Rethinking the Public School System: through the lens of NPS

The Breakdown:

The Issue:

Students spend a lot of time inside their school communities. These spaces should be ones that connect students to their community and encourage positive learning. Many schools in Oklahoma are overcrowded and are not easily accessible when it comes to parking and safe walking routes. The issues listed apply to many schools in the Norman Public School district. An analysis of the current school locations and populations was conducted to measure diversity and community.

The Goals:

The goal of this analysis is to identify potential satellite and nucleus school locations. Satellite schools are defined in this study as small school locations that feed into larger nucleus locations. Satellite schools would not be separated by grade, rather separated by community and walkability. Walkability is determined by how many homes have walking access to the satellite school, what other facilities surrounded the building, and how busy nearby streets are on a daily basis. Satellite locations are explored within the research portion of this study. Nucleus schools are separated by grade and will be determined based on existing public schools in Norman and other locations that need a nucleus school. Satellite schools have a goal of fostering a sense of community among K-12 students while nucleus schools will encourage peer bonding and diversity.

The Importance:

Analyzing existing school culture is important so that our current school model is kept up to date with the society of today. Community and walkability are important for wellbeing and can be achieved through Satellite schools. In addition, peer bonding and diversity are also important to learn and grow from each other. These goals can be achieved through Nucleus schools.

The Setting:

The Norman Public School district was chosen as the focus of this study because it has importance to the researcher. Norman is also overcrowded and has issues with walkability and fostering a sense of community. Steps are being taken to increase wellbeing in Norman Public Schools, like the School Climate and Culture Task Force created by the superintendent. This shows the district is open to change and to bettering itself.

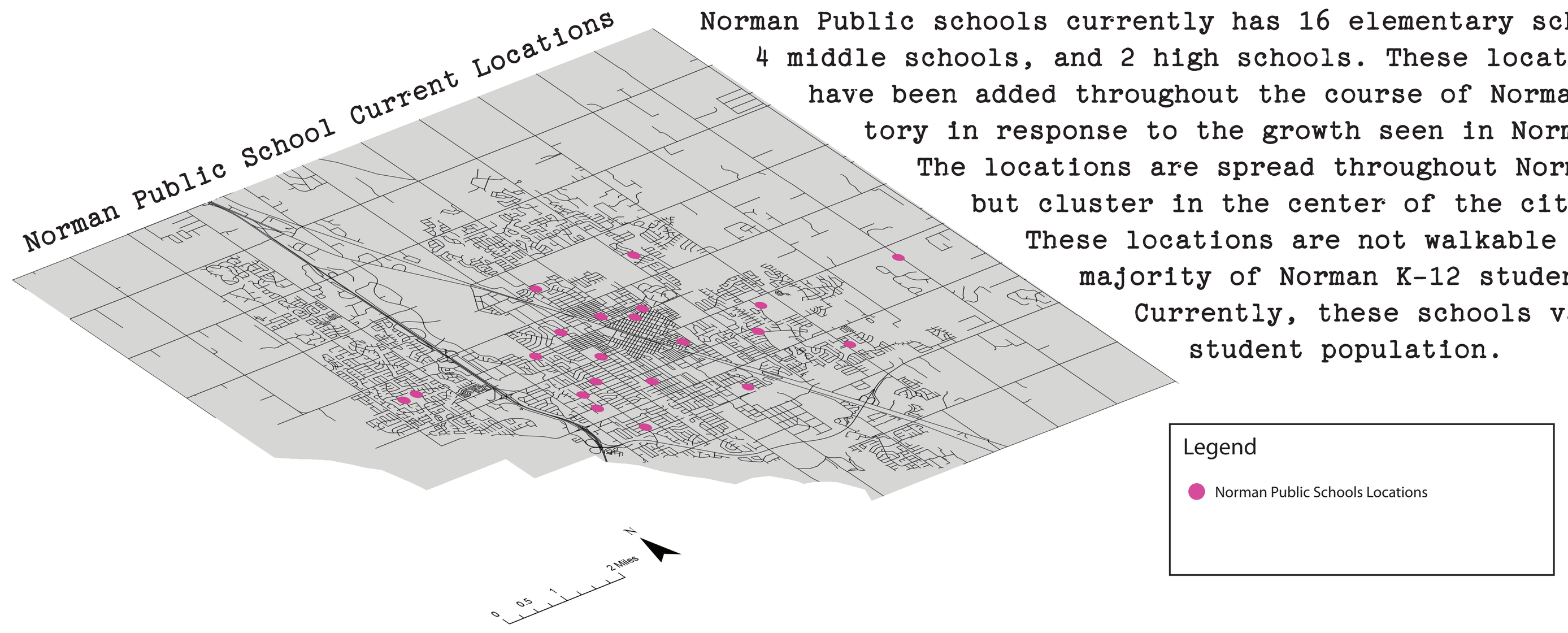
The Limitations:

Limitations to this study include time, accessibility to statistics, previous knowledge of software, and the inability to share my idea with others. For time, this study was conducted over the course of one school semester. A study without a time limit could gather a lot more useful data. Second, statistics used were ones that were found available online either through the census data, the Norman information database, or through Google Earth. Knowledge of software included limited interaction with Google Earth and knowing of the website called Snazzy Maps. All knowledge of ArcGIS was gathered during the course of the semester. Lastly, sharing this idea with others would allow me to see if this idea is good and to brainstorm more directions of research.

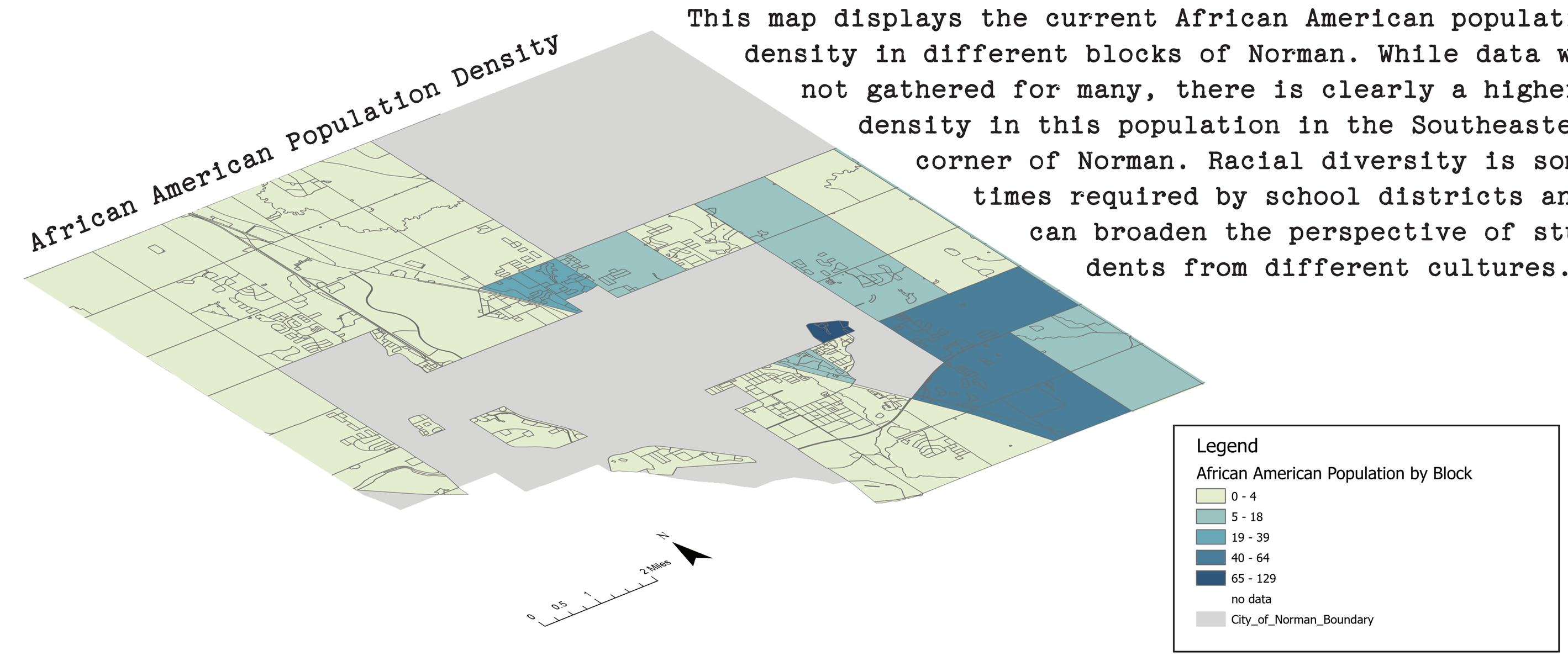
The Future:

In the future, a focus group could be done with the current plan to see how Norman citizens react to the proposal. Also more data could be gathered for analysis. A thorough implementation plan could also be executed. This would include plans for future schools in which a thorough ideation of interior design could be executed, which is my field of expertise.

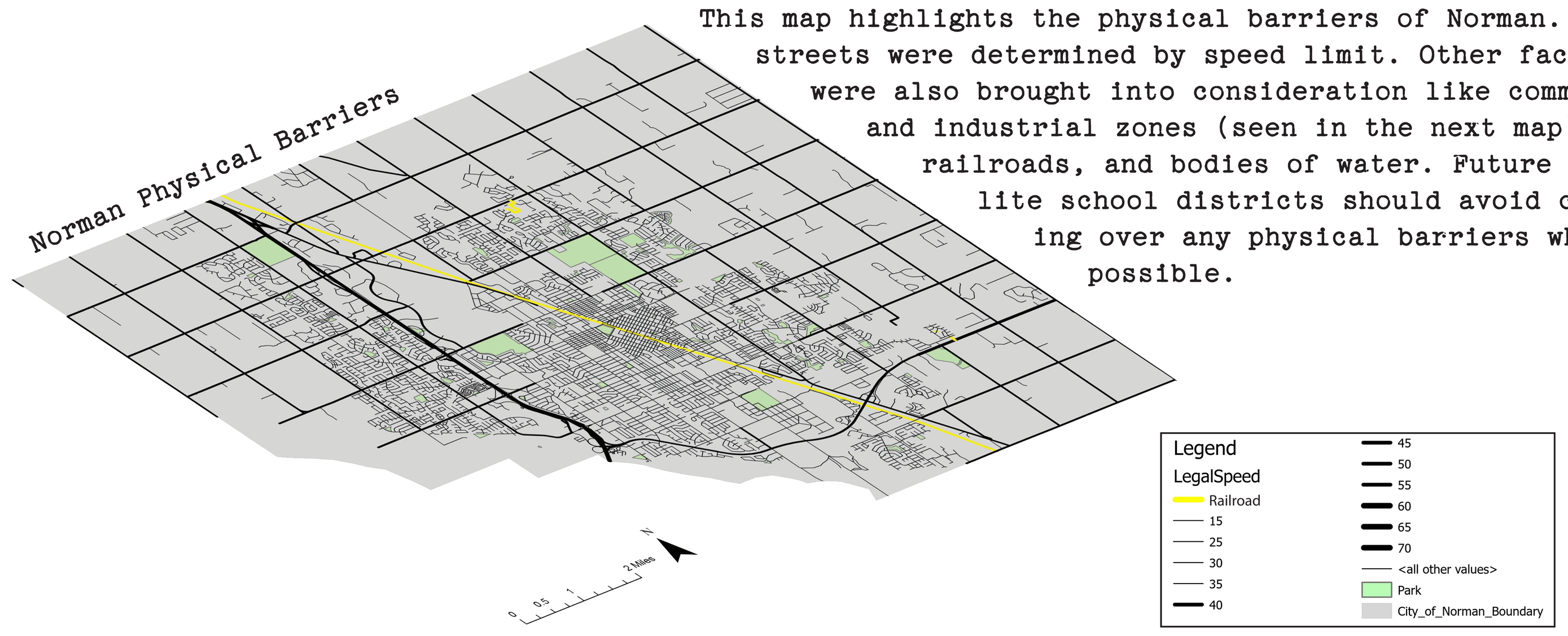
The Research:



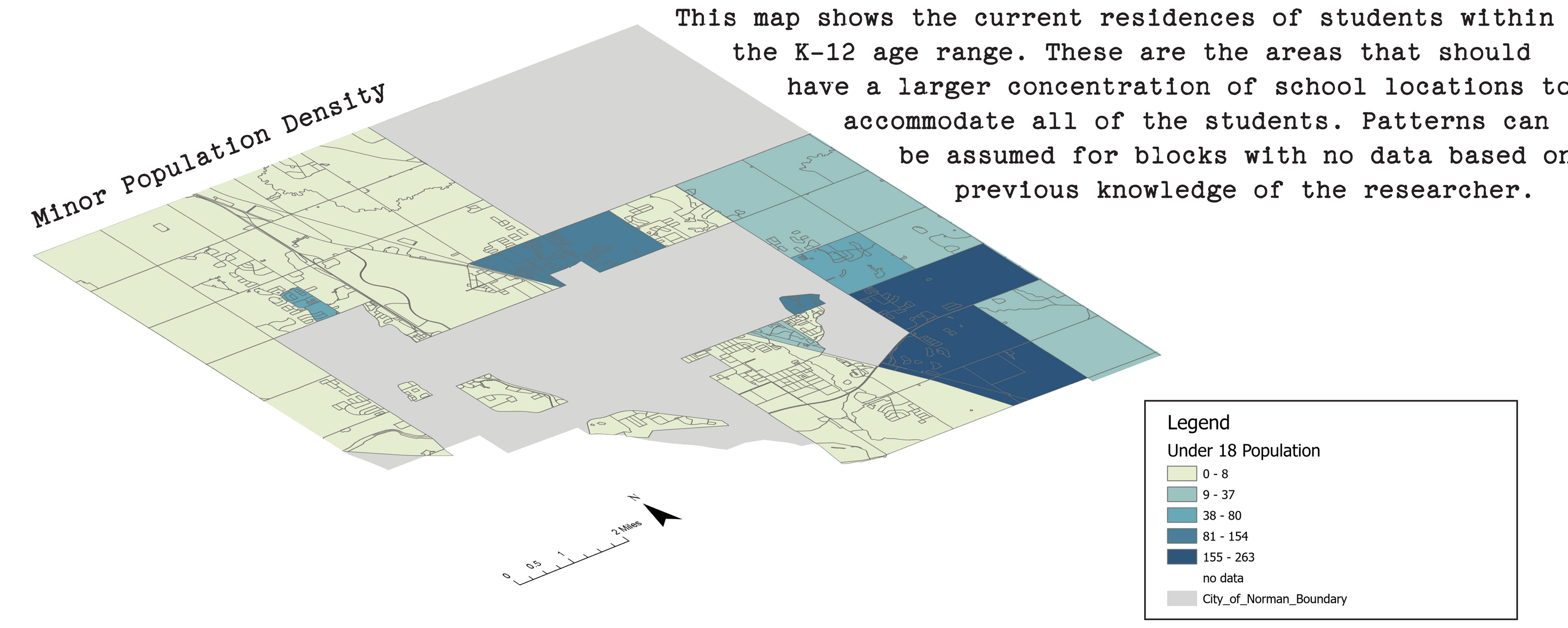
Norman Public schools currently has 16 elementary schools, 4 middle schools, and 2 high schools. These locations have been added throughout the course of Norman history in response to the growth seen in Norman. The locations are spread throughout Norman, but cluster in the center of the city. These locations are not walkable for the majority of Norman K-12 students. Currently, these schools vary in student population.



