents Unemployed in Orville Wright and Lakewood
by Race/Ethnicity*

Race/Ethnicity	Orville Wright	Lakewood
Asian	0.0%	5.1%
Black	36.3%	18.9%
Hispanic/Latino	17.2%	9.1%
White	22.7%	14.1%

Note: U.S. Census, 2011-2015 American Community Survey 5-Year Estimates

Food Security

Along with poverty and unemployment, levels of food insecurity are associated with childhood health and well-being. The U.S. Department of Agriculture

articulates the criteria for diminished food security as “reports of reduced quality, variety, or desirability of diet” (2017, n.p.).³ These reports use classifications such as “low food security” or “very low food security.” Berliner (2009) identified that one of seven out-of-school factors that substantially impact learning and child health is food insecurity. He notes that “a broad spectrum of professionals such as psychologists, nutritionists, and physicians agree that there is strong evidence that nutrition is linked with school behavior and achievement” (Berliner, 2009, p. 18).

In terms of food, nutrition, and schooling, data from the California Department of Education (Free or Reduced Meal Data, 2017) indicate that 27.6% of students at Lakewood Elementary School were eligible to receive free or reduced meals whereas 96.6% of students at Orville Wright were eligible to receive these meals. Along with the provision of free and reduced meals to school age children, the federal Supplemental Nutritional Assistance Program (SNAP) provides food and nutrition assistance to families in need and is the largest program in the United States that is set up to combat food insecurity (U.S. Department of Agriculture, 2017). One third, 33.4%, of the households in the Orville Wright attendance area were receiving federal SNAP benefits known as CalFresh in California. As a comparison, in the Lakewood attendance area, the percentages of families receiving CalFresh was only 7.3% (ACS 5-year Estimates, 2016) (see Figure 11).

³ The U.S. Department of Agriculture uses a definition that focuses on food security rather than using the phrase food insecurity.

**PERCENT OF HOUSEHOLDS RECEIVING SNAP/CALFRESH
STANISLAUS COUNTY, MODESTO, 2015**

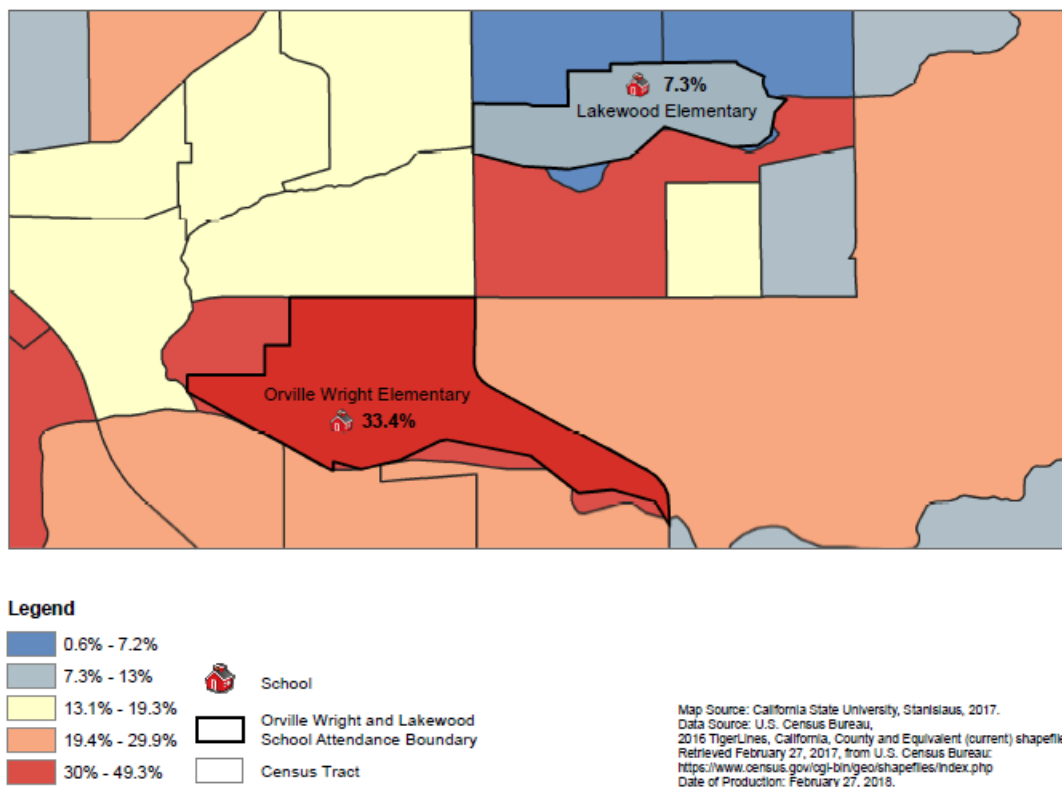


Figure 11. Percent of households receiving SNAP/CALFRESH by attendance zone.

In terms of the receipt of CalFresh by race and ethnicity, large differences are found between groups. As one example (see Table 8), the percentage of Latino households receiving CalFresh was substantially higher at 63.2% for those living in the Orville Wright attendance zone as compared to the percentage of Latinos receiving CalFresh in Lakewood which was 31.6%.

Table 8

Percentage of Each Racial Population Group Receiving Supplemental Nutrition Assistance Program Benefits (SNAP/CalFresh)

Race/Ethnicity	Orville Wright	Lakewood
Asian	0.0%	3.2%
Black	4.2%	0.5%
Hispanic/Latino	63.2%	31.6%
White	32.3%	64.7%

Note: U.S. Census, 2011-2015 American Community Survey 5-Year Estimates

Receipt of Government Assistance

As another way to study the impact of poverty, data specific to the Supplemental Security Income (SSI) and cash public assistance program was reviewed along with CalFresh benefits. The Supplemental Security Income (SSI) program is funded by taxpayers and aims to assist those who are disabled, elderly, blind, or those who have limited or no income. This program supplies cash benefits to individuals to meet shelter, food, and clothing needs (Social Security Administration, 2017). Cash public assistance is provided by the Temporary Assistance for Needy Families (TANF) program which was established to help families reach self-sufficiency (Office of Family Assistance, 2017). In the Orville Wright attendance area, 49.9% of residents were receiving SSI, cash assistance, and/or CalFresh. This is compared to only 21.1% of individuals who received these combined benefits in the Lakewood attendance area (American Community Survey, 5-year Estimates, 2016).

Summary

Findings in this section indicate that the Orville Wright attendance area has much higher rates of poverty as compared to Lakewood. More specifically, childhood poverty was also much higher in the Orville Wright attendance area. In terms of income in the Orville Wright attendance area, 43.4% of households had a household income of \$24,999 or less compared to 13.6% for Lakewood at the same income level.

The unemployment rate was also higher in the Orville Wright attendance area community. Individuals and families living in the Airport neighborhood were much more likely to be receiving Supplemental Security Income, cash assistance, and/or CalFresh benefits as compared to those living in the Lakewood attendance area. In sum, these data indicate that in the Orville Wright attendance area and the surrounding community there are substantial levels of poverty that could affect child health and well-being. Moreover, Sirin (2005) found that family socioeconomic status “is one of the strongest correlates of academic performance” (p. 438).

Sufficient Housing

The second indicator of childhood health and well-being necessary for educational success is sufficient housing. Childhood well-being includes physical health, social and emotional health, and cognitive development (Vandivere et al., 2006). There are multiple housing factors within both the Orville Wright and Lakewood elementary school attendance zones that may affect child well-being.

These include: homeownership, residential stability, quality of the home, affordability, and the lack of housing or homelessness.

Homeownership

The first subtopic, homeownership, refers to the tenure of housing. The U.S. Census Bureau (Glossary, 2017) defines tenure as either “owner-occupied,” meaning the owner lives in the housing unit, or “renter-occupied,” meaning anyone other than the owner is living in the housing unit, usually paying rent to the owner. The physical, social and emotional health, and behavioral and cognitive development of children are all either directly or indirectly affected by homeownership and housing tenure that make-up the communities in which children live.

The physical health of children is influenced by homeownership due to homeowners’ tendency to be more invested in their home, including being financially able to make improvements and afford upkeep as compared to renters (Haurin, Parcel, & Haurin, 2002; Rohe, Van Zandt, & McCarthy, 2002). As Rohe, Van Zandt, and McCarthy explain, “owner occupied units, at least in the United States, are typically kept in better condition than rental units, so homeowners are less likely to be subject to problems related to inadequate heating and cooling systems and infestations of bugs and rodents,” (2002, p. 388).

In addition to affecting their physical health, homeownership impacts the social and emotional well-being of children (Cairney, 2005; Grinstein-Weiss et al., 2012; Haurin, Parcel, & Haurin, 2002). Consequently, studies have found children living in homes owned by their parents are less likely to demonstrate behavior

problems than children whose parents rent their homes (Boyle, 2002; Haurin, Parcel, & Haurin, 2002). Grinstein-Weiss et al. (2012) found homeownership has a significant positive effect on overall behavior scores of children, with children of homeowners scoring higher on indicators such as “getting over being upset,” “waiting turns,” “not being impulsive,” and “following directions,” than children of parents who rent (p. 3552).

Connections between homeownership influencing behavior, as well as the cognitive aspects related to educational success, have also been studied (Boyle, 2002; Haurin, Parcel, & Haurin, 2002). In a study using nationally representative, longitudinal data Haurin, Parcel, and Haurin (2002) found not only did behavioral problems occur less frequently for children who reside in owner-occupied housing, but additionally children who reside in owner-occupied housing have higher levels of cognitive ability. As compared to a family that rents, simply creating a stable environment through homeownership raises mathematical cognition nearly 9% and increases reading scores by 7% (Haurin, Parcel, & Haurin, 2002).

**PERCENT OF THE POPULATION WHO ARE HOMEOWNERS
STANISLAUS COUNTY, MODESTO, 2015**

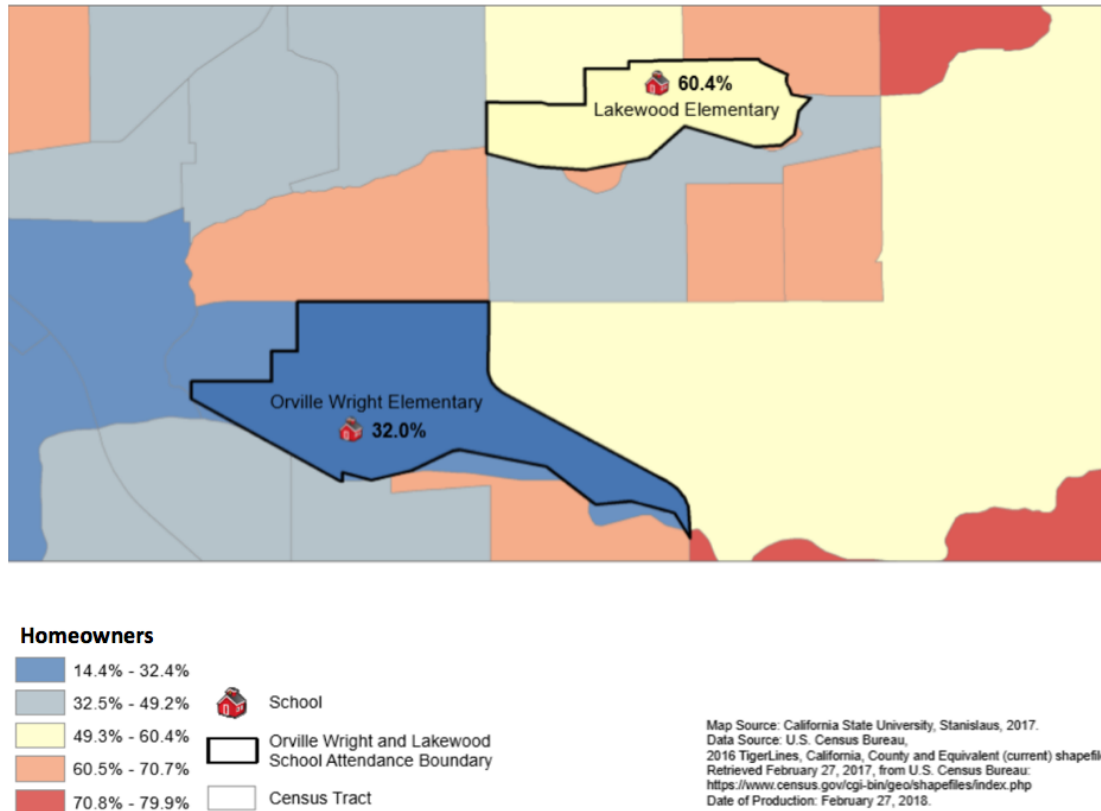


Figure 12. Percent of population who are homeowners by attendance zone.

The percentage of owner occupied housing units in the Orville Wright attendance zone was 32.0% and renter occupied housing was 68.0%, whereas for the Lakewood attendance zone the numbers were 60.4% and 36.6%, respectively (see Figure 12 and Table 9). Thus, a larger percentage of renters comprised the Orville Wright attendance zone than the Lakewood attendance zone.

Table 9

Tenure: Occupied Housing

	Orville Wright Attendance Zone	Lakewood Attendance Zone
Owner occupied	31.9%	60.2%
Renter occupied	68.1%	39.8%

Note: Data from the U.S. Census Bureau, 2011-2015 Tenure: Occupied housing units, 2016.

Residential Stability

Homeownership is also associated with the mobility of the residents within these school attendance zones, as homeowners tend to move less frequently than renters and, thus, are inclined to be more residentially stable (Manturuk, Lindblad, & Quercia, 2012; Vandivere et al., 2006). Residential stability refers to the length of time residents occupy their housing, with longer times representing an increase in opportunities to learn about and participate in community organizations that may benefit their children's health and well-being, including organizations and programs connected with educational success. Due to higher transaction costs connected with buying and selling of a home and the economic interests invested in their property, residential stability is more often found among homeowners than renters (Lindblad, Manturuk, & Quercia, 2013; Manturuk et al., 2012). Furthermore, stable residents may invest the time to develop relationships with neighbors and their community as they are "more willing to invest in building positive relationships and helping networks (i.e. 'social capital') among neighbours" (Galster, 2003, p.896). This sense of community with supportive helping networks can promote the emotional and

social well-being of children. Conversely, frequent residential moves for children can affect the level of social connections, impacting their overall social and emotional well-being (South & Haynie, 2004). Residential moves often result in children needing to transfer to new schools and, therefore, having to adjust to new educational environments, which in turn can ultimately disrupt and affect their cognitive development and educational success (Vandivere et al., 2006). Furthermore, Haurin, Parcel, and Haurin (2002) found “that the longer a parent owns a home, the greater is their children’s cognition and the lower are behavior problems,” (p. 636).

Regarding Orville Wright and Lakewood, by examining homeownership tenure, levels of residential stability can be determined (see Figure 13).⁴ A majority of people living in the Orville Wright attendance zone more recently moved into their homes, with 70.2% of those moving into their homes since 2000, compared to Lakewood with 50.3% in the same time period. In addition, nearly 19.6% moved into their homes in 2010 or later compared to 15.1% for Lakewood. This suggests that in the Orville Wright attendance zone households may not have had sufficient time to develop the social capital Galster (2003) referred to. Conversely, in the Lakewood attendance zone the lower percentage of new homeownership may indicate more residential stability.

⁴ It needs to be noted that homeowner residential tenure cannot be definitively determined in that the ACS survey data of the U.S. Census does not ask residents when they moved into their first home in the attendance zone but rather when they moved into their current home.

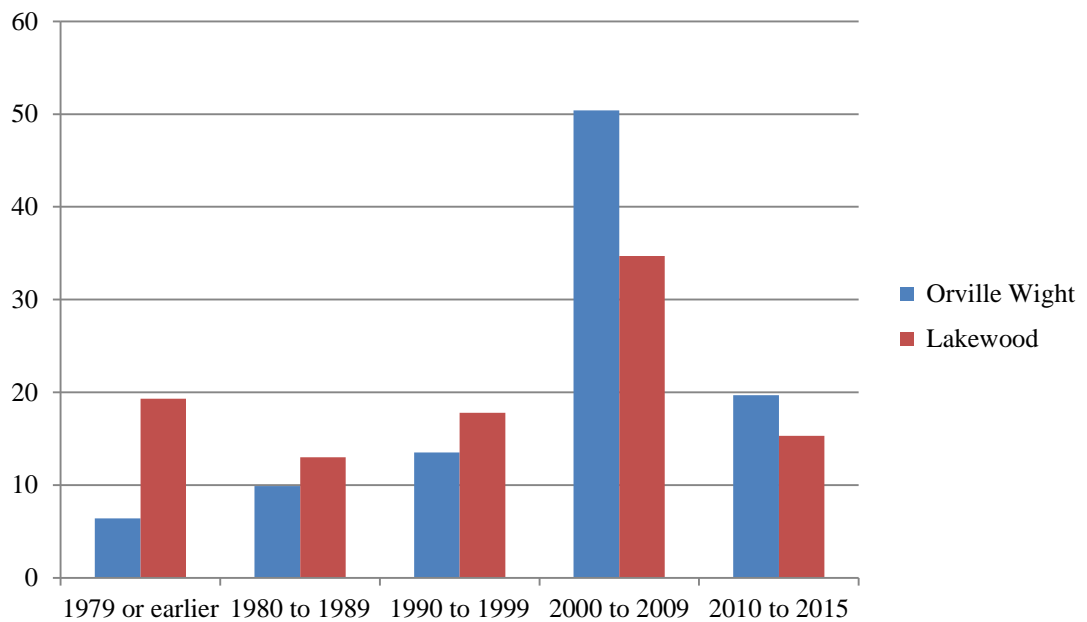


Figure 13. Tenure by year Orville Wright and Lakewood attendance zone homeowners moved into home. This graph shows the differences between owner-occupied residential stability. Data from the U.S. Census Bureau, 2011-2015 Tenure by year householder moved into unit by units in structure: Occupied housing units, 2016.

Table 10

Percentages of Owner-Occupied by Year Householder Moved into Home

	Orville Wright Attendance Zone	Lakewood Attendance Zone
2010 to 2015	19.6%	15.1%
2000 to 2009	50.6%	35.2%
1990 to 1999	13.3%	17.6%
1980 to 1989	9.9%	12.7%
1979 or earlier	6.4%	19.3%

Note: Data from the U.S. Census Bureau, 2011-2015 Tenure by Year Householder Moved into Unit by Units in Structure: Occupied Housing, 2016.

Quality of Housing

The quality of housing, or the physical condition and safety of the home, is also a subtopic of the sufficient housing indicator. A home's physical characteristics, like age, have been found to directly and indirectly influence children's physical health (Breysse et al., 2004; Pollack, Egerter, Sadegh-Nobari, Dekker, & Braveman, 2008; Vandivere et al., 2006), in that older homes may have toxic substances like lead, faltering structures, and inadequate plumbing, cooling or heating. Health problems, such as asthma or lead poisoning, due to structural conditions connected to the housing quality, maintenance, or other environmental dangers, can severely impact children's physical health (HUD, 2014; Vandivere et al., 2006). Moreover, housing that lacks adequate plumbing, heating or cooling can also affect children's physical health directly (HUD, 2014; Vandivere et al., 2006). Chronically ill children tend to be absent from school more, debilitating their educational progress and success overall.