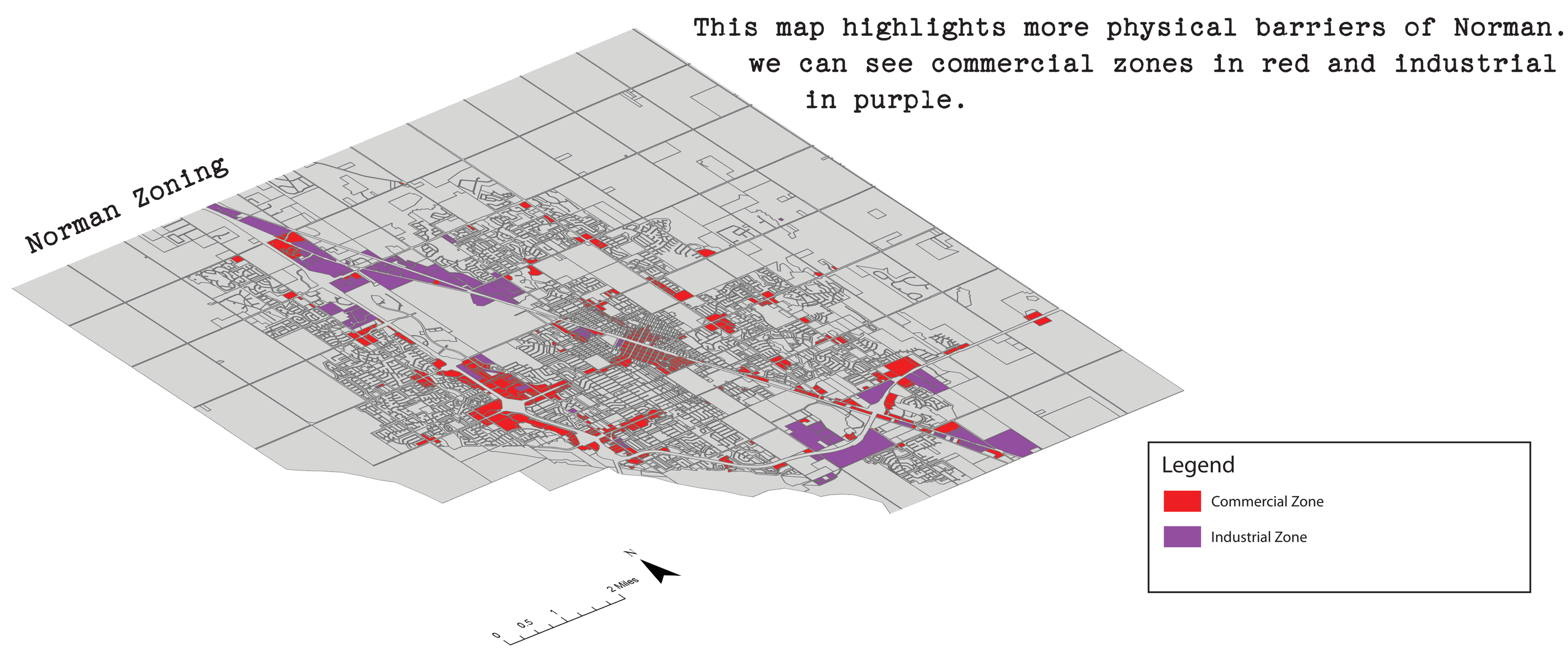
This map displays the current African American population density in different blocks of Norman. While data was not gathered for many, there is clearly a higher density in this population in the Southeastern corner of Norman. Racial diversity is sometimes required by school districts and can broaden the perspective of students from different cultures.