While physical health can be directly related to inadequate housing quality, emotional, behavioral, and cognitive development may also be affected. Coley, Leventhal, Lynch, and Kull (2013) found "children who resided in lower quality housing showed greater emotional and behavioral problems than their peers in higher quality homes" (p. 1785). In addition, cognitive development is highly affected by quality of housing, especially in the case of lead poisoning. The presence of lead in a home can be due from lead leached into the water from water service lines and household plumbing materials and from surfaces that have lead based paint—even

surfaces under layers of new paint such as walls, windowsills, door frames, stairs, etc.—that have become exposed due to deterioration (Environmental Protection Agency, 2017). Many homes built before 1978, the year lead paint was banned, may pose potential lead poisoning risks for young children. According to the Environmental Protection Agency (EPA) homes built between 1940 and 1959 are 69% more likely to contain lead-based paint, and homes built before 1940 are 87% more likely to have lead-based paint present (EPA, 2017). Contact with lead can stunt a child’s brain and central nervous system development and early childhood lead exposure is associated with adverse effects on cognitive functioning (Bellinger & Needleman, 2003; Canfield et al., 2003; Jusko et al, 2008) and lower reading and math scores (Evans, 2006; Lanphear, Dietrich, Auinger, & Cox, 2000). Exposure to lead in a child’s environment can also exacerbate difficulties related to attention deficit hyperactivity disorder (ADHD). Nigg et al. (2008) found exposure to lead affected children with ADHD, arguing the effects of lead on their brain produced poorer cognitive controls, consequently related to the hyperactivity in children with ADHD. The direct health problems that are caused by the environmental conditions related to housing quality, like lead poisoning, can also cause and exasperate symptoms related to asthma, the most recurrent disease found in children (Breyse et al., 2004; Leventhal & Newman, 2010). Vendivere et al. explains, “chronic exposure to indoor allergens including mold, dust mites, mice, rats, and cockroaches is associated with the initiation and continuation of asthma symptoms,” (2006, p. 12).

For the Orville Wright and Lakewood attendance zones the quality of housing was estimated by examining the age of when the homes in these areas were constructed. The Orville Wright attendance zone included many older housing units, with 64.0% of occupied housing units in the Orville Wright attendance zone were constructed prior to 1959 compared to 5.8% for Lakewood. In the Lakewood attendance zone, 39.8% of homes were built after 1980, following the ban of lead paint, compared with 15.4% for Wright. Additionally, Lakewood Elementary was built in 1978, the year lead paint was banned, and Wright was built in 1948. As shown in Table 11 housing comparisons by year built for the Airport and Lakewood attendance zones differ dramatically.

Table 11

Percentages of Year Structure Built: Housing

	Orville Wright Attendance Zone	Lakewood Attendance Zone
2000 or later	5.4%	4.8%
1980 to 1999	10.0%	35.0%
1960 to 1979	20.4%	54.3%
1940 to 1959	52.1%	5.6%
1939 or earlier	11.9%	0.2%

Note: Data from the U.S. Census Bureau, 2011-2015 Year structure built: Housing units, 2016.

For households in these attendance zones, the large proportion of them were family households, with 74% of households designated as family households in the

Orville Wright attendance zone and 71.9% designated as family households in the Lakewood attendance zone. As family households these homes include children of all ages. As shown in Table 11 over half of the homes built in the Orville Wright attendance zone were built between 1940 and 1959. The EPA reports that homes built during this time are 69% more likely to contain lead-based paint (EPA, 2017). The historical roots of this community are reflected in the amount of homes built before 1940—nearly 12%—rising the likelihood of the presence of lead-based paint substantially (EPA, 2017).

In developing the Airport Neighborhood Revitalization Strategy (2010), the city of Modesto performed several neighborhood clean-ups and held neighborhood and service group meetings with residents to assess community needs. Rehabilitation specialists from the Modesto City Parks, Recreation and Neighborhoods Department also conducted a windshield survey to evaluate rehabilitation needs within the community that were inside the city limits. They discovered:

Several of the homes are without foundations and are in violation of several municipal codes. The main issue with the homes is that they are not safe for the families and individuals that inhabit them. Many have faulty wiring, inadequate plumbing, no heating or air conditioning not to mention the majority of homes are without standard safety features like smoke detectors.

(City of Modesto, Airport Neighborhood Revitalization Strategy, 2010, p. 3)

Due to this report, the City's Building Official and Code Enforcement Departments united with the Modesto Police Department to demolish 17 properties that were

deemed “extremely unstable and uninhabitable” (City of Modesto, Airport Neighborhood Revitalization Strategy, 2010, p. 2).

Much of the inadequate housing conditions discovered by the City of Modesto were due to the age of the homes and the maintenance of homes being “put off for several years” (City of Modesto, Airport Neighborhood Revitalization Strategy, 2010, p. 3). For many homeowners in this area older homes and the financial capability to maintain them may be a continuing problem. When examining the homes owned by householders ages 34 years or younger—the age when people are typically beginning to raise families—in the Orville Wright attendance zone, 99.1% of these were built prior to 1980, contrasting sharply with the Lakewood attendance zone homeowners in this same age range of which only 33.6% of the homes were built prior to 1980. Even for those in the age range of 34 years of younger who were renting homes in the Orville Wright attendance zone, the high majority of the homes (89.7%) were built prior to 1980. Moreover, the large majority of owners and renters in the Orville Wright attendance zone from all age categories lived in housing built prior to 1959 as compared to the Lakewood attendance zone. Only 15.4% of housing in the Orville Wright attendance zone was built after 1980, while this jumps to 39.8% for housing in Lakewood built at this time. The city of Modesto’s Airport Neighborhood Revitalization Strategy reports “there has been little to no new development in the [Airport] neighborhood in the past few decades and the neighborhood shows scars from years of property neglect” (2010, p. 3).

Affordability of Housing

The affordability of housing is another significant subtopic of the sufficient housing indicator. Issues related to poverty, such as tenure choice due to financial capabilities, household income, and monthly housing costs all pertain to housing affordability. Defining the various complexities and features of housing affordability is crucial before discussing relevant literature. The U.S. Census Bureau (Glossary, 2017) uses poverty thresholds, or money income thresholds, to determine a family or person's poverty status. If the total income for a family or person falls below the relevant poverty threshold, then the family or person is considered in poverty. Additionally, the census defines income as the money a household receives on a regular basis (U.S. Census Bureau, Glossary, 2017). Examining monthly housing costs as they relate to income is also part of the intricacies of poverty and housing. According to government guidelines, owner and renter-occupied households should not spend more than 30% of their household income on housing costs (HUD, 2014; Shlay, 2015). Moreover, these housing characteristics are often interrelated. For example, housing costs can determine the quality of home, like its physical condition, that a family is able to afford, as well as the income level of the neighborhood where the home is located (Vandivere et al., 2006). Housing cost burdens and the lack of financial ability to afford adequate housing can also be linked to residential stability for families with children (Cohen & Wardhip, 2001), thus connecting with other subtopics in this section.

Housing affordability concerns like monthly housing costs and household income can have both direct and indirect impacts on a child's health and well-being. Families faced with meeting financial expenses related to housing may have to confront decisions concerning their children. The decision to compromise on the quality of housing by living in housing units that may have structural problems or other inadequacies due to affordability issues may lower living costs for low-income families. However, the Joint Center for Housing Studies of Harvard University (JCHS) cautions "such living conditions expose children to serious health and safety hazards that can undermine their current and future well-being," (2017, p. 33). Consequently, severely cost-burdened households with high monthly housing costs may spend less on basic needs, such as food (Bratt, 2002; JCHS, 2017; Shlay, 2015) and medications, which can affect child health and development (HUD, 2014). Thus, the financial strain and worry cost-burdened parents may experience due to these tradeoffs can negatively affect child development (Conger & Donnellan, 2007; Mistry, Lowe, Benner, & Chen, 2008).

The impacts on a child's health and well-being due to housing affordability concerns and financial stress directly relate to the housing conditions families live in and the situations parents and heads of households may find themselves in due to this. Adverse health effects due to inadequate physical housing conditions can occur in both owner-occupied and renter-occupied housing units; nevertheless, renters living below the poverty level may not have the necessary money and resources to make repairs if property owners prove unresponsive (Pollack et al., 2008). The precarious

financial positions many cost-burdened families find themselves in is explained by JCHS, “to make ends meet, these families often do not buy enough food for their households or they substitute cheaper less nutritious foods, either of which can jeopardize their children’s health and development,” (2017, p. 33).

Many of the housing affordability concerns discussed, such as low household income and high monthly housing costs, were found within the Orville Wright attendance zone. Low property values in the Orville Wright attendance zone permitted home ownership for low-income families who might have found areas like Lakewood beyond their financial means. Currently, there is significant differences in home prices. Looking at the timeframe from September 9, 2017 to March 9, 2018 in both attendance zones, the median price for a home in the Orville Wright attendance zone was \$110,000 compared to \$450,000 for the Lakewood attendance zone (Zillow, “Recently Sold Homes,” 2018). In Orville Wright prices ranged from \$30,000 to \$185,000 while in Lakewood the range was \$210,000 to \$830,000 (Zillow, “Recently Sold Homes,” 2018). Property values for these homes also relate to the age of housing and how they were built. For example, as shown in Figure 14, lots in the Sierra housing division in the Airport community were sold by the Beard Land and Investment Company to many of the newly arrived “Okie” population in the 1930s. Many of these homes were self-built, and there were no building regulations stipulated in the contract of sale (Creisler, 1940). Many these homes remain today with little to no renovation, and therefore provide low cost, albeit inadequate, housing.

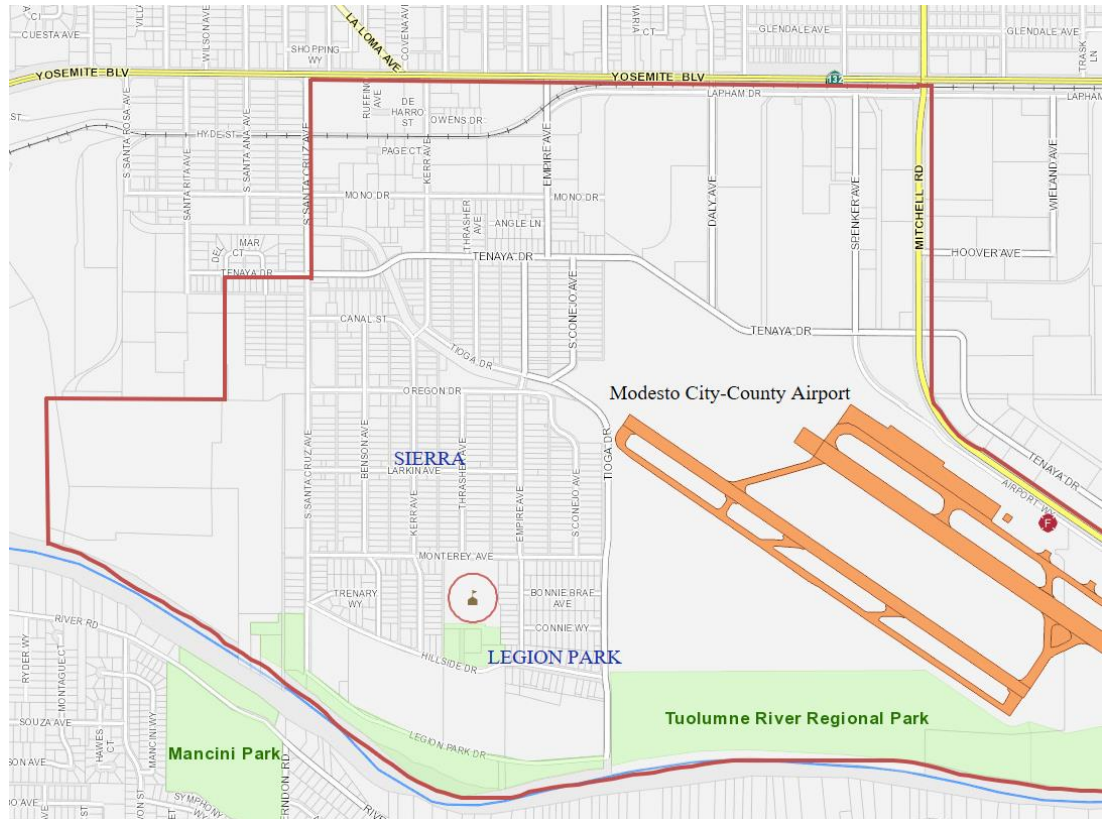


Figure 14. Map showing the Orville Wright attendance zone and names of housing divisions. The attendance zone boundary line is in red, and the name of the housing divisions are capitalized in blue. Map created using city of Modesto GIS website.

In contrast, the clear majority of homes in Lakewood were built by residential developers, then sold (see Figure 15). While some homes were built prior to 1960, these homes only represent 5.8% of the homes built and many were country homes at the time with acreage. Large real estate developers built the subdivisions around these

early homes, such as the division of Stonegate Manor which was built in the late 1980s and early 1990s.

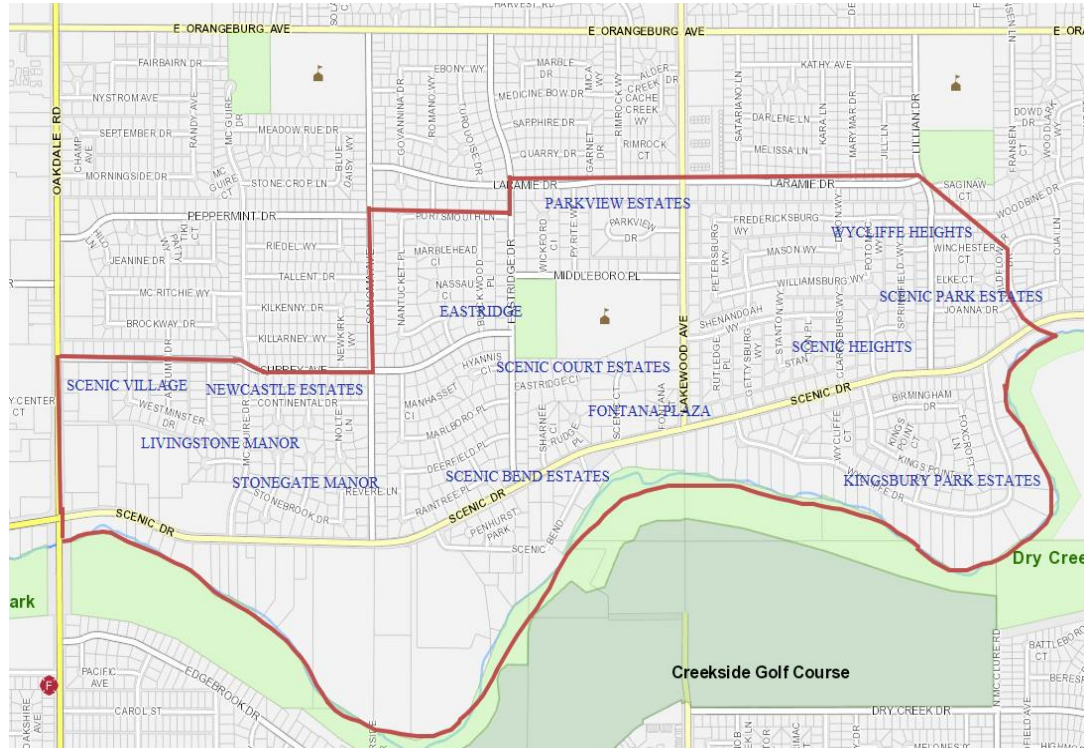


Figure 15. Map showing the Lakewood attendance zone and names of housing divisions. The attendance zone boundary line is in red, and the name of the housing divisions are capitalized in blue. Map created using city of Modesto GIS website.

Poverty levels in these communities determine the types of housing residents are able to afford and maintain. For all families who owned homes or who rented in the Orville Wright attendance zone, 35.3% and 30.1%, respectively, were living below the poverty level. For the Lakewood attendance zone only 7.3% of all families, homeowners and renters, were living below the poverty line, much less than found in the Orville Wright attendance zone.

Poverty and housing affordability is directly related to household income. Data on household income in general showed 59.0% of homeowners in the Lakewood

attendance zone made \$50,000 or more, while only 20.3% of homeowners in Orville Wright were in this same income bracket. Nearly 26% of homeowners in the Orville Wright attendance zone, and 6.8% in the Lakewood attendance zone, had a household income of less than \$15,000. For those who rented in the Orville Wright attendance zone, nearly 14% had a household income of less than \$5,000, which contrasts with those renting in the Lakewood attendance zone in this category at only 1.4%.

Besides household income, monthly housing costs differed for these attendance zones as well. A little over half (53.06%) of the residents in the Orville Wright attendance zone had monthly housing costs ranging from \$500 to \$999, whereas nearly half (45.9%) of the residents in the Lakewood attendance zone had monthly housing costs that ranged from \$1,000 to \$1,999. According to government guidelines, owner and renter-occupied households should not spend more than 30% of their household income on housing costs (HUD, 2014; Shlay, 2015), yet for Orville Wright nearly a quarter of homeowners earning less than \$20,000 were in this bracket compared to less than 8% in Lakewood (see Table 12).

Table 12

*Percentages of Monthly Housing Costs That are 30% or more of Household Income:
Overall*

Household Income	Orville Wright	Lakewood
Less than \$20,000	23.3%	7.9%
\$20,000 to \$34,999	14.1%	10.2%
\$35,000 to \$49,999	11.1%	8.7%
\$50,000 to \$74,999	0.1%	3.5%
\$75,000 or more	0.1%	2.1%

Note: Data from the U.S. Census Bureau, 2011-2015 monthly housing costs as a percentage of household income in the past 12 months, 2016. Data is for both attendance zones and represents the overall percentages.

The occurrence of households spending more than 30% of their income on housing costs in the Orville Wright attendance zone may have forced many families to make difficult decisions concerning housing repairs, basic needs, medications, and healthy food. Additionally, those in the Orville Wright attendance zone that have zero or negative income was at 7.7%, compared to those in the Lakewood attendance zone at 1.5%, reflecting a much larger population that was cost-burdened and financially strained.

For the 25.6% of households who earned less than \$15,000 a year in the Orville Wright attendance zone difficult decisions concerning money for basic needs had to be made. According to the U.S. Department of Health and Human Services a

family of four with a household income of less than \$24,250 was below the federal poverty level (2018d). In the Orville Wright attendance zone 43.5% made less than \$25,000 in household income compared to the 13.7% in the Lakewood attendance zone. Some of these households may have been smaller than a family of four; however, some may have been larger requiring an increase in household income to stay above federal poverty levels. The tough decisions relating to finances due to high monthly housing costs and low household income can include compromises in transportation and sacrificing housing quality for many low-income communities (JCHS, 2017). As cited in the U.S. Census, for the Orville Wright attendance zone, 23% of the residents did not have a vehicle available to them, suggesting their dependence was on public transportation for grocery shopping, getting to work, and taking family members to school and activities that are beyond walking distance; whereas in Lakewood only 8% of the residents did not have a vehicle available for use. Thus, compared with Lakewood, those in the Orville Wright attendance zone who commuted to work utilized carpools, public transportation or even walked to jobs at much higher rates.

Homelessness

The last housing subtopic is a lack of housing, or homelessness, defined as the condition of people without a permanent dwelling. “The primary cause of family homelessness is lack of affordable housing,” reports the United Health Foundation (America’s healthy rankings, 2016, p.54). In severe circumstances the cost and availability of housing, compounded with poverty, are the key causes of

homelessness (National Resource, 2006). The California Department of Education defines homeless children and youth through the McKinney Vento Act, passed in 2001, as:

Individuals who lack a fixed, regular, and adequate nighttime residence. This definition also includes: children and youths who are sharing the housing of other persons due to loss of housing, economic hardship, or a similar reason; children and youths who may be living in motels, hotels, trailer parks, shelters, or awaiting foster care placement; children and youths who have a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings; children and youths who are living in cars, parks, public spaces, abandoned buildings, substandard housing, bus or train stations, or similar settings; or migratory children who qualify as homeless because they are children who are living in similar circumstances listed above. (2016, para. 1)

Families with children who are homeless encounter very serious consequences related to child health and developmental (Vandivere et al., 2006). Children are more apt to encounter hunger and poor health when homeless (Better Homes Fund, 1999) and many homeless children suffer high levels of stress. Hicks-Coolick, Burnside-Eaton, and Peters (2003) found nearly half of homeless children have symptoms of anxiety or depression, and many encounter complications with social and personal development. Homeless families are also likely to experience child protective services and foster care services interventions, possibly compounding child stress

levels (Vandivere et al., 2006). The educational success of homeless children may also be affected by their situation. Many homeless children experience developmental delays and impediments with language development (Hicks-Coolick, Burnside-Eaton, & Peters, 2003) and have been found to score lower on achievement tests than their grade-level counterparts and are more likely to repeat grades in school (Rafferty, Shinn, & Weitzman, 2004). Vandivere et al. (2006) explain, “the educational performance of homeless children may suffer not only from the stress of homelessness, but also because of frequent school changes” (p. 16).

The California Department of Education reports homeless student data in their California Longitudinal Pupil Achievement Data System (CALPADS) for Orville Wright and Lakewood elementary schools. As shown in Table 13, total enrollment numbers were similar for both school zones, yet differed for students who were eligible for the Free and Reduced Meal Program (F&RMP), students whose families may have fallen below the poverty level and faced the housing obstacles discussed in this section.

Table 13

Total Enrollment, F&RMP, and Homeless Student Totals and Percentages for 2014-15

	Total Enrollment	Free and Reduced Meal Program	Homeless
Orville Wright	384	371 (97.0%)	50 (13.0%)
Lakewood	395	109 (28.0%)	11 (2.8%)

Note: Data from California Department of Education, CALPADS UPC Source File (K-12) for 2016-17, 2015-16, and 2014-15 school years, 2017. Total enrollment is a total count of all K-12 students enrolled (primary or short-term) on Census Day. This count corresponds to the "Total Enrollment" count provided in CALPADS certification report 1.17: FRPM/English Learner/Foster Youth - Count. The Free & Reduced Meal Program (F&RMP) data is of the Total Enrollment, a total count of students reported being eligible on Census Day for the National School Lunch Program (NSLP) based on Education Program records with an Education Program Membership Code 181 (Free) or 182 (Reduced). This count corresponds to the "Free & Reduced Meal Program 181/182" count provided in CALPADS certification report 1.17: FRPM/English Learner/Foster Youth - Count. Homeless data is of the Total Enrollment, a total count of students reported as being homeless on Census Day based on Education Program record with an Education Program Membership Code 191 (Homeless). This count corresponds to the "Homeless" count provided in CALPADS certification report 1.17: FRPM/English Learner/Foster Youth - Count.

Summary

Childhood health and well-being assists in educational success but requires adequate and stable housing. Coley et al. (2013) conclude that “housing is a primary proximal context in which children’s development unfolds. As such, the housing context has the potential to serve as a potent force influencing children’s healthy growth and development,” (p. 1775). The components of homeownership, residential stability, quality of the home, affordability, and homelessness that comprise the health and well-being indicator of sufficient housing all affect the housing context for children.

The physical, cognitive, and behavioral health effects on children related to homeownership may have negatively impacted the children living in the Orville Wright attendance zone as compared to those living in the Lakewood attendance zone. In the Wright neighborhood there were significantly more renters and fewer homeowners as compared to the Lakewood neighborhood. This affects residential stability as, compared to renters, homeowners live for longer periods in the same home and community.

The quality of housing in these two areas was also vastly different. Children in the Wright area lived in much older housing and were subjected to significantly higher levels of environmental hazards, such as lead-based paint. Additionally, financial resources, such as household income and monthly housing costs, contribute to the affordability of housing decisions. In the Orville Wright attendance zone poverty levels were higher and property values considerably lower so that residents with low income may have little choice but to own or rent in this community. The complete lack of housing for some children and its attendant effects on educational success in the Orville Wright attendance zone was evidenced by the higher number of homeless students enrolled at Orville Wright as compared to Lakewood. For these school attendance zones the housing topics and the data related to them all interconnect and shed light on the socio-environmental conditions these students faced and the educational attainment they achieved.

Violence and Crime Levels

The next indicator of childhood health and well-being necessary for educational success is violence and crime levels. To determine levels of violence and crime current data were utilized, as opposed to the 2011-2015 census data. For this section the data collection tool Crime Mapping was utilized, and crimes were categorized as either violent, property, or other. The data collection process and types of crimes are discussed first, followed by the effects of violence and crime on health, educational outcomes, and land-use as they relate to the well-being of children. Related to health, it is important to understand the ways in which violence and crime impact childhood physical activity, as well as cognitive and psychological development factors. Violence and crime can also create a cascading effect, or an unforeseen chain of events, on children's educational outcomes, as research has shown its effects on academic achievement as measured on standardized tests. The last sub-topic, land-use, has also been associated with levels of crime.

Data Collection Methods and Types of Crimes

As stated, the data in this section were obtained from Modesto City's Crime Mapping, used by the Modesto Police Department and the Stanislaus County Sheriff Department. This interactive software tool enables local law enforcement agencies to offer the public information concerning recent incident reports in the community, with the overall goal of "reducing crime through a better-informed citizenry" (Crime Mapping, 2017, para. 1). Data garnered for the mapping engine of Crime Mapping are updated daily from each law enforcement department's record system and verified

for accuracy before they are made available in the mapping website (Crime Mapping, 2017). The Crime Mapping tool allows users to choose from a wide variety of crime types, places, and time frames, as well as the convenience of creating charts and crime data reports.

For the crime data reported in this section, 180 days of crime reports were extracted from Crime Mapping from March 25, 2017 to September 20, 2017. Out of these 180 days, 74 were school attendance days, including the days third graders were tested for English literacy at Orville Wright and Lakewood elementary schools. Both Orville Wright and Lakewood elementary schools were mapped for crime by acquiring and analyzing the crime incident reports from a one-fourth of a mile radius around the school sites. A total of 191 detailed crime reports were obtained from both schools, with 165, or 86.4% from Orville Wright, and only 26, or 13.6% of the reports from Lakewood. Figures 16 and 17 report these results as they looked on the Crime Mapping site, with the crime incident reports indicated by the various crime symbols used by this software and explained in Appendix C.

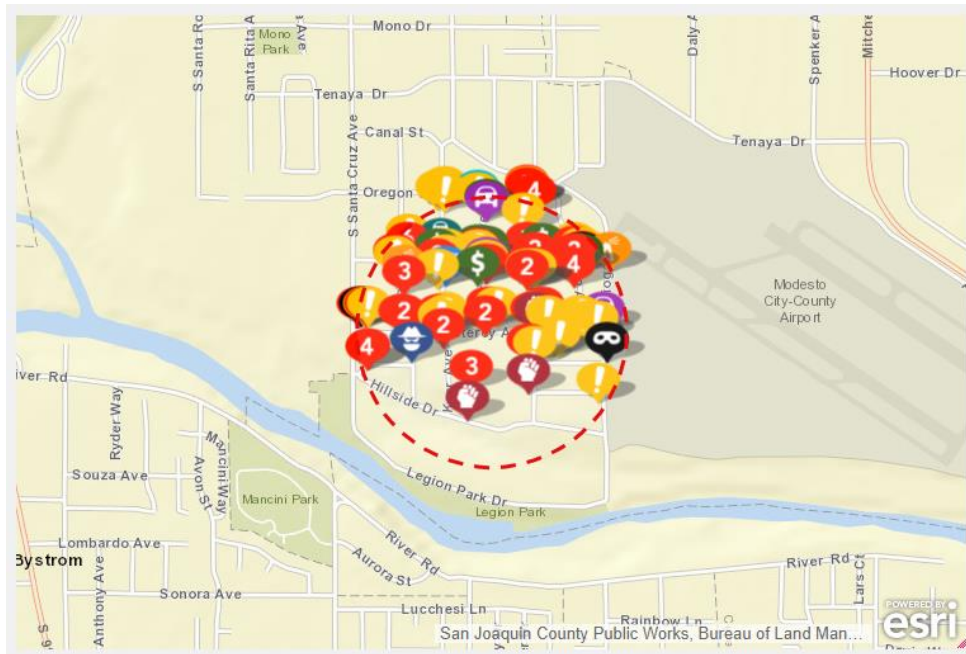


Figure 16. Crime Mapping map showing the 65 crime incident reports for March 25, 2017 to September 20, 2017 in a one-fourth radius around Orville Wright elementary school. Crime Mapping. (2017). See Appendix C for explanations of crime symbols.

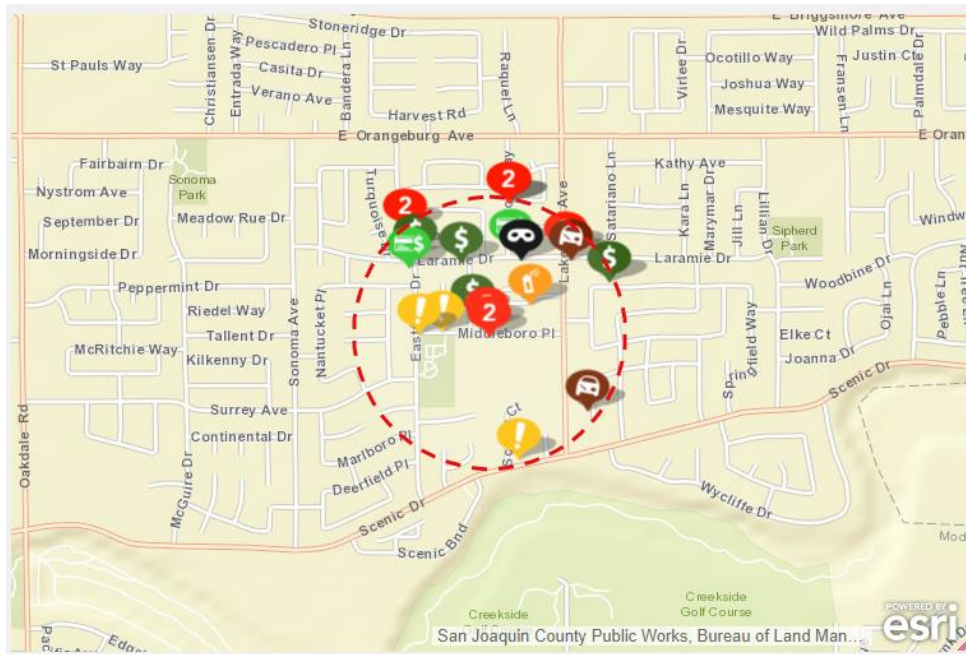


Figure 17. Crime Mapping map showing the 26 crime incident reports for March 25, 2017 to September 20, 2017 in a one-fourth radius around Lakewood elementary school. Crime Mapping. (2017). See Appendix C for explanations of crime symbols.

Less detailed crime reports were also attained from Crime Mapping for the entire Orville Wright and Lakewood school attendance zones, the entire Modesto area and two parks within the Orville Wright attendance zone, and for one park within the Lakewood attendance zone. These data will be discussed further on in this section. While this study measures crime in these two attendance zones using official crime reports, it is important to consider the amount of underreporting that occurs in neighborhoods concerning crime incidents. The 2005 National Crime Victimization Survey found that only 62% of aggravated assaults, 60% of robberies, and 56% of burglaries were actually reported to the police (Klaus & Maston, 2006). Thus, the crime reports described herein may not fully reflect the total number of crimes in these attendance zones due to underreporting.

Crime data are categorized as violent, property, and other. Violent crimes are offenses against a person, usually using force, such as assault or battery, while property crimes are offenses against property, such as vehicle break-ins and theft. For all crimes that do not fall into these two categories, such as disturbing the peace, a general other category was created. See Table 14 for specific details, including the number of crimes reported during school hours.

Table 14

Crime Data Types, Reports and Percentages for Orville Wright and Lakewood Elementary Schools

Types of Crime	Orville Wright	Lakewood
Violent: Assault, Homicide, Robbery, and Battery	13 (7.9%)	2 (7.7%)
Property: Burglary, Fraud, Motor-Vehicle Theft, Robbery, Theft/Larceny, Vandalism, and Vehicle Break-in	30 (18.2%)	10 (38.5%)
Other: Disturbing the Peace, etc.	122 (73.9%)	14 (53.8%)
Total	165 (100%)	26 (100%)
Crimes reported during school hours	5 (4%)	1 (3.8%)

Note: Data were collected from a one fourth mile radius around each elementary school location. Percentages reflect the percent out of the total reports for each school, not a combined total. Out of the total 165 reports from Orville Wright, seven were by the Stanislaus County Sheriff Department, while all reports from Lakewood were by the Modesto Police Department. The five reports from Orville Wright that occurred during school hours were for a fight, a family fight, stolen vehicle recovery, battery, and petty theft, while the one report for Lakewood concerned a report of a family fight. Crime Mapping. (2017).

Violence and crime levels in these school attendance zones has both a direct and indirect influence on child health. According to the World Health Organization (WHO) “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity,” (WHO, 1946, p.1). Physical health, or the condition of one’s body, can be both directly and indirectly impacted by crime. Looking at crime as a public health issue, Kneeshaw-Price et al. (2015) found that “not only can it [crime] directly harm residents through its violent manifestations but also it can indirectly harm residents through stress and impacts on health behaviors” (p. 473). Moreover, the perception that crime exists, often justified by observing vandalism or other crimes, can heighten parents’ fears concerning the time children spend participating in outdoor physical activities and play (Foster & Giles-Corti, 2008; Kneeshaw-Price et al., 2015; Loukaitou-Sideris, 2006; Loukaitou-Sideris & Eck, 2007; Mijannovich & Weitzman, 2003; Roman et al., 2009). In one such study of 6-11-year old children in San Diego, Kneeshaw-Price et al. (2015) found “a relatively strong association of police-reported crime with children’s total and neighborhood physical activity” (p. 486). Thus, the indirect effect of fear of violence may impact the health-related opportunities for physical exercise in neighborhoods. Furthermore, in areas of low socioeconomic status (SES) Humbert et al. (2006) argues that the neighborhood should be a place that affords opportunities for low-cost forms of physical activity; however, high levels of crime may prevent the use of low-cost forms of physical activities, such as parks.

The Orville Wright neighborhood is one of these low socioeconomic areas. In the Orville Wright attendance zone, 35.4% of residents fell below the poverty level. This compares to 11.5% for those who fall below the poverty level in the Lakewood attendance zone (United States Census Bureau, 2016). These percentages mean many residents of Orville Wright may need more free, or low-cost, physical recreational opportunities. In both the Lakewood and Orville Wright attendance zones, physical activity may include walking or spending time at parks, however, for residents in the Orville Wright attendance zone, the two local parks may be their only physical activity option due to low-income and lack of transportation. Table 15 shows crime data within 500 feet of parks in these attendance zones. There were a total of 83 crimes reported for Orville Wright compared with just 2 for Lakewood. Further, there were 15 crimes involving assaults and weapons reported for Orville Wright compared with none for Lakewood. Such data indicate the safety concerns many residents may have when deciding to walk in their neighborhoods or take their children to play at the park.

Table 15

Crime Reports and Percentages for Neighborhood Parks within Attendance Zones

Crime Types	Lakewood Park	Oregon Park	Legion Park
Disturbing the Peace	2 (100%)	34 (63.0%)	26 (89.7%)
Assault	0 (0.0%)	9 (16.7%)	0 (0.0%)
Drugs/Alcohol	0 (0.0%)	5 (9.3%)	1 (3.4%)
Violations			
Fraud	0 (0.0%)	1 (1.9%)	0 (0.0%)
Vandalism	0 (0.0%)	1 (1.9%)	0 (0.0%)
Weapons	0 (0.0%)	4 (7.4%)	2 (6.9%)
Total	2 (100%)	54 (100%)	29 (100%)

Note: Data are from within 500 feet of park locations. Lakewood Park is adjacent to Lakewood Elementary; Oregon and Legion Parks are within the Orville Wright attendance zone. Percentages reflect the percent out of the total reports for each school, not a combined total. Crime Mapping. (2017).

Violence, Crime, and Health

Related to health, violence and crime can have detrimental effects on cognitive development for young school-age children. Defined by Vandivere et al. (2006), cognitive development “describes children’s abilities to mature in ways that allow them to learn in school and solve problems, make good decisions, and acquire essential literacy, mathematical, and technological skills” (p. 10). In addition, cognitive development may affect or be affected by psychological health. Burdick-Will (2016) details how residents in a high-crime area can be affected psychologically:

Living in a neighborhood with high rates of violent crime increases the risk of direct experience with violent events, the injury or arrest of close friends or

relatives, and routinely hearing gunshots near one's home, all of which may induce trauma and emotional stress for both parents and children. (p. 135)

Trauma and emotional stress increase stress hormones that can damage the working memory functions needed to concentrate and do well on cognitive tests (Mattarella-Micke & Beilock, 2012; Sauro, Jorgensen, & Pedlow, 2003). Consequently, these effects on cognitive development are directly associated with the educational outcomes of young students. Academic growth is positively influenced by a strong, healthy relationship with a child's environment and negatively influenced by stress levels that may impact families due to crime (Burdick-Will, 2016).

A vulnerable time for students is the after-school hours, especially if their caregivers are not present until later in the day. Examining a one-fourth mile radius around both elementary schools Table 16 shows the number of crime reports during after-school hours.

Table 16

Crime Reports during Afterschool Hours for Orville Wright and Lakewood Elementary Schools

Crime type	Orville Wright	Lakewood
Disturbing the Peace	12	1
Property	3	0
Violent	1	0
Total	16	1

Note: Data are for a one-fourth mile radius around both elementary school locations for the 74 school days included in the total 180 days of data collection. For Orville Wright afterschool hours were from 2:34 pm (or 1:15 pm for minimum day) to 6:00 pm. Eleven of the 12 disturbing the peace reports were related to fighting; the property reports included a stolen vehicle recovery, petty theft, and a residential burglary report; and the violent crime was an armed robbery report. For Lakewood afterschool hours were from 2:59 pm to 6:00 pm (minimum days did not have incident reports). The one report was for disturbing the peace at Lakewood Park and connected with a family fight. Crime Mapping. (2017).

For many of these students after-school programs, such as those offered by local churches, are held at parks; thus, examining the crime reports in or near the area parks is of significance (see Table 17). While disturbing the peace crimes make-up the majority of reports for these parks—including the only two reports for Lakewood park—Oregon Park within the Orville Wright attendance zone has an alarming number of assault, drugs/alcohol violations, and weapons reports. Reported as a “Norteno⁵ stronghold,” in 2004 gang members shot into a crowd of 80 youths who were participating in an after-school program at the park killing a 17-year-old girl (Stapley, 2015).

Violence, Crime, and Educational Outcomes

Educational outcomes can also be shaped by violence and crime, particularly affecting critical learning periods. One of the most essential learning periods for children is the transition from third grade reading to literacy. A report by the Annie E. Casey Foundation argues reading proficiency by the end of third grade can be “a make-or-break benchmark in a child’s educational development” (Fiester, 2010, p. 9). The report goes on to explain why this transitional learning period and third grade reading proficiency is so vital:

Up until the end of third grade, most children are *learning to read*. Beginning in fourth grade, however, they are *reading to learn*, using their skills to gain more information in subjects such as math and science, to solve problems, to

⁵ Nortenos are a Northern Californian street gang that originated in the California state prison system in 1968.

think critically about what they are learning, and to act upon and share that knowledge in the world around them. (Fiester, 2010, p. 9)

Students not able to read by third grade encounter difficulties related to further academic comprehension and are more likely to experience increased educational challenges (Lesnick et al., 2010). Poor literacy achievement by the end of third grade has also been associated with an increase in behavioral and social problems for children later in their education (Miles & Stipek, 2006), thus creating a cascading effect on academic outcomes. Third grade reading proficiency is thus vital to academic success, namely with high school completion, college readiness, and long-term economic earning potential (Fiester, 2010); thus, violence and crime may hamper this critical time, creating increased setbacks and barriers for educational success.

Students who are exposed to violence may be at risk for academic difficulties because “their functioning at school is hindered by symptoms of depression” (Schwartz & Gorman, 2003, p. 171). Depression due to stress, along with other posttraumatic stress symptoms such as aggression, can hinder academic achievement (Burdick-Will, 2016), which can be confounded by neighborhood poverty (Milam et al., 2010). Moreover, a study by Sharkey (2010) found children exposed to violent events, such as homicide, within the week preceding academic tests on vocabulary and reading had lower scores compared to those not exposed.

The School Accountability Report Cards (2014-15) for Orville Wright and Lakewood elementary schools include student outcomes for the California

Assessment of Student Performance and Progress (CAASPP) Test for English Language Arts/Literacy (ELA). For third grade students at Orville Wright only 17.0% of students met or exceeded the standard in 2014-15 whereas for Lakewood 76.0% met or exceeded the standard. Since crime has an effect on school achievement and there is significantly more crime in the area surrounding Orville Wright, it can be assumed that crime may be having an effect on student learning and therefore achievement outcomes.

Table 17

Number of Violent Crime Reports for Orville Wright and Lakewood Attendance Zones

Crime Type	Orville Wright	Lakewood
Assault	47	2
Homicide	1	0
Robbery	3	1
Weapons	30	2
Total	81	5

Note: Data are from Orville Wright and Lakewood Elementary attendance zones. Collected from March 25, 2017 to September 20, 2017. Crime Mapping. (2017).

As shown in Table 18, there were 86 violent crime reports in both attendance zones, but only five, or 5.8%, reported in Lakewood. The Orville Wright attendance zone also had a considerably larger number of assault and weapons reports. Of important note is the homicide that occurred in the Orville Wright attendance zone. During this time period five homicides were reported in Modesto, with one being in the Orville Wright attendance zone's Legion Park. Even more significant is that the homicide

happened on April 9th, the day before ELA testing at Orville Wright elementary, and therefore may have had an acute effect on these students' cognitive performance. In an editorial for the *Modesto Bee* the principal of Orville Wright at the time of the article, Heather Sherburn, stated at least six murders in the surrounding neighborhood occurred during her seven-year tenure, four of which happened either while children were at school or in an after-school program (Jardine, 2015). Principal Sherburn went on to say "they [students] hear gunshots every night" (Jardine, 2015).

The amount of violent crime experienced by Orville Wright students is significant; nevertheless, the number of crimes designated as other in Table 14 is also important. These are designated by crime type in Table 18 for the one-fourth mile radius around each elementary school location.

Table 18

Number and Percentages of Disturbing the Peace and Other Crime Reports for Orville Wright and Lakewood

Crime Report Types	Orville Wright	Lakewood
Noise Disturbance	6 (4.9%)	3 (21.4%)
Disturbance Between Neighbors	7 (5.7%)	2 (14.3%)
Fight	11 (9.0%)	2 (14.3%)
Fight Verbal	23 (18.9%)	5 (35.7%)
Fight Family	68 (55.7%)	2 (14.3%)
Suspicious Vehicle	1 (0.8%)	0 (0%)
California Vehicle Code Violation	1 (0.8%)	0 (0%)
County Ordinance Violation	2 (1.6%)	0 (0%)
Driving Under the Influence	1 (0.8%)	0 (0%)
Drunk in Public	1 (0.8%)	0 (0%)
H&S Possession	1 (0.8%)	0 (0%)
Total	122 (100%)	14 (100%)

Note: Data are for a one-fourth mile radius around each elementary school locations. Percentages reflect the percent out of the total reports for each school, not a combined total. H&S possession is possession of narcotic drugs classified as a controlled substance. Crime Mapping. (2017). For Wright the percentages add to 99.8 due to rounding.

The three report types concerning fights are troubling for children near Orville Wright. While fights make up the majority of crime or violent incidents in the one-fourth mile radius of both schools, the total number of fights in Lakewood was nine whereas in Orville Wright it was 11-times higher at 102. Some of these fighting reports were outside the home, but over half were for family fights, meaning children who reside in these homes in the Orville Wright attendance zone are witnessing

violence and experiencing trauma not only when they step outside their doors, but also within their homes.

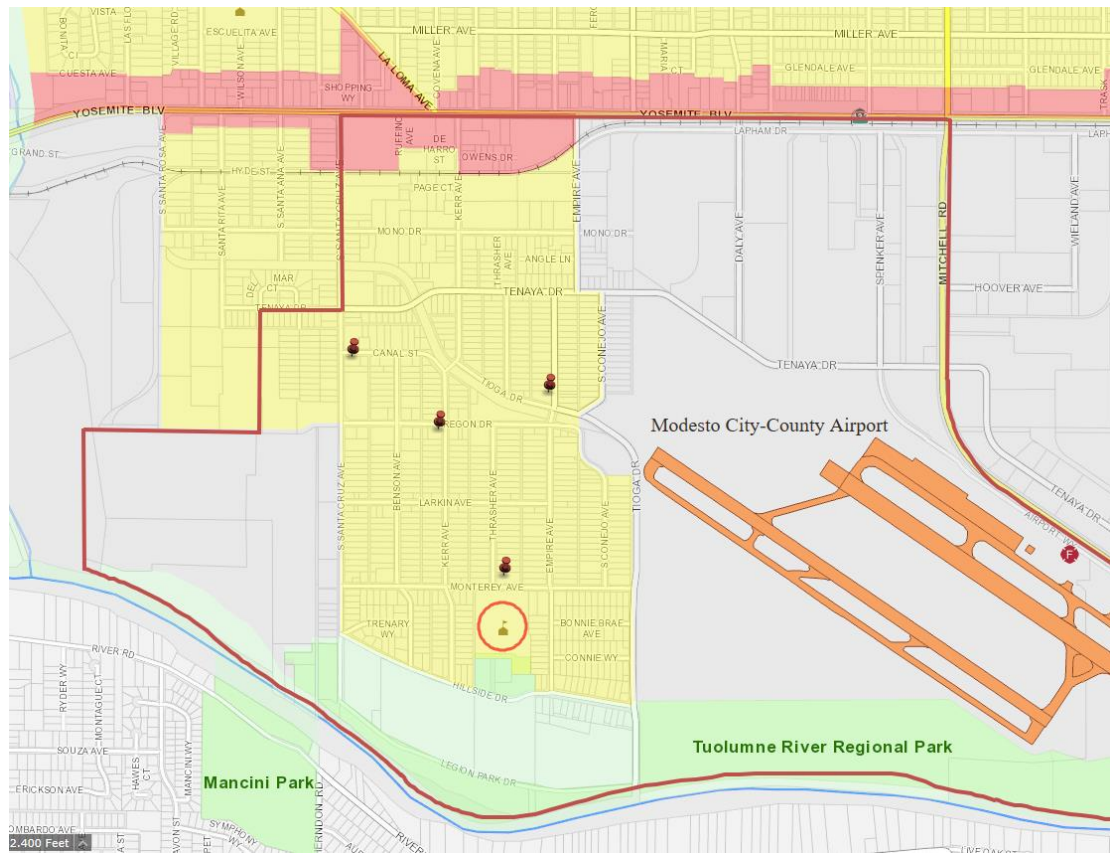
Violence, Crime, and Land-Use

The Orville Wright attendance zone is a complex environment due to land-use, demographics, land-use, and socioeconomic factors compared to the highly suburbanized Lakewood attendance zone. Land-use refers to the ways in which land is zoned and utilized, including commercial and industrial land-use. Commercial land-use is when land is zoned for businesses that trade goods and services. Industrial land-use refers to areas that serve as sites of production, usually manufacturing, that often are near quick and easy transportation facilities. These surrounding physical characteristics of a community are often left out of research concerning educational success. Accordingly, the discussion on commercial and industrial land-use as they relate to crime and child well-being must include a more thorough examination of the unique environment surrounding these attendance zones.

Many studies have found commercial, and other non-residential land-uses are significantly associated with violent and property crime rates (Cahill, 2005; Lockwood, 2007; Stucky & Ottensmann, 2009). Lockwood (2007) found commercial land-use was positively associated with simple assault, aggravated assault, and robbery rates. In a large multi-city study, Boessen and Hipp (2015) examined how land-use impacts crime types and found “blocks with more residential units had much *lower* rates of all crime types, blocks with more commercial land-use had *higher* rates of crime, and blocks with more office space and industrial land-use generally had

higher property crime rates,” (p. 421). Additionally, the type of commercial businesses is another important factor. For example, studies have shown that liquor stores increase crime rates (Hipp, 2007; Nielsen & Martinez, 2003; Peterson, Krivo, & Harris, 2000). In their study, Peterson et al. (2000) conclude, “alcohol availability is a central factor for understanding the community context of violence,” (p. 467).

The city of Modesto’s Airport Neighborhood Revitalization Strategy (2010) states “over the past 50 years the industrial climate has changed the Airport area from a once thriving area to a dilapidated and decaying area without the economic opportunities that exist in other areas of the City” (p. 2). Today the community that includes the Orville Wright attendance zone is surrounded on multiple sides with industrial and commercial businesses, many that are vacant and boarded up (see Figure 18). These include the Modesto City-County Airport to the east, the warehouses on Yosemite Boulevard to the north, and the large presence of Gallo industries bordering on the west. Additionally, a large portion of the attendance zone is unincorporated into the city of Modesto and deemed outside the city limits in Stanislaus County, shaded as light grey on Figure 18. This map also shows the four markets within this attendance zone that sell alcohol; one, the Airport Market, is directly across the street from Orville Wright elementary.



Legend

- Commercial
- Open Space
- Industrial
- Residential
- Stores that sell alcohol

Figure 18. Map of Orville Wright attendance zone created by using City of Modesto GIS. The map and legend reflect the Modesto City general plan. The Modesto City-County Airport is labeled on the right hand side in orange. Stores that sell liquor are represented by red pins, and Orville Wright Elementary is circled in red.

Conversely, the Lakewood attendance zone is comprised of suburban micro-communities, such as the Kingsbury Park Estates (see Figure 19) and, unlike the Orville Wright, all are within the Modesto city limits. These communities represent a

larger proportion of low-density residential housing. And, out of the three stores that sell alcohol within this attendance zone, only one is a liquor store, with the other two a Walgreens and a Grocery Outlet.

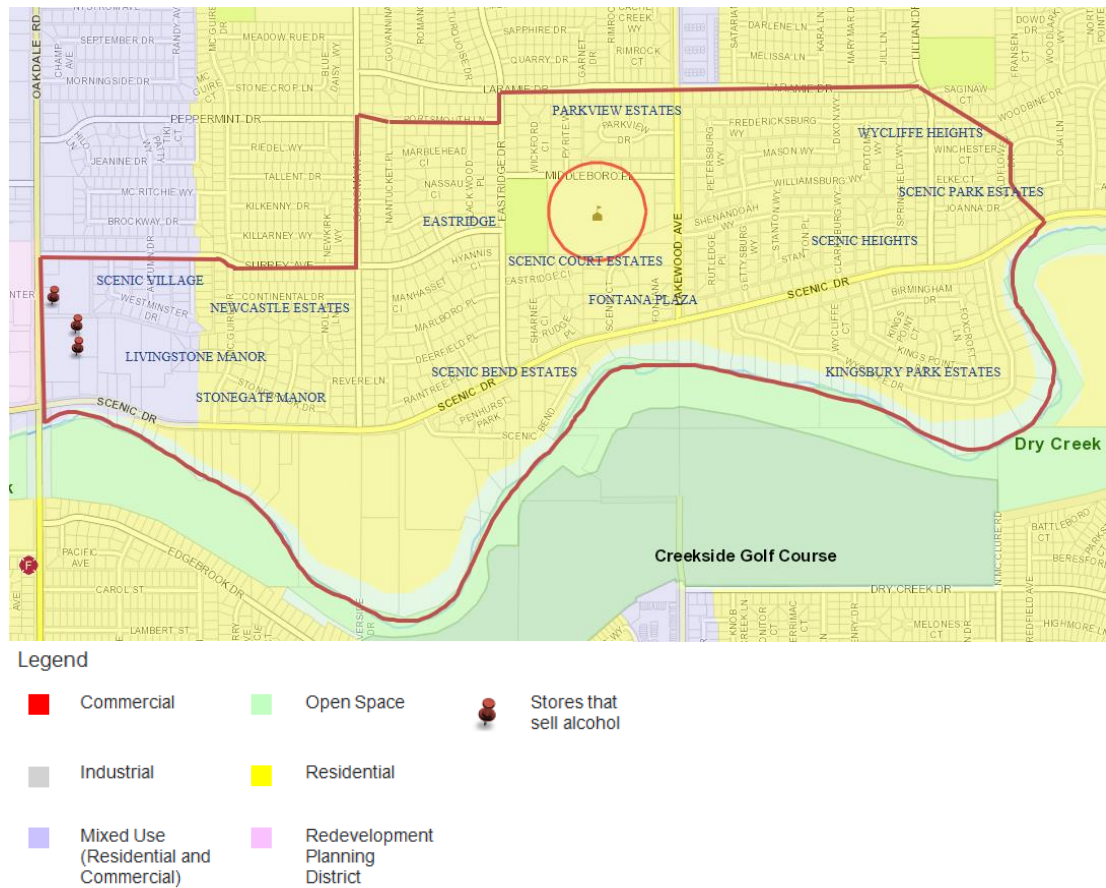


Figure 19. Map of Lakewood attendance zone created by using City of Modesto GIS. Sub-division names are capitalized in blue. Stores that sell liquor are represented by red pins, and Lakewood Elementary is circled in red.

This commercial and industrial zoning connects with property crime rates, which are almost 3-times higher for Orville Wright than Lakewood (see Table 19).

Table 19

*Number of Property Crime Reports for Orville Wright and Lakewood Attendance**Zones*

Property Crime Type	Orville Wright	Lakewood
Burglary: Unlawful entry of a structure to commit a theft or other felony.	42	6
Motor Vehicle Theft: Theft of a car, truck, motorcycle, or any motor vehicle.	10	5
Robbery: Taking property from a person by force, threat of force, or fear.	3	1
Theft / Larceny: Unlawful taking of property from another person. Embezzlement, forgery, check fraud, and theft from a vehicle are excluded.	28	18
Vandalism: Willful, malicious destruction, damage, or defacement of property.	15	4
Vehicle Break-In: Theft of articles from a vehicle.	2	2
Total	100	36

Note: Data are from Orville Wright and Lakewood Elementary attendance zones. Descriptions of crime types are included here to provide further clarification on property crime types. Crime Mapping. (2017).

Burglaries and theft/larceny make up the majority of the property crimes in both areas but are much higher (70 versus 24) for Orville Wright. Vandalism and robberies are also higher for the Orville Wright attendance zone. The only robbery reported in the Lakewood attendance zone occurred along the west end in the Old Oakdale Road Shopping Center, where commercial businesses such as Starbucks are located, along with the previously mentioned stores that sell alcohol.

The large presence of commercial and industrial land-use in the Airport attendance zone and the lack of it in the Lakewood attendance zone may be affecting

the crime levels of these neighborhoods, especially property crime rates (see Table 19). Abandoned businesses, vacant commercial lots, high rates and occurrences of vandalism, and the existence of liquor stores, may all be combining to attract and generate crime and violence levels in the Orville Wright attendance zone.

Summary

The effects of violence and crime on child well-being and educational success are many. Sampson (2012) argues, “criminal violence is spatially clustered in the same neighborhoods that are characterized by severe concentrated disadvantage” (p. 14). Orville Wright is one of these neighborhoods. Comparing the Wright attendance zone to Lakewood, which is less than 3 miles away, we found that overall crime and violence levels were significantly higher in the Wright attendance zone. One explanation is land-use. Unlike the Lakewood neighborhood that is characterized as a suburban micro-community with low-density residential housing, the Wright neighborhood is surrounded by commercial and industrial property that often attracts criminal and violent activity. Due to the high levels of crime and violence, children and families live with heightened levels of fear that can cause parents to constrain their children’s outside activity, preventing them from playing at the only free and available recreation areas—parks and playgrounds. The stress of living in a high-crime area and limited opportunities for play and socialization can have negative effects on children’s overall health, including cognitive and emotional development, thereby affecting their education and future life opportunities.

Access to and Availability of Health Care

Another indicator of childhood health and well-being necessary for educational success is the access to and availability of health care. The Centers for Disease Control and Prevention (CDC) state that “the academic success of America’s youth is strongly linked with their health” (Health and Academics section, 2017, para.1), and according to the Office of Disease Prevention and Health Promotion (ODPHP) (2017), “access to comprehensive, quality health care services are important for promoting and maintaining health” (“*Healthy People 2020*,” Overview section, para.1). The Healthy People 2020 (ODPHP, 2017) initiative defines access to health care as having “gained entry into the health care system, accessing a health care location where needed services are provided, and finding a health care provider whom the patient trusts and can communicate with” (para. 1). Furthermore, they state that routine check-ups, early screenings, ongoing access to preventative care, oral care, and the ability to obtain prescription drugs play a vital role in the lives of all people, specifically children (ODPHP, 2017). Most children and adults gain entry into the health care system through insurance coverage and having convenient access to the facilities where health care services are provided. However, one cannot access facilities that are not reasonably available. Therefore, we demonstrate access to and availability of health care by addressing the subtopics of health insurance coverage and access to health care facilities.

Health Insurance Coverage

According to the Alameda County Public Health Department (2008), “[health] insurance coverage is a major determinant of access to health care services in the United States” (p.121). Although the benefits of having health care can be easily described, the barriers between people and health insurance coverage that provides access to quality health care may not be as easily definable. A recent report by the Henry J. Kaiser Family Foundation, “Key Facts about the Uninsured Population” (2017), concluded that despite the implementation of the Affordable Care Act, 28 million nonelderly Americans went uninsured by the end of 2016. More specifically, they reported that 45% of those uninsured say it is due to the high cost of insurance. Other reasons Americans remain uninsured are because their employers do not provide coverage, they lack knowledge regarding eligibility, or they are undocumented and unable to obtain insurance (Alameda County Public Health Department, 2008). Figure 20 reflects the percentages of residents without health insurance in the Orville Wright and Lakewood attendance zones.

**PERCENT OF THE POPULATION THAT IS UNINSURED
STANISLAUS COUNTY, MODESTO, 2015**

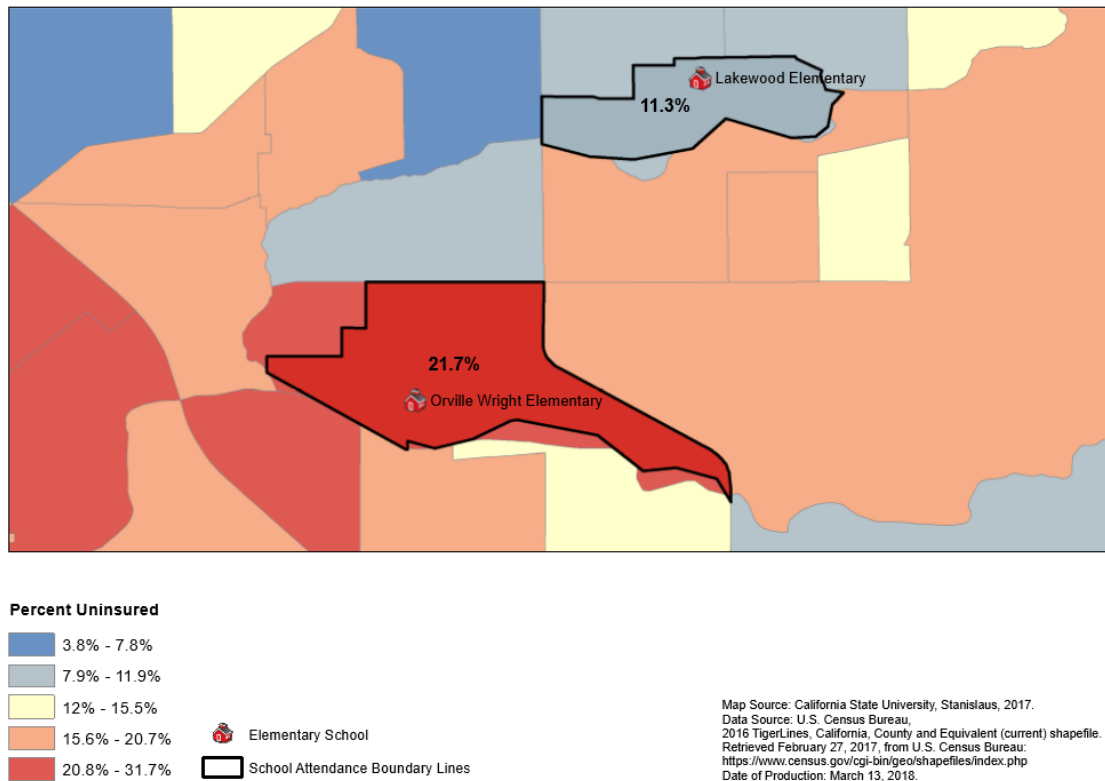


Figure 20. Percent of the population that is uninsured by attendance zone.

In the Orville Wright attendance zone 21.7% of the residents were uninsured compared to 11.3% in Lakewood. Moreover, of the residents in the Orville Wright attendance zone who reported working full-time, 28.1% remained uninsured (ACS, 2016). This could be due to either their employer not providing health insurance coverage or, if they did provide it, the high cost of insurance premiums or out-of-pocket expenses for the employee (Alameda County Public Health, 2008). According to an Alameda County Public Health Report (2008), other reasons people are living without health insurance is due to their lack of knowledge regarding eligibility, difficulty navigating the complicated procedures for enrollment, inability in

qualifying for insurance due to their citizenship status or being denied insurance due to pre-existing conditions or administrative delays.

Not more than three miles away, however, in the Lakewood attendance zone the number of people working full-time without health insurance was only 11.8%. The marked differences between the number of employed people without insurance in Lakewood and Wright could be due to household income. The majority of Lakewood residents had household incomes over \$50,000 (59.2%) whereas the almost 50% (43.4%) of Wright residents had household incomes below \$24,999 (ACS, 2016). Thus, Lakewood residents may have been able to afford employer-based coverage more easily than Orville Wright residents.

Looking at school-age children, 89.0% of residents in the Orville Wright attendance zone 18-and-under were insured compared to 94.6% of residents 18-and-under living in the Lakewood attendance zone. Looking at school-age children, 11.0% of residents in the Orville Wright attendance zone 18-and-under were uninsured compared to 5.4% of residents 18-and-under in the Lakewood attendance zone (see Figure 21 and Table 20).

**PERCENT OF THE POPULATION UNDER 18 YEARS OF AGE THAT IS INSURED
STANISLAUS COUNTY, MODESTO, 2015**

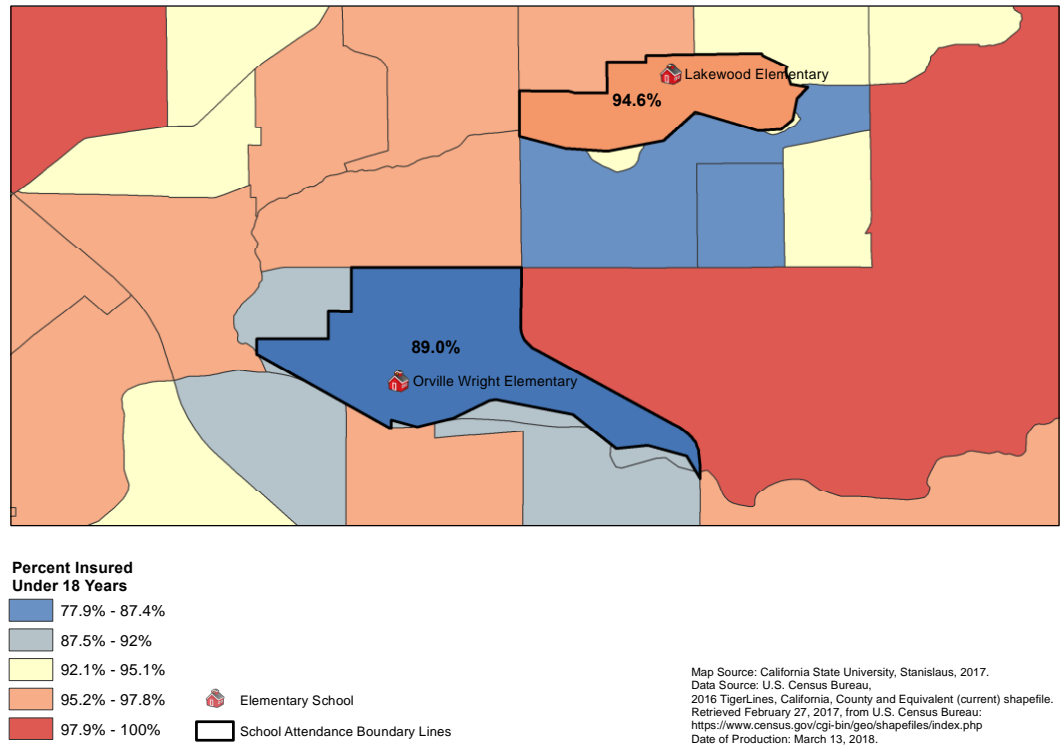


Figure 21. Percent of the Population under 21 that is Insured by Attendance Zone.

More specifically, Table 20 shows that 17.4% of Orville Wright residents between ages six to seventeen did not have health insurance, though 99.5% of children six and under were insured. These data may reflect the utilization of The Children’s Health Insurance Program (CHIP) “which expands coverage for children in the Medi-Cal program, covering 41 percent of California’s school-aged children” (Kauk, 2017, para. 2). According to the California Department of Health Services (2018), a family of four with two adults and two children with a yearly income of \$33,534 or less qualifies to receive Medi-Cal. Therefore, it is likely that the 43.4% of

families in the Orville Wright attendance zone who earned less than \$24,999 a year would receive CHIP.

Table 20

Percentage of Insured and Uninsured Residents 18 and under in Attendance Zones

Age	Orville Wright Attendance Zone		Lakewood Attendance Zone	
	Insured	Uninsured	Insured	Uninsured
Under 18 years	89.0%	11.0%	94.6%	5.4%
Under 6 years	99.2%	0.8%	91.7%	8.3%
6 to 17 years	82.5%	17.5%	97.3%	2.7%

Note: U.S. Census, 2011-2015 American Community Survey 5-Year Estimates.

Of the 3,707 residents of the Orville Wright attendance zone, 21.8% or 808 individuals were without health insurance, while of the 4,704 residents of Lakewood 11.3% or 531 were without insurance. As a percent of the population, almost twice as many people in Orville Wright were without insurance. Children under 18 comprise 23.0% of the Lakewood population and 33.2% of the Orville Wright with 5.0% or 54 students uninsured in Lakewood compared to 11.0% or 137 students uninsured in Orville Wright. Thus, the number of uninsured school-aged children in Orville Wright was two and a half times that of Lakewood. Residents without insurance in both Orville Wright and Lakewood were more likely to encounter problems getting necessary health care with children in Orville Wright facing a further burden which may negatively impact their educational attainment. Children who lack health insurance “reach the schoolhouse door with physical and mental health challenges

that impede their ability to learn and compromise their likelihood of becoming capable adults” (Council of Chief State School Officers, “*Policy Statement on School Health*,” 2004, para. 1).

Access to Health Care Facilities

Though it is true that having health insurance coverage is the biggest barrier between individuals and health services, having health insurance coverage does not guarantee good health care. Being underinsured along with not having enough insurance to cover one’s medical needs, lacking available health facilities, or having the inability to get to a health care facility also impede accessing health care (Gold, 2009). Therefore, where one lives determines access to and availability of health care which can have detrimental effects on adults and children alike. This is particularly the case in low-income communities where community health centers, public hospitals and clinics can play a critical role in improving access to health care for the uninsured and underserved.

In the Orville Wright attendance zone there are no community health care centers, public hospitals, or clinics. The nearest medical center is located relatively close, 1.2 miles from the Wright campus, but is northeast of the attendance zone and is not easily accessible as it requires traveling around the airport (see Figure 22). However, the Modesto Gospel Mission does provide some medical services. According to their website, “Our Medical Clinic is available for those we serve who do not have health insurance. We have doctors and nurses available Tuesday and Thursday, during clinic hours” (Modesto Gospel Mission, 2018, “*Medical Clinic*,”

para. 1). Figure 22 shows that the Lakewood attendance zone, also, does not have any community health care centers, public hospitals, or clinics. However, on the western boarder of this zone there are a variety of private medical facilities including two family medical practices, a veteran’s clinic, a wound healing center, and a pain management center.



Figure 22. Location of health facilities near each attendance zone.

Even if one has health facilities reasonably close, they need transportation to access these centers. More importantly, if there are no facilities nearby, then transportation to access these facilities is vital. Without transportation one may not get the needed health care they need. Syed, Gerber, and Sharp (2013) comment that “transportation barriers lead to rescheduled or missed appointments, delayed care, and missed or delayed medication use” (p.9). Therefore, the impact of not having

reliable transportation when in need of immediate access to the medical resources one needs, can have long term effects. These effects not only greatly impact an adult's future, but also significantly impact a child's educational attainment and his or her future, as these barriers can be the cause of missed learning opportunities for the children affected through missed school days and reduction in school connectedness (Jones et al., 2015).

As previously noted, within the Orville Wright attendance zone there are no health care facilities. Moreover, due to the level of poverty in this community, with 35.4% living below the poverty threshold, there are limited transportation options. This can significantly impact accessing health services such as hospitals, urgent care centers, and pharmacies. One means of transportation is having or having access to a vehicle. In the Wright neighborhood 22.6% of the occupied housing units reported not having access to a vehicle. Whereas in Lakewood where approximately 11.5% of people are living below the poverty line, 8% of occupied housing units were reported as not having access to a vehicle (ACS, 2016) (see Table 21).

Table 21

Available Vehicles in the Orville Wright and Lakewood Attendance Zones

	Orville Wright	Lakewood
No vehicle available	22.6%	8.0%
1 vehicle available	30.2%	26.8%
2 vehicles available	26.9%	43.2%
3 vehicles available	17.6%	16.7%
4 vehicles available	2.5%	3.7%
5 or more vehicles available	0.1%	1.1%

Note: U.S. Census, 2011-2015 American Community Survey 5-Year Estimates.

To illustrate the difficulty in accessing healthcare without the availability of a car, using Orville Wright Elementary as a starting point, the nearest hospital with limited services is 2.2 miles away (see Figure 22) while a full-service hospital is 4.1 miles away. The closest healthcare facility outside of the Gospel Mission is 3.1 miles away and the nearest pharmacy providing access to prescription medication and over-the-counter medications is 2.7 miles away. Although these distances may not seem far, without a car or other means of transportation, they are virtually inaccessible to Orville Wright residents. The inability to access healthcare is not as dire among the residents in the Lakewood attendance zone, as most of the residents have access to at least one vehicle. When using Lakewood Elementary as a starting point, the closest hospital to these residents is a full-service hospital located 2.7 miles away; the nearest health care facility is 2.6 miles away; and the closest pharmacy is 1.1 miles away.

Although these distances may not seem far, without a car or other means of transportation, they are virtually inaccessible. The only public transportation system in the Wright area is the local bus system, the Modesto Area Express (see Figure 23). In the Orville Wright attendance zone, there are eight bus stops located in this school boundary, and each stop runs on bus route #38 (Modesto Area Express, Bus Routes, 2018). This route only goes west to the downtown central bus station. What this means for a resident in the Orville Wright attendance zone is that to travel north, south or east, riders must first exit the Orville Wright attendance zone, ride to the downtown station (located in west Modesto) transfer busses and then make a minimum of one more stop prior to getting to their destination. This route must be taken even if their destination is further east than the Wright attendance zone. Trips such as this take a great deal of planning, coordination, and time.

In the Lakewood attendance zone, there are three bus routes: 24, 25, and 37 with at least 15 different bus stops going in all directions and many opportunities to transfer to other busses that reach a multitude of locations without having to first travel to the downtown bus terminal. With an attendance zone where approximately 92% of the occupied housing units have access to a vehicle and with many more bus route options, accessing health care facilities from the Lakewood attendance zone is a much simpler task than accessing it from the Orville Wright attendance zone.

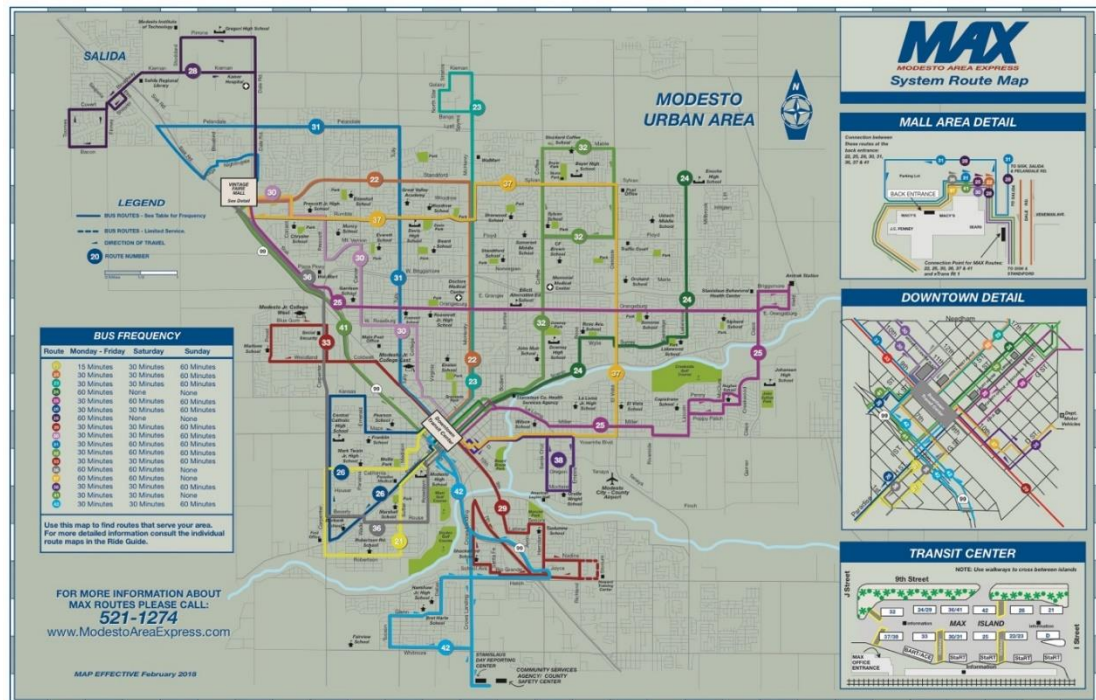


Figure 23. Modesto bus routes. Modesto Area Express.

Summary

Research indicates that access to quality health insurance coverage and the availability of health care facilities, are essential for improving health and preventing health disparities. Although crucial at any age, ensuring that one has health insurance coverage and easily accessible health care facilities, are especially crucial for infants, children, or adolescents, as the benefits associated with increased access to health care goes beyond keeping one’s body healthy and extends to maintaining healthy brain function and cognition. Yet, when it comes to accessing healthcare, “the physical design as well as social and business structures of neighborhoods determine some health pathways” (APHD, Life and Death of Unnatural Causes, Executive Summary, p. xii, 2008). Therefore, the types of choices one can make in relation to his or her health care can be both limited or enhanced depending upon their

environment. Unfortunately for some, such as those living in the Orville Wright attendance zone, social disadvantage can place them in both a financial and physical position where obtaining quality health insurance is not a guarantee. This position can also limit their access to healthcare due in part, to inadequate availability of vehicles or public transportation. Others however, such as those in the Lakewood attendance zone, operate with higher levels of social advantage and therefore have a broader variety of options when it comes to ensuring that they have health insurance coverage and access to health care facilities.

Access to and Availability of Community Resources

Living within a community where one has access to the resources and opportunities to make healthy choices plays an essential role in childhood health, well-being, and academic success. The Bay Area Regional Health Inequalities Initiative (BARHII) states that no amount of health coverage will compensate for people who do not have access to essential opportunities for health (BARHII, 2017). This initiative outlines the fact that one's health is influenced by a combination of access to healthcare, genetics, and personal choices, such as eating nutrient rich foods and getting physical exercise. However, The California Endowment (2018) asserts that "70% or more of our health outcomes lie within our social, political, and economic environments" ("Framework for Health Equity," para 2). In other words, one's health outcomes are heavily impacted by the community in which one lives and the resources and choices one can take advantage of and less from the amount of health care coverage they maintain. A resource-rich and safe community is one where

people have the resources and opportunities to make healthy choices, where community members have access to healthy food retailers, where there is reliable transportation, and where the built environment allows for various types of health-promoting activities to safely take place.

Access to Healthy Food

According to The National Center for Chronic Disease Prevention and Health Promotion (2014), “providing access to healthy foods and physical activity plays an important role in the academic achievement of students” (Health and Academic Achievement, CDC, 2014, p.4). In fact, the California Department of Education (CDE) states that children whose nutritional needs are met have fewer attendance and discipline problems and are more attentive in class (CDE, National School Lunch Program, 2017, para. 2). Conversely, the lack of consumption of nutritious foods such as fruits, vegetables, or dairy products is associated with lower grades among students (Health and Academic Achievement, CDC, 2014, p.2). Although California school districts have made it their mission to ensure students get healthy and well-balanced meals at school, these meals may only account for two of their three essential meals per day. California schools, however, are only “required to provide one nutritionally adequate meal for free or reduced-price eligible children during each school day” (Education Code, § 49550 and 49553, 2006), which is at lunch; although many school districts also offer breakfast. However, meals are not provided on the weekend, holidays, or summer vacation. Unfortunately, the loss of even one consistent meal means that a child can face “hunger due to insufficient food intake” (Health and

Academic Achievement, CDC, 2014, p.2). Hunger due to insufficient food intake is “associated with lower grades, higher rates of absenteeism, repeating a grade, and an inability to focus among students” (Health and Academic Achievement, CDC, 2014, p.3). If not from school, a child must rely on his or her family and the resources they have access to in order get their third meal for the weekday, and all three on the weekends. The type of nutrition a child receives outside of a school day greatly depends on the area in which the child lives and the type of resources their family can access. Sponsored by the California Department of Health, the Healthy Communities Data and Indicators Project (HCDIP) says that a healthy community provides “affordable, accessible and nutritious foods, and safe drinkable water” (2014, para. 2) through all stages of life.

Despite the evidence being clear, not all children are fortunate enough to grow up in a community rich with the resources required to thrive physically, mentally, and academically. Particularly when clustered in communities, childhood poverty can produce negative child development and learning consequences (Murry et al., 2011; Saporito & Sohoni, 2007; Tate & Hoglebe, 2015). In Modesto, 29% of children were growing up in poverty (ACS, 2016). Although this percentage is high, it does not mirror all attendance zones in Modesto. Though not far apart in distance, the communities that surround the Orville Wright attendance zone and the Lakewood attendance zone could not be further apart socioeconomically. The percentage of students eligible for free and reduced lunch provides an in-depth depiction of each of these school communities. According to the California Department of Education

(2017) 96.6 % of Orville Wright students were eligible for free and reduced lunch compared to 27.6% in Lakewood. This means that those children living in the Orville Wright attendance zone were at greater risk of having insufficient food, as their families may not have had the necessary resources to provide the additional daily meal not provided by the school or all meals during breaks in the school year.

Not having enough money is one obstacle to providing healthy meals, but even if one has the money to pay for food one must have the means to access food; that is, one must have a store nearby or transportation to get to a store that is beyond walking distance. The United States Department of Agriculture (USDA) uses several criteria to define access to food and determine what they consider “food deserts.” There are many ways to define which areas are considered "food deserts" and many ways to measure food store access for individuals and for neighborhoods. Most measures and definitions consider at least some of the following indicators of access:

Accessibility to sources of healthy food, as measured by distance to a store or by the number of stores in an area. Individual-level resources that may affect accessibility, such as family income or vehicle availability. Neighborhood-level indicators of resources, such as the average income of the neighborhood and the availability of public transportation. (Economic Research Service (ERS), U.S. Department of Agriculture (USDA), 2018, Overview, para. 2)

Furthermore, the American Nutrition Association (2010) defines food deserts and offers a caution as to the potential health issues associated with living in these areas. Food deserts are:

parts of the country void of fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas. This is largely due to a lack of grocery stores, farmers' markets, and healthy food providers. This has become a big problem because while food deserts are often short on whole food providers, especially fresh fruits and vegetables, instead, they are heavy on local quickie marts that provide a wealth of processed, sugar, and fat laden foods that are known contributors to our nation's obesity epidemic. (American Nutrition Association, 2010, para. 1)

The census tracts including and surrounding the Orville Wright attendance zone met the criteria to be considered a food desert, indicated by the yellow shaded areas on Figure 24. The population was low income (LI); they had low access (LA) to whole food providers, and low vehicle access. Whereas, the census tracts that include and surround the Lakewood attendance zone were not low income and, although they did not have whole food providers within walking distance to their homes, they had access to vehicles allowing them to easily reach grocers within a reasonable distance and timeframe. Thus, according to the modified Retail Environmental Food Index (mREFI), which "measures the number of healthy and less healthy food retailers within census tracts across each state" (CDC, Division of Nutrition, Physical Activity and Obesity, 2014, p. 1), the Orville Wright community had 0 healthy food retailers compared to Lakewood which had 18.

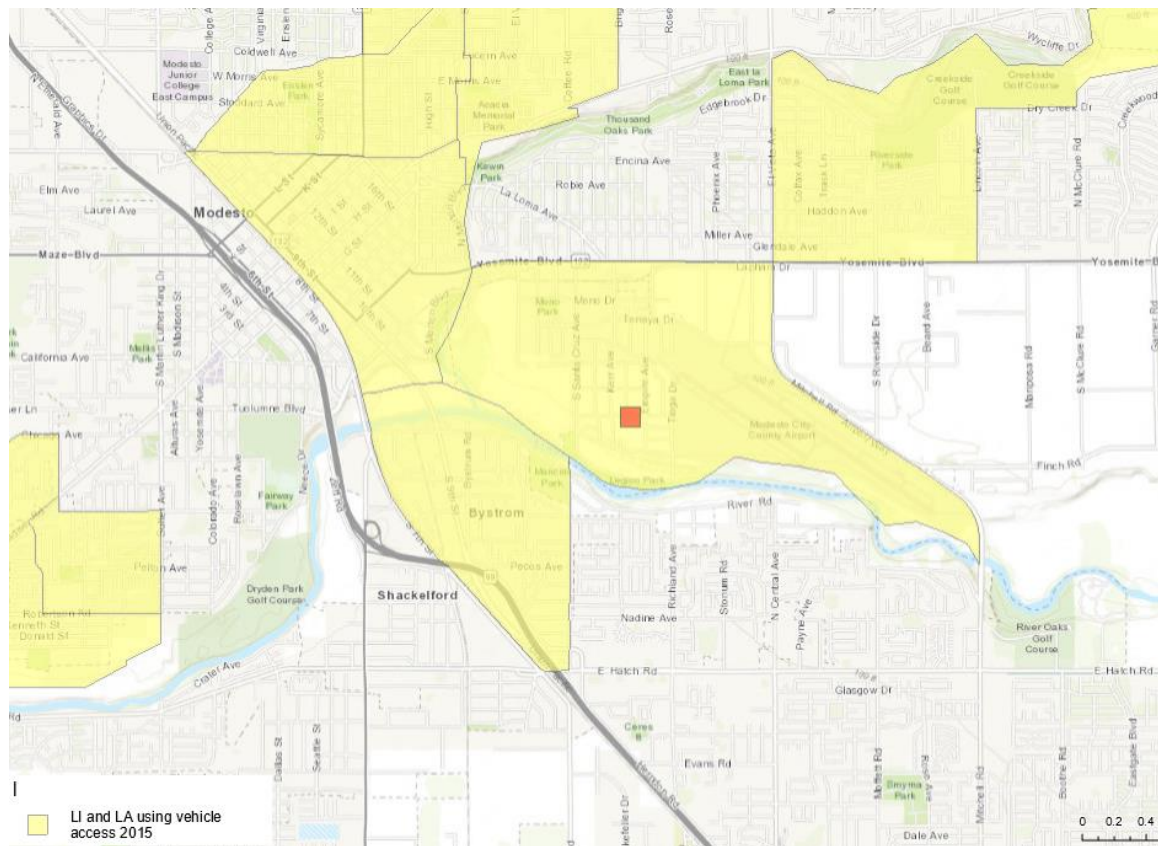


Figure 24. Map showing low-income, low food area access, and vehicle access for the Orville Wright area. The legend shows LI for low-income and LA for low access. Low-income census tract where more than 100 housing units do not have a vehicle and are more than ½ mile from the nearest supermarket, or a significant number or share of residents are more than 20 miles from the nearest supermarket. Orville Wright is represented as a red square. Source: USDA Economic Research Service, ESRI.

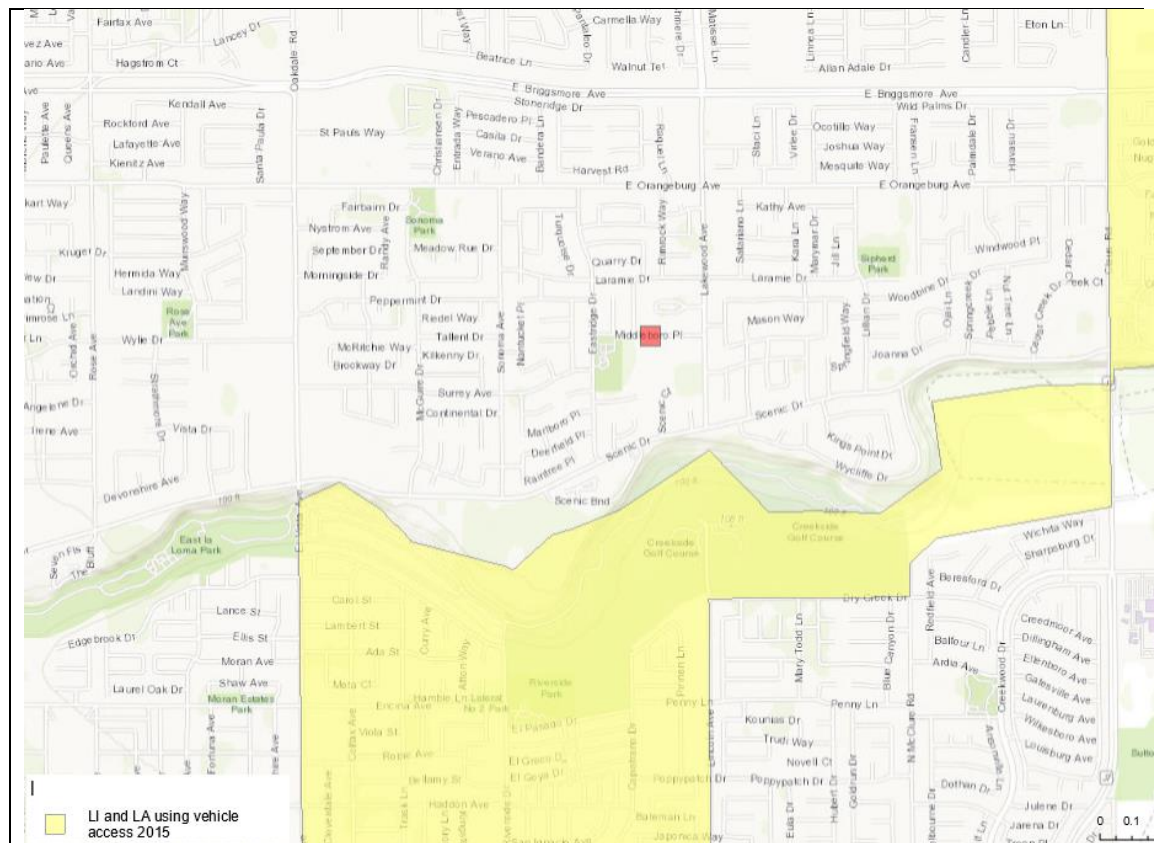


Figure 25. Map showing low-income, low food area access, and vehicle access for the Lakewood area. The legend shows LI for low-income and LA for low access. Low-income census tract where more than 100 housing units do not have a vehicle and are more than ½ mile from the nearest supermarket, or a significant number or share of residents are more than 20 miles from the nearest supermarket. Lakewood is represented as a red square. Source: USDA Economic Research Service, ESRI.

Built Environment

A built environment is defined as “all the physical parts of where we live and work” (CDC, National Center for Environmental Health, Why Invest, 2016, para. 2).

It is the make-up of all non-human things within a community that “provides points of place for socialization to occur among community inhabitants” (Fox, 2006, p. 196).

Research taken from the Built Environment and Health Initiative (2016), an initiative sponsored by the Centers for Disease Control and Prevention suggests that the

physical design of our neighborhoods and communities can improve or worsen our health (CDC, National Center for Environmental Health, Built Environment and Health Initiative, 2016). According to the Centers for Disease Control and Prevention (CDCP) (2009):

Healthy community design can benefit children in many important ways. At a time when obesity and diabetes are rising among children, when asthma continues to be highly prevalent, and when conditions such as attention deficit disorder may be on the rise, it is crucial to seek, understand, and implement environmental design solutions that might help with these health challenges. (para. 1)

Parks and green spaces are essential components of an environment built to promote childhood health and well-being. Safe outdoor play areas provide children with exercise and opportunities to explore and learn about the natural world. The CDCP explains:

Planning parks near residential areas—and making sure that the parks include attractive landscaping, well-designed amenities such as playgrounds and sports facilities, and safe routes leading to and from them—is an invaluable strategy of community design that is healthy and nurturing for children. (2009, para. 4)

However, for children to enjoy parks and outdoor spaces, they need to be able to access them. In communities like Orville Wright, where there were limited transportation options, that means these areas need to be within riding or walking

distance to homes. The California Endowment states, “in healthy neighborhoods, children ride bikes and play together in nearby parks” (Neighborhoods, 2016, para. 1). Within a one-mile radius of the neighborhood surrounding the Orville Wright attendance zone, there are four official parks: Oregon Park, Legion Park, George Rogers Park, and Tuolumne River Regional Park. Oregon Park is an area which at one time had grass but now is mainly dirt. There are, however, two play structures. There were no online reviews of this park. Although Legion Park and Tuolumne River Park have beautiful scenery, many of the reviews posted to Google Review reflect negative sentiments about the parks. When describing Legion Park, Howard said “great walks by the river. Don’t go without a group or your dog. Scary place when getting dark” (Howard, as cited in Google Reviews, Legion Park, 2017). And Taylor wrote, “love[s] to fish there but would not take my children there to have a big family outing” (Taylor, as cited in Google Reviews, Legion Park, 2017). Tuolumne Park had mixed reviews. The 500-acre Tuolumne Park that includes the Tuolumne River received mixed reviews. Drake said “Great view of the river. Nice. Quiet. Nice place to have lunch” (Drake, as cited in Google Review, Tuolumne Park 2017). However, Howard warned “this area is a roosting place for peter-puffers and perverts” (Howard, as cited in Google Reviews, Tuolumne, 2017). When the research team went to observe the parks on one Saturday morning, the newly built play structure in the Tuolumne Park was fenced and locked and had a “No Trespassing” sign on it. With regard to George Rogers Park, Miss Lisz Zee wrote, “Lot’s [sic] of

grass friendly ppl, homeless hangout but awesome people to meet” (Zee, as cited in Google Reviews, George Rogers Park, 2017). And Anthony wrote,

I probably would of given a 5 star rating, but. No swings! And one of the play structures is boarded up where a slide should exist and it's breaking apart. Oh and also info about park states there's a fountain to play around on Hot Days. It's inoperable! the signs [said] excuse is it's drought season, um there's other locations that have been running fountains to play around. There's a basketball court, with nets! (Anthony, as cited in Google Reviews, George Rogers Park, 2018).

Thus, although there are parks fairly near Orville Wright, based on these reviews, parents might not feel comfortable allowing their children to go there and play.

From Lakewood Elementary, there are two parks within a one-mile radius: Lakewood Park and Sipherd Park. Just as some of the parks near the Orville Wright attendance zone have beautiful scenery, so do these parks. The difference between the two attendance zones is that the parks within the one-mile radius from Lakewood Elementary have great reviews. C. Gonzalez wrote: “Good park in good neighborhood. Every now and again the homeless take over the bathroom” (Gonzalez, Google Review, Lakewood Park, 2017). M. Vasquez commented that it is a “good park for [his] grandchildren” (Vasquez, Google Reviews, Lakewood Park, 2017). Commenting on Sipherd Park, Alex K. stated, “It has a clean restroom and a big soccer field, benches, and a nice neighborhood” (K., Google Review, Sipherd Park, 2017). And D. Rogers commented that it “is a great place for kids and pets”

(Rogers, Google Reviews, Sipherd Park, 2017). Reading these reviews, the parents in Lakewood would most like feel comfortable allowing their children to play in these parks.

Transportation efficiency and high levels of walkability, or “appealing and comfortable pedestrian street environments,” (National Center for Environmental Health, LEED-ND and Healthy Neighborhoods, 2011, para. 2) also constitute a healthy built environment. Transportation data often focus exclusively on car and transit trips, ignoring important components of pedestrian travel such as walking to a transit stop, walking to school, or from a parking area (Litman, 2007). Since walkability is a characteristic not often focused on and because we have discussed access to transportation previously, the comparison between Lakewood and Orville Wright attendance zone’s walkability and transit scores will be solely discussed.

According to Cortright (2009), a walk-score is largely measured by the number of typical destinations within a short walking distance of a home. The range of scores span from 0, signifying a car dependent area to 100, signifying the most walkable area. A short distance is considered between one quarter mile and one mile of a home to shopping, schools, cultural activities, and mixed-use neighborhoods. Walk-scores also incorporate pedestrian road network density. Pedestrian road network density involves how many walkable roads—that is sidewalks, trails, or streets considered safe for walkers—are available based on the square mile of the area. The walk-score of the Orville Wright attendance zone is 29 (Walk Score, 2018). This puts Wright in the 25-49 range meaning residents are car-dependent or “in need

of a car for most errands” (Cortright, 2009, p. 3). See Figure 26. It is important to note, however, that a score of 29 is due in large part to the four mini-markets located in this community. If the walk-ability score was calculated on distance to a grocery store where fresh food is available, the score would have been lower.

Walk Score®	Description
90–100	Walker's Paradise Daily errands do not require a car.
70–89	Very Walkable Most errands can be accomplished on foot.
50–69	Somewhat Walkable Some errands can be accomplished on foot.
25–49	Car-Dependent Most errands require a car.
0–24	Car-Dependent Almost all errands require a car.

Figure 26. Chart of walkscores from the website Walkscore (2017).

Besides a walk-score of 29 the Orville Wright attendance zone also has a low (8.1) pedestrian road network density (Pedestrian Road Network Density Map, Community Commons, 2018) which means there are only 8.1 road miles per square mile available for the use of residents. Consequently, a low walkability score translates to limited access to safe sidewalks and pathways for people in Orville Wright. Offsetting a low walkability score, is a high transit score. A transit score “measures how well a location is served by public transit, based on the distance and type of nearby transit lines” (Walk Score, 2018, para. 2). The transit score associated with the Orville Wright Elementary school address is 25, which reflects that there are “a few nearby transit options” (2018). However, as explained previously, although the

bus system is available in the Orville Wright neighborhood, the transit lines do not run directly in all directions and requires residents to ride the bus to the downtown station and change buses to get to most locations in the city.

Under 3 miles away in the Lakewood attendance zone, the walk-score differs. The walk score for this attendance zone is 20 putting them in the 0-24 range see Figure 26 (2018), signifying that residences are car-dependent due to almost all errands require a car, and the pedestrian road network density score is 17.23 (Pedestrian Road Network Density map, Community Commons, 2018). This score signifies that amid the Lakewood attendance zone, there are 17.23 road miles per square mile for residences to safely utilize. The address associated with Lakewood Elementary School also garnered a transit score of 27 indicating that there are few nearby transit options (Walk Score, 2018). Compared to the Orville Wright attendance zone which is limited to one bus route, traveling in one direction, Lakewood has three bus routes traveling in all directions.

Parks and green spaces and the ability to walk in safety are essential components of an environment built to promote childhood health and well-being. Compared to Lakewood, the built environment for Orville Wright is poor. While it has parks, they are poorly maintained, have negative reviews and do not engender within the community a place for socialization and for children to play. The density of sidewalks in Orville Wright is half that of Lakewood which means that residents cannot safely walk their neighborhood and children cannot safely walk to school

without walking in the street. All-in-all the built environment of Orville Wright is not one that can be expected to promote the health and well-being of its children.

Summary

Access to healthy foods, access to transportation, and a built environment that supports health are all resources that contribute to a healthy and safe community.

Though every community functions with varying levels of these resources, there are communities that are deficient in them. Such is the experience of those living in the Orville Wright attendance zone; they live in a food desert due to being a low-income community without access to grocery stores that sell fresh and nutrient rich foods.

Residents in this area also experience limited vehicle availability and reduced transportation options, further inhibiting them from accessing fresh food retailers.

This community also experiences a built environment with low levels of safe green spaces and limited pedestrian only pathways for families to safely walk their children to school and areas for exercise, socialization, and play. Conversely, if a community lacks in one of these health-promoting resources, it is possible that it can be offset by the presence of another. The Lakewood attendance zone is an example of this.

Though residence in this area do not have fresh food retailers within walking distance to their homes, they do have access to vehicles and public transportation that allows them to reach grocery stores within a reasonable distance and timespan. These residents also have been afforded the opportunity of living in an area where there are multiple safe and usable green spaces, as well as allocated pedestrian pathways for

families to safely walk their children to school and areas for exercise, socialization, and play.

CHAPTER V

DISCUSSION AND INTERPRETATION

In the preceding chapter, data indicated that Orville Wright Elementary School is situated in a highly impoverished area of Modesto with very limited resources as compared to Lakewood Elementary that is located in a more affluent area with many more resources. In addition, Orville Wright and Lakewood Elementary Schools have major differences in terms of educational outcomes. To interpret the differences in the data that were found in these two school areas, we draw from the theoretical ideas of Amartya Sen and Martha Nussbaum.

Before applying these theoretical lenses to interpret our findings, it is necessary to address the sweeping and profound impact that the concept of and belief in meritocracy has on society and people's views about achievement, including performance in school. Meritocracy is the view that anyone can achieve their full potential if they just try hard enough. McKenzie and Phillips (2016) state that when holding a meritocratic view, "success is up to the individual or in the case of students, the individual and their family" (p. 11). Thus, achievement is based solely on the individual's efforts and ability, in other words their merit. Adherence to meritocracy shifts "the focus from equality of opportunity and outcome for social groups to the merit of the individual, her or his natural abilities, readiness or willingness to learn and effort" (McKenzie & Phillips, 2016, p. 11). However, in society some people are privileged in that they live in areas that have abundant resources, such as in the

Lakewood School area; others, however, who have far fewer resources are marginalized, such as the children and families living in the Orville Wright School area. Meritocracy puts everything at the individual level and does not consider the pervasive issues of poverty, high levels of crime and safety, insufficient housing, lack of healthcare, and limited community resources. Sen (2000,) notes the following about meritocracy:

In most versions of modern meritocracy, however, the selected objectives tend to be almost exclusively oriented toward aggregate achievements (without any preference against inequality), and sometimes the objectives chosen are even biased (often implicitly) toward the interests of more fortunate groups (favoring the outcomes that are more preferred by “talented” and “successful” sections of the population). (p.14)

Sen’s Capability Approach, Freedoms, and Unfreedoms

In the 1980s economist and philosopher, Amartya Sen, introduced the Capabilities Approach. He said this approach “sees human life as a set of “doings and beings”—we may call them ‘functionings’—and it relates the evaluation of the quality of life to the assessment of the capability to function” (1987, p. 43). He continues:

...if life is seen as a set of “doings and beings” that are valuable, the exercise of assessing the quality of life takes the form of evaluating these functionings and the capability to function. This valuational exercise cannot be done by focusing simply on commodities or incomes that help those doings and

beings, as in commodity-based accounting of the quality of life (involving a confusion of means and ends). “The life of money-making”, as Aristotle put it, “is one undertaken under compulsion, and wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else.” The functionings themselves have to be examined, and the capability of the person to achieve them has to be appropriately valued. (p. 43- 44)

Thus, in a commodity-based accounting of the quality of life where means and ends are confused, we judge people based on what they have or what they have accomplished without examining the privileges (the means) that have been afforded to them, thereby allowing them the freedom to have the quality of life they desire and society values.

According to Sen (1992), “the relevant functionings can vary from such elementary things as being adequately nourished, being in good health, avoiding escapable morbidity and premature mortality, etc., to more complex achievements such as being happy, having self-respect, taking part in the life of the community, and so on” (p. 39). Moreover, he said “the capability to achieve functionings...will constitute the person’s freedom—the real opportunities – to have well-being” (1992, p. 40). Conversely, Sen (1999) speaks to unfreedoms or the incapability to achieve functionings. He says functionings, like being adequately nourished or being in good health, “requires the removal of major sources of unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance or overactivity of repressive states” (p. 3).

To illustrate the capability approach, we turn to the quality of life, the well-being afforded the residents in the Lakewood and Orville Wright attendance zones. The Lakewood residents had a much higher median income as compared to those living in the Orville Wright attendance area. Therefore, they were able to choose to live in a neighborhood that afforded them access to high-quality housing, low levels of crime, availability and access to health care and health food, safe places for their children to play, and other community resources. In other words, their money-making, allowed them the freedom—the capability to function—in a way that allowed them the real opportunity to achieve well-being.

In comparison, those living in impoverished communities like the one that makes up the Orville Wright School area live in “spaces of ‘unfreedom’ that prevent [them] from doing what they could choose to *do if they had the freedom to do so*” (Anderson & Larson, 2009, p. 75). Residents in this school area had a median income level of \$35,000, reducing their choices of places to live to an area of substandard housing, high crime, limited availability and access to health care and healthy food, and few community resources such as safe play areas for their children. The Orville Wright residents were limited in their choices and ability to live the life that they might choose if they had the freedoms to do so.

Nussbaum, Human Flourishing, and Deformed Choices

Sen’s capability theory, including the concepts of freedoms and unfreedoms, merge with Nussbaum’s theoretical writing. More specifically, Nussbaum (2007) details a set of ten capabilities that she feels are critical for human flourishing. These

include being able to have “a human life of normal length,” being in a position “to have good health,” and having the ability to be free from violence (Nussbaum, 2007, p. 23). These capabilities are dependent on an environment that is safe, free from violence and crime, and one that has availability and access to health care, nutritious food, and other needed community resources. Examples of the capabilities critical for human flourishing in the Lakewood School zone are evident in that 89.0% of residents have medical insurance, and although there are no medical facilities within the attendance zone they are relatively close and 92.0% of residents in the Lakewood attendance zone have access to a vehicle. Additionally, vehicle access allows them to easily reach the 18 stores or restaurants in their area offering fresh food (CDC, Modified Retail Food Environment Index, 2013). Residents in this attendance zone also have a higher capability of flourishing because they live in a relatively safe neighborhood where a mere 26 crime reports were filed over 180 days (Crime Mapping, 2017). Thus, Lakewood residents not only exemplify Nussbaum’s ideal of human flourishing but also have what Sen articulates as freedoms and the capacity to function or achieve.

However, the residents in the Orville Wright attendance zone live in a space of unfreedoms; 21.7% of residents do not have medical insurance and live over two miles away from the nearest hospital or pharmacy. Furthermore, 22.6% of residents do not have access to a vehicle and live in an area offering only one bus route. According to the Modified Retail Food Environmental Index (2013), the Orville Wright attendance zone scores a “0” when it comes to the availability of retail stores

and restaurants offering fresh food such as fresh vegetables and whole grains. What this means then, is that securing a healthy diet to promote and ensure good health is not as easy for residents in the Orville Wright attendance zone. Further limiting these residents' ability to flourish and achieve is the fact that over 180 days, a total of 165 crime reports were filed for this attendance zone, 13 of which were violent crimes (Crime Mapping, 2017).

If individuals do not have the freedom to pursue and obtain Nussbaum's ten capabilities, they may be deposed to make what Nussbaum calls deformed choices. "Deformed choices [or as Nussbaum later calls tragic choices] (Nussbaum, 1999; 2000, [2011]) arise from the constraints, restrictions or limitations (unfreedoms) that prevent individuals from taking advantage of opportunities" (Locke & McKenzie, 2015, p.7). Describing what is meant by a tragic or deformed choice Nussbaum says

...for example, a poor single mother may frequently be forced to choose between high-quality care for her child and a decent living standard, since some welfare rules require her to accept full-time work even when no care of high quality is available to her. (2011, p. 38)

Speaking to social justice, she further says:

When we see a tragic choice...we should think, "This is very bad. People are not being given a life worthy of their human dignity. How might we possibly work toward a future in which the claims of all the capabilities can be fulfilled?" (2011, p.37-38)

Thus, a tragic or deformed choice is not a real choice because one does not have the freedom to truly choose. Specific to the Orville Wright community it is reasonable to assume that a family in the Orville Wright attendance zone does not want to live in an area where the crime rate is very high, yet they do not have the means, the freedom, to choose a home in a safer neighborhood. Therefore, choosing to live in an impoverished high crime neighborhood is not a real choice but rather a deformed choice, as there are no other viable options.

Deformed choices can also be seen when parents must decide how to best feed their child. In the case of parents in the Orville Wright attendance zone, households are limited in income making purchasing fresh foods and other costlier food purchases prohibitive. The lack of grocery stores in the area and the limited availability of transportation means parents cannot access fresh foods even if they wanted to spend their limited income on these items. Thus, parents do not have a real choice of feeding their child healthy versus unhealthy food. Thus, they make the deformed choice of feeding their child what is available so they do not go hungry. Often this is whatever is affordable and filling, usually purchased at the neighborhood convenience store.

Another example of deformed choices is when one is faced with limited ability to access healthcare and/or healthcare related facilities when ill. For someone limited in their level of health care access, such as those living in the Orville Wright attendance zone where over 21.7% of the population is not insured, 17.5% of children are not insured (ages six to seventeen years), and 22.6% of households do not have

access to a vehicle, deciding whether their child is sick enough to seek medical attention is a deformed choice. Though a family may clearly know that seeing a doctor is what is necessary, they also know the costs that come when making that choice. Certainly, there are monetary costs, particularly for those without insurance, but there are other costs as well, such as the time it takes to travel to see a doctor when one must utilize public transportation, particularly when there is not a direct route to the doctor or pharmacy, as in the Orville Wright community. The time taken to wait for care in an urgent care or emergency room also is a consideration. If one is a parent or elder-caregiver and seeking healthcare for another, this means taking time off from work. Furthermore, if one is an hourly wage-earner every hour is lost income, which then impacts the available money for food, rent, or other necessities. Thus, the choice to take-off work and lose needed income is a deformed choice. In this example, the caregiver, as an hourly wage-earner does not have the freedom to take-off work without losing pay so the deformed choice is made.

Sen, Nussbaum, and the Connection with Schools, Learning, and a Healthy Life

Locke and McKenzie (2015) note that Sen's framework of "freedoms and unfreedoms [and the resulting deformed choices] provides a useful analytic lens with which to view student achievement. It allows us to consider relative life circumstances of students and how achievement may be influenced by such contextual factors" (p. 7). According to DeHaan, Hirai, and Ryan (2015) within Sen's capability approach, Sen articulates that to be able to have functionings and a healthy life one must be able to have the chance to obtain capabilities:

Capabilities include for Sen such factors as being able to live a healthy life to obtain the education and skills needed to effectively achieve one's goals, and having the freedoms to pursue what one deems to be valued ends. That is, he argues that societies focused on wellness ought to provide individuals the opportunities that allow them to pursue those ways of living they deem worthwhile. (p. 2038)

Using these lenses, we offer in Figure 27 a framework for interpreting the phenomenon that is the Orville Wright community. The Orville Wright community is nested within a city, county, state, and nation, all of which are influenced by the system of meritocracy: a belief that individuals should be valued and rewarded based on their abilities and efforts. However, this ideal ignores the influence of social structures that create the haves and have-nots. Within this meritocracy there are social structures that limit an individual's opportunities (or capabilities, according to Sen). In the Orville Wright community these social structures have resulted in poverty and therefore a lack of quality housing, safety, healthcare, and community resources. This leads to a lack of freedoms or unfreedoms—not having the real freedom to achieve well-being further resulting in deformed choices, which are not real choices or the choices one would make if one had the freedom to really choose—leading further to negative outcomes that impact adults and consequently children, particularly in educational outcomes. Lower educational attainment is a negative outcome resulting in less employment opportunities, lower wages, and less wealth. All combined, this perpetuates structural inequalities in society which is the same type of disparity that is seen in the Orville Wright School attendance area.

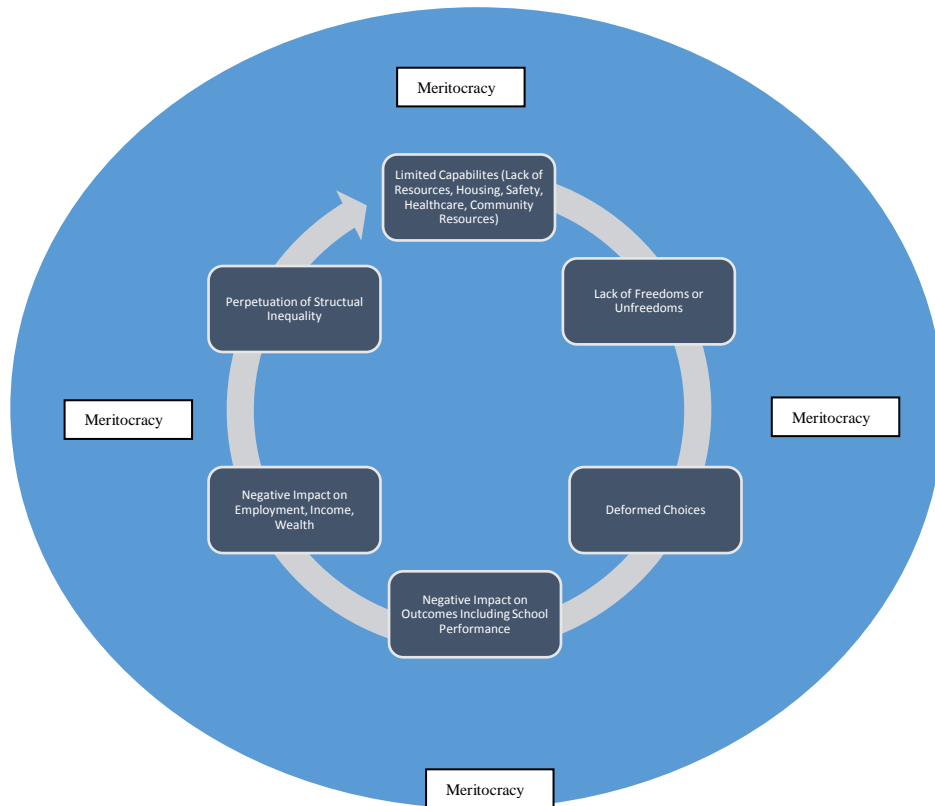


Figure 27. Lack of Opportunities, Deformed Choices, and the Perpetuation of Structural Inequality. Analytic framework.

Our research has shown that where one lives matters, particularly for children and their future. Though situated not more than three miles from each other, the neighborhood surrounding Orville Wright Elementary is vastly different than that of Lakewood Elementary. The children and parents in the Orville Wright attendance zone and surrounding community do not have the resources and thus the opportunities needed for well-being: sufficient household income, safe environments to live and play, proper healthcare, and access to community resources. Yet, these resources and

thus opportunities are plentiful in the Lakewood area. This seems in conflict with the espoused values of the community-at-large. The City of Modesto's motto: "Water, Wealth, Contentment, and Health" clearly describes the qualities of life Sen and Nussbaum contend all citizens should be afforded. This is mirrored in the Modesto City Schools vision that "Every student will graduate college and career ready, with the knowledge, abilities and character traits needed to thrive in a global society." This goal can only be met with commitment and collaboration among all stakeholders. Thus, we offer the following recommendations.

Recommendations

In this section we offer recommendations for Orville Wright Elementary School and the surrounding community. It is important to note that while there are some positive efforts underway at Orville Wright, such as the Safe Routes to School Initiative and the Police Athletic League (PAL) program, the recommendations below call for a focus on both the school and the wider community for the benefit of children's health, well-being, educational attainment, and their life chances. Much of the existing work by Modesto City Schools and Orville Wright falls under the framework of the Local Control Accountability Plan (LCAP) which details that a range of academic and school-based goals are in place. (Modesto City Schools Webpage, Local Control Accountability Plan, n.d.). While the outcomes in the plan, such as "maintaining or increasing the number of K-6 parents attending beginning of school year-round-up and first trimester parent conferences" (LCAP, Goal 1, 2017-2018 Expected Outcomes, Action #5), are reasonable and move in the right direction

a more global approach is needed for community-wide change. In order to increase the freedoms and choices that children who attend Orville Wright have, we recommend that the school build upon the LCAP with a more community centered approach. Moreover, we suggest that educators move beyond an approach that has the school as the center to a community schools framework that seeks to begin by fully engaging with all parents. This type of school, parent, and community engagement would need to go beyond collecting the LCAP survey feedback from parents. Consideration needs to be made for children, parents, and families that are facing a lack of freedoms and choices. Approaches that only include home mailers, automated calls, one-time offerings of at-school meetings, information that is posted on the school webpage, and one-time surveys will not be enough to increase the outcomes for youth in the school's attendance zone. Due to a need to focus on the critical topics of safety, food, healthcare, and community resources, parents in the Orville Wright attendance area need a district, school, and team of educators who are aware of both their families' life circumstances and who are also fully invested in their children, and the Airport community. What we have learned from this research is that a school and school district cannot well-educate ALL their children alone. There must be a combined effort among city, county, and the schools to improve the circumstances in which children live. Students cannot learn if they are hungry, ill, or fearful. Therefore, we believe the Community School Model should be implemented with haste.

Utilizing In-Reach: Adopting a Community School Model

“Community schools are those that have been intentionally transformed into neighborhood hubs and that are open all the time to children and their families” (Dryfoos, 2005, p. 7). Dryfoos notes that a community schools framework recognizes that “schools need other agencies to share some of the responsibility” (p. 7). In structuring this model, the focus is on providing increased “access to comprehensive support services, including primary-care health clinics, dentistry, mental health counseling and treatment, family social work...and whatever else is needed in that school community” (p. 8). This model connects with Sen’s focus on a capability approach as is illustrated by Dryfoos below:

The positive youth development approach revolves around several key constructs: that young people have, and are developing, assets as they move toward productive adulthood; that young people are agents of their own development, not just passive recipients of services, and that all young people need ongoing access to positive developmental supports, services, and opportunities as they move through childhood and adolescence. By their very nature and definition, community schools are a perfect strategy for promoting positive youth development because they dramatically increase the developmental assets available on a regular basis to young people and their families.

(p. 8-9)

Sponsored by the Institute for Educational Leadership, the Coalition for Community Schools offers a web-based framework for Full Service

Community Schools that is officially listed on the U.S. Department of Education's Community-Based Learning Resources website. This framework and approach brings together a range of people and organizations including school staff and "school boards, community-based organizations, youth development organizations, health and human service agencies, parents and other community leaders, to expand opportunities for children, families, and communities" (Coalition for Community Schools, 2000, p. 2).

When moving to establish a community schools framework, schools need to establish a specific vision and goals and put in place "effective governance and management structures to ensure that programs operate efficiently and the partnership is responsive to community needs" (Coalition for Community Schools, 2000, p. 2). In addition, school sites, such as Orville Wright, will want to obtain feedback and guidance from an array of individuals and agencies. Along with collaboration with community stakeholders, a community schools approach centers on working with partners to obtain funding and support for collaborative efforts (The Coalition for Community Schools, 2000).

As the first step in this effort, Orville Wright can utilize the Strengthening Partnerships, Community School Assessment Checklist (The Coalition for Community Schools, 2000). The first component of this process involves the use of a survey in order to "assess the development of [the] community school partnership" (Coalition for Community Schools, 2000, p. 2). The next step in this effort includes

documenting the services and programs that are in place to “support children, youth, families, and other community residents” (Coalition for Community Schools, 2000, p. 2). These include “supports for school-age children and youth,” (Coalition for Community Schools, 2000, p. 4) such as mentoring, a school nurse, before and after school programs, as well as support that is in place for the community (e.g., dental and health care, job training, and violence prevention). The third part of this planning process has school sites determine the various entities that are currently supporting educational and community programs and initiatives. In utilizing this approach, educators, parents, and community organizations can strategically create this framework together and overtime complement the efforts that are already underway.

To help aide in building a Full-Service Community School program, Modesto City Schools can look to West Contra Costa County School District (WCCCS) for guidance as WCCCS is a leading district in northern California, implementing 15 Full Service Community Schools (FSCS) throughout their entire district since their school board adopted the FSCS resolution in 2013. With strategic alignment of FSCS goals and those of WCCCS’s Strategic Plan and LCAP, development of a logic model was made, followed by a multi-year phase implementation approach. The 2016-2017 school year marked WCCCS’s first year with 100% of its schools being a Full-Service Community School. Each site maintains its own programs and services unique to the school and families they support (see Appendix D for further details). Additionally, the Oakland Unified School district currently maintains five FCSC schools and due to their successful efforts, Oakland Community School District has

received 10 million dollars to support six schools in providing each with a Community School Manager who will support the development of the community school model. These community managers will focus on re-creating the mix of programs, services, and supports to reflect the unique assets and needs of the students and families served. This includes a health center “that is tightly integrated into the life of the school, creating powerful opportunities to meet the health needs of the school’s diverse student body while keeping them in school” (Furger, 2014, p.1); see Appendix E for more information.

Summary: Freedoms, Social Justice, and School and Community Reform

For Orville Wright Elementary School and the Airport community, the issues surrounding poverty, lack of adequate housing , crime, lack of health care, and a lack of resources create and maintain societal injustice. Walker (2006) notes that Sen’s capability approach is tied to social justice (p. 163) as at the core of this framework are the concepts of “human development, agency, wellbeing and freedom” (p. 164).⁶ Moreover, Sen indicates that social justice in a community is ultimately connected with the “freedoms that the person can respectively exercise” beyond “the demands of proper functionings of these just institutions” (Sen, 2009, p.xi). What Sen argues is that it is not enough to have institutions such as schools, law enforcement and human service agencies in a community, but that “we have to seek institutions that promote justice, rather than treating the institutions themselves as manifestations of justice” (Sen, 2009, p. 82).

⁶ Sen notes that agency freedom “is one’s freedom to bring about the achievements one values, and which one attempts to produce” (Sen, 2009, p. 57).

Therefore, if we understand our society to be one that places value on meritocracy and the idea that all a person needs to do to create a successful and healthy life is to work hard, then we must also be a society that is conscious of the unfreedoms and deformed choices that many children and families are faced with each day. We must familiarize ourselves with these unfreedoms and deformed choices that can hinder the abilities of a child from working to their maximum ability and achieving academic success. With respects to Stanislaus County, the City of Modesto, Modesto City Schools, Orville Wright Elementary, and places like it, the challenge before the school and community leaders in charge of these institutions is to first recognize the vast differences in the neighborhoods that their students are both coming from and going home to. While many students are starting their academic journey with the resources and opportunities necessary for childhood well-being and academic success, other students are limited in these needed resources and opportunities. Leaders must understand then that where students live plays a vital role in their attempt to reach academic success each day. They must keep equity at the forefront and truly embrace Sen's argument that the focus of justice is not the articulation and achievement of a "perfectly just society or social arrangements, but about preventing manifestly severe injustice" (Sen 2009, p.21). Upon recognition of these facts and ideals it is imperative for school and community leaders to come together to actively strategize reforming the structures in and around the areas in their community, specifically those like Orville Wright Elementary and the wider Airport community, to increase children's capabilities. As they plan their reforms we

recommend that they carefully assess where each of these severe injustices are found and actively seek to reverse them. End results should be the expansion of children's capabilities by doing as much as possible to "produc[e] a world in which all children grow with a decent set of opportunities for education, health care, bodily integrity, political participation, choice, and practical reason" (Nussbaum, 2007, p. 22).

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APPENDICES

APPENDIX A

EDUCATION DATA SOURCES AND DOCUMENTS

Data	Documents and Sources
School description and mission statement	School Accountability Report Cards (SARC) for 2015-16 and 2016-17 from Orville Wright and Lakewood schools
Student enrollment by grade level and group	
Conditions of learning (i.e. Teacher credentials, etc.)	
Pupil outcomes, including CAASSP results (including 3 rd grade literacy)	
Engagement: parental involvement and school climate	
Other SARC info: federal intervention program status, average class size and distribution, support staff, expenditures per pupil, services funded, and professional development	
Total enrollment	California Department of Education: CALPADS UPC Source File (K-12) for 2016-17, 2015-16, and 2014-15 school years (For Orville Wright, Lakewood, and MCS district), Program improvement data: 2017-18 school status-data file
Free and Reduced Meal Program enrollment	
Migrant Education Program enrollment	
Homeless population numbers	
Total English Learners (EL)	
Program improvement status	
Fiscal, demographic, and performance data on California's K-12 schools	Educational Data Partnership
Strategic plan, vision, and mission	Modesto City Schools Website
Actions, goals, and outcomes	Local Control Accountability Plan (LPAC)
Educational Attainment	2011-2015 ACS: Tenure by educational attainment. 2012-2016 ACS: Educational attainment for the population 25 years and over

APPENDIX B

HEALTH AND WELL-BEING INDICATORS, DATA SOURCES, AND
RELEVANT LITERATURE

Indicators	Data Source(s)	Literature
SES/levels of Poverty	<p>2011-2015 ACS: Poverty Status in the Past 12 Months, Percentage of Children Below the Poverty Level, Employment Status, Employment Characteristics of Families, Household Income in the Past 12 Months, Median Income in the Past 12 Months, Financial Characteristics, Food Security, Supplemental Nutrition Assistance Program (SNAP, CalFresh), Supplement Security Income, and Cash Assistance</p> <p>School documents (School Accountability Report Cards, etc.)</p>	<p>Berliner, 2009; Brooks-Gunn & Duncan, 1997; Bureau of Labor Statistics, 2015; California School Dashboard, 2017; Engle & Black, 2008; Hoglebe & Tate, 2012; Jones et al., 2015; Murray et al., 2011; Office of Family Assistance, 2017; Posey, 2016; Sampson, 2012; Saporito & Sohoni, 2007; Sirin, 2005; Social Security Administration, 2017; Tate & Hoglebe, 2015; U.S. Department of Agriculture, 2017; U.S. Department of Commerce, 2012; U.S. Department of Health and Human Services, 2015</p>
Sufficient Housing	<p>2011-2015 ACS: Monthly housing costs as a percentage of household income in the past 12 months, Means of transportation to work by tenure, Occupancy characteristics, Occupied housing units, Physical housing characteristics for occupied housing units, Poverty status in the past 12 months, Poverty status in the past 12 months of families, Year structure built, and Tenure by age of householder by year structure built</p> <p>Stanislaus County GIS website</p> <p>Modesto GIS website</p> <p>City of Modesto, Community and Economic Development Department, Planning Division. <i>2015 Urban growth policy review</i></p> <p>California Department of Education, CALPADS UPC Source File (K-12) for 2016-17, 2015-16, and 2014-15 school years</p>	<p>America's healthy rankings, 2016; Boyle, 2002; Bellinger & Needleman, 2003; Better Homes Fund, 1999; Bratt, 2002; Breyse et al., 2004; Cairney, 2005; Canfield et al., 2003; Cohen & Wardhip, 2001; Coley, et al., 2013; Conger & Donnellan, 2007; Evans, 2006; Galster, 2003; Grinstein-Weiss et al., 2012; Haurin, Parcel & Haurin, 2002; Hicks-Coolick, Burnside-Eaton & Peters, 2003; HUD, 2014; Pollack et al., 2008; JCHS, 2017; Jones et al., 2015; Lanphear et al., 2000; Leventhal & Newman, 2010; Lindblad et al., 2013; Manturuk, Lindblad & Quercia, 2012; Mistry et al., 2008; National Resource, 2006; Nigg et al., 2008; Rafferty, Shinn, & Weitzman, 2004; Shlay, 2015; South & Haynie, 2004; Vandivere et al., 2006; and Van Zandt & McCarthy, 2002</p>

	Google maps	
Violence and Crime Levels	<p>Modesto City's Crime Mapping tool: Data collected from 3/25/17 to 9/20/17</p> <p>2011-2015 ACS: Poverty status in the past 12 months</p> <p>School Accountability Report Cards (2015-16) for Orville Wright and Lakewood Elementary Schools</p> <p>Orville Wright and Lakewood school websites</p> <p>Google maps</p>	<p>Boessen & Hipp, 2015; Bowen & Bowen, 1999; Burdick-Will, 2016; Cahill, 2005; Commission on Social Determinants for Health, 2008; Fiester, 2010; Foster & Giles-Corti, 2008; Galster, et al., 2005; Hipp, 2007; Humbert et al., 2006; Klaus & Maston, 2006; Kneeshaw-Price et al., 2015; Lesnick et al., 2010; Lockwood, 2007; Loukaitou-Sideris, 2006; Loukaitou-Sideris & Eck, 2007; Mattarella-Micke & Beilock, 2012; McCord et al., 2007; Mijannovich & Weitzman, 2003; Milam et al., 2010; Miles & Stipek, 2006; Nielsen & Martinez, 2003; Peterson, Krivo & Harris, 2000; Roman et al., 2009; Sampson, 2006, 2012; Sauro, Jorgensen, & Pedlow, 2003; Schwartz & Gorman, 2003; Sharkey, 2010; Stucky & Ottensmann, 2009; Vandivere et al., 2006; WHO, 1946; and Wilcox et al., 2004</p>
Access to Health Care and Insurance	<p>2011-2015 ACS: Selected Characteristics of Health Insurance Coverage in the United States</p> <p>U.S. Census Bureau; <i>America's Health Rankings Survey</i></p> <p>Alameda County Public Health Department</p> <p>The Henry J. Kaiser Family Foundation</p> <p>Stanislaus County: Geographic Information Systems</p>	<p>Alameda County Public Health Department, 2008; California Endowment, 2013; Cohodes, Grossman, Kleiner, & Lovenheim, 2014; Council of Chief State Officers, 2004; Henry J. Kaiser Family Foundation, 2017; Jones, Harris, & Tate, 2015; Levin, & Schanzenbach, 2009; Pancholi 2001; Syed, Gerber, & Sharp, 2013; United Health Foundation. 2016; Wold, C. 2010</p>

Community Resources	2011-2015 ACS: Percentage of Children Below the Poverty Level	Bay Area Regional Health Inequities Initiative, 2017;
	California Endowment	Braveman, Dekker, Egerter, SadeghNobari, & Pollack, 2011;
	Google Maps	California Department of Health, 2014; California Endowment, 2016; Centers for Disease Control and Prevention, 2013; CEOs for Cities, 2000; Coat, & Grant, 2011; Environmental Protection Agency, 2011; Ginsburg, 2007; Litman, 2007; Marshall, 2002; National Center for Environmental Health, 2011; Pearce et al., 2006; Rose, Bodor, Swalm, & Hutchinson, 2010; Saporito, & Sohoni, 2007; Shaw, 2004; Tate & Hoglebe, 2015; U.S. Department of Agriculture, 2015; U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2010; Wendel, Dannenberg, & Frumkin, 2008.
	Stanislaus County GIS website	
	Modesto City GIS website	
	Modified Retail Food Environment Index	
	Department of Health	
	Centers for Disease Control and Prevention	
	Environmental Protection Agency	
	National Center for Environmental Health	
	U.S. Department of Agriculture and U.S. Department of Health and Human Services	

APPENDIX C

CRIME TYPE SYMBOLS AND DEFINITIONS USED BY CRIME MAPPING

Crime Type Symbols and Definitions used by Crime Mapping

Symbol	Definition
	Assault: Attack on a person to commit injury. Aggravated assault usually includes a deadly weapon and simple assault does not. Domestic violence is not included.
	Burglary: Unlawful entry of a structure to commit a theft or other felony.
	Disturbing the Peace: Any behavior that tends to disturb the public peace.
	Drugs / Alcohol Violations: <i>Drug Abuse Violations</i> - The violation of laws prohibiting the production, cultivation, manufacture, distribution, possession and/or use of certain controlled substances. <i>Liquor Laws</i> - The violation of laws prohibiting the manufacture, sale, purchase, transportation, possession, or use of alcoholic beverages, not including driving under the influence and drunkenness.
	DUI: Driving or operating a vehicle while under the influence of alcohol or narcotics.
	Fraud: The intentional perversion of the truth for the purpose of inducing another person or other entity to part with something of value or to surrender a legal right.
	Homicide: Unlawful killing of one person by another.
	Motor Vehicle Theft: Theft of a car, truck, motorcycle, or any motor vehicle.
	Robbery: Taking property from a person by force, threat of force, or fear.
	Theft / Larceny: Unlawful taking of property from another person.



Embezzlement, forgery, check fraud, and theft from a vehicle are excluded.



Vandalism: Willful, malicious destruction, damage, or defacement of property.



Vehicle Break-In: Theft of articles from a vehicle.



Weapons: Violation of laws prohibiting the manufacture, sale, purchase, transportation, possession or use of deadly weapons.

Note: Definitions of crime types are from Crime Mapping, which notes that it is common for two agencies to have a similar definition for the same **Crime Type**, so in order to remain consistent for all the data Crime Mapping has (and reduce the amount of different **Crime Types** that they manage), they map the client's **Crime Types** to the above symbols. These clients for Modesto Crime Mapping are the Modesto Police Department and the Stanislaus County Sherriff Department. From Crime Mapping. (2017).

APPENDIX D

WEST CONTRA COSTA COUNTY RATIONALE FOR IMPLEMENTATION OF
FULL SERVICE COMMUNITY SCHOOLS**West Contra Costa County Rationale for Implementation of Full Service
Community Schools**

Toward a Full-Service Community School District in West Contra Costa County:
Leveraging Assets & Opportunities to Strengthen Collaboration for Student Success
and Health and Equity

[https://www.wccusd.net/cms/lib/CA01001466/Centricity/Domain/1447/RDo_PLUS
%20Report_Final_5-17.pdf](https://www.wccusd.net/cms/lib/CA01001466/Centricity/Domain/1447/RDo_PLUS%20Report_Final_5-17.pdf)

Mapping for Alignment: Inventorying School-Based Services WCCUSD

[https://www.wccusd.net/cms/lib/CA01001466/Centricity/Domain/1447/PLUS-
BriefNEW2.pdf](https://www.wccusd.net/cms/lib/CA01001466/Centricity/Domain/1447/PLUS-BriefNEW2.pdf)

West Contra Costa County School Description

Use the web address below for school-site specific information regarding the support
programs and additional resources West Contra Costa County has at each of their
Full-Service Community elementary and high schools.

<https://www.wccusd.net/Page/6092>

APPENDIX E

OAKLAND SCHOOL DISTRICT (OSD) RATIONALE FOR IMPLEMENTING
FULL SERVICE COMMUNITY SCHOOLS**Oakland School District (OSD) Rationale for Implementing Full Service
Community Schools**

Use the web addresses below to learn more about OSD's Full Service Community Programs

Description of Program

<https://www.ousd.org/Page/14027>

OSD's Goals for its Full-Service Community Schools

<https://www.ousd.org/Domain/97>

Value System

<https://www.ousd.org/Page/13986>

Oakland Unified School District Full Service Community School Descriptions

Use the web address below for more information about the support programs and resources Oakland Unified School District has at each of their Full-Service Community elementary and high schools.

<https://www.ousd.org/Page/15122>

School-Site Descriptions

Use the web address below for more information on site-specific programs at each of Oakland Unified School District's Full-Service Community Schools

<https://www.ousd.org/Page/14029>