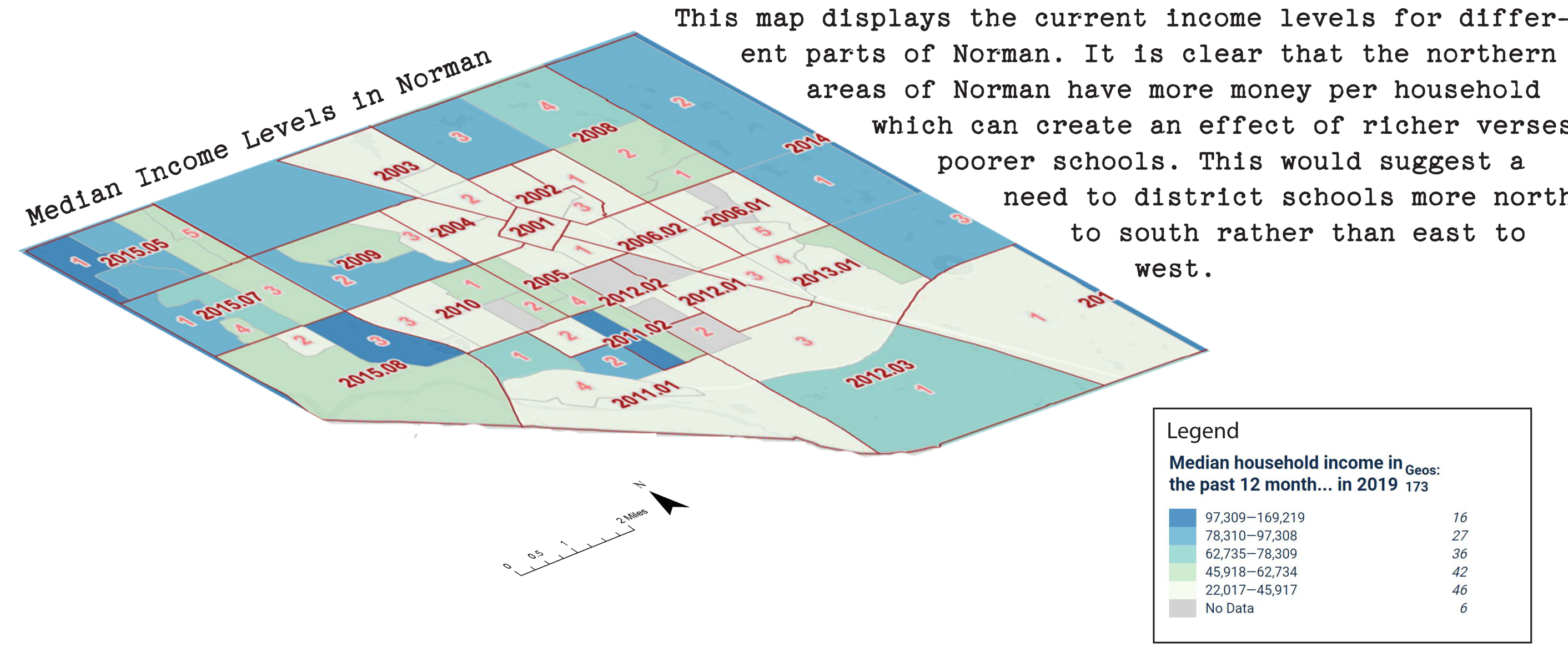
This map highlights the physical barriers of Norman. Busy streets were determined by speed limit. Other factors were also brought into consideration like commercial and industrial zones (seen in the next map), railroads, and bodies of water. Future satellite school districts should avoid crossing over any physical barriers when possible.



This map shows the current residences of students within the K-12 age range. These are the areas that should have a larger concentration of school locations to accommodate all of the students. Patterns can be assumed for blocks with no data based on previous knowledge of the researcher.

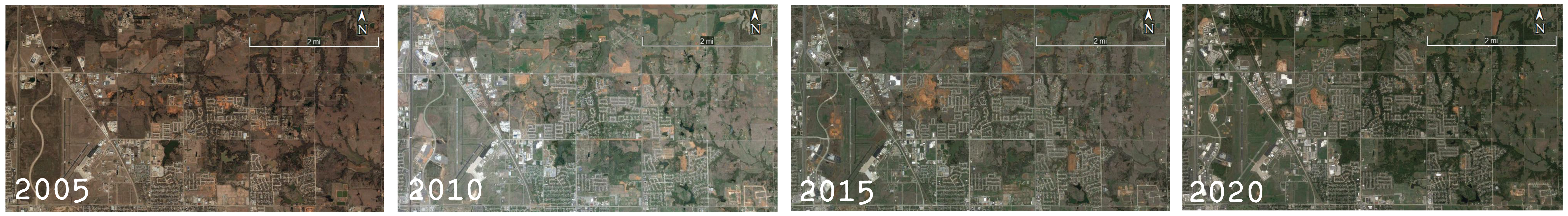


This map highlights more physical barriers of Norman. Here we can see commercial zones in red and industrial zones in purple.



This map displays the current income levels for different parts of Norman. It is clear that the northern areas of Norman have more money per household which can create an effect of richer verses poorer schools. This would suggest a need to district schools more north to south rather than east to west.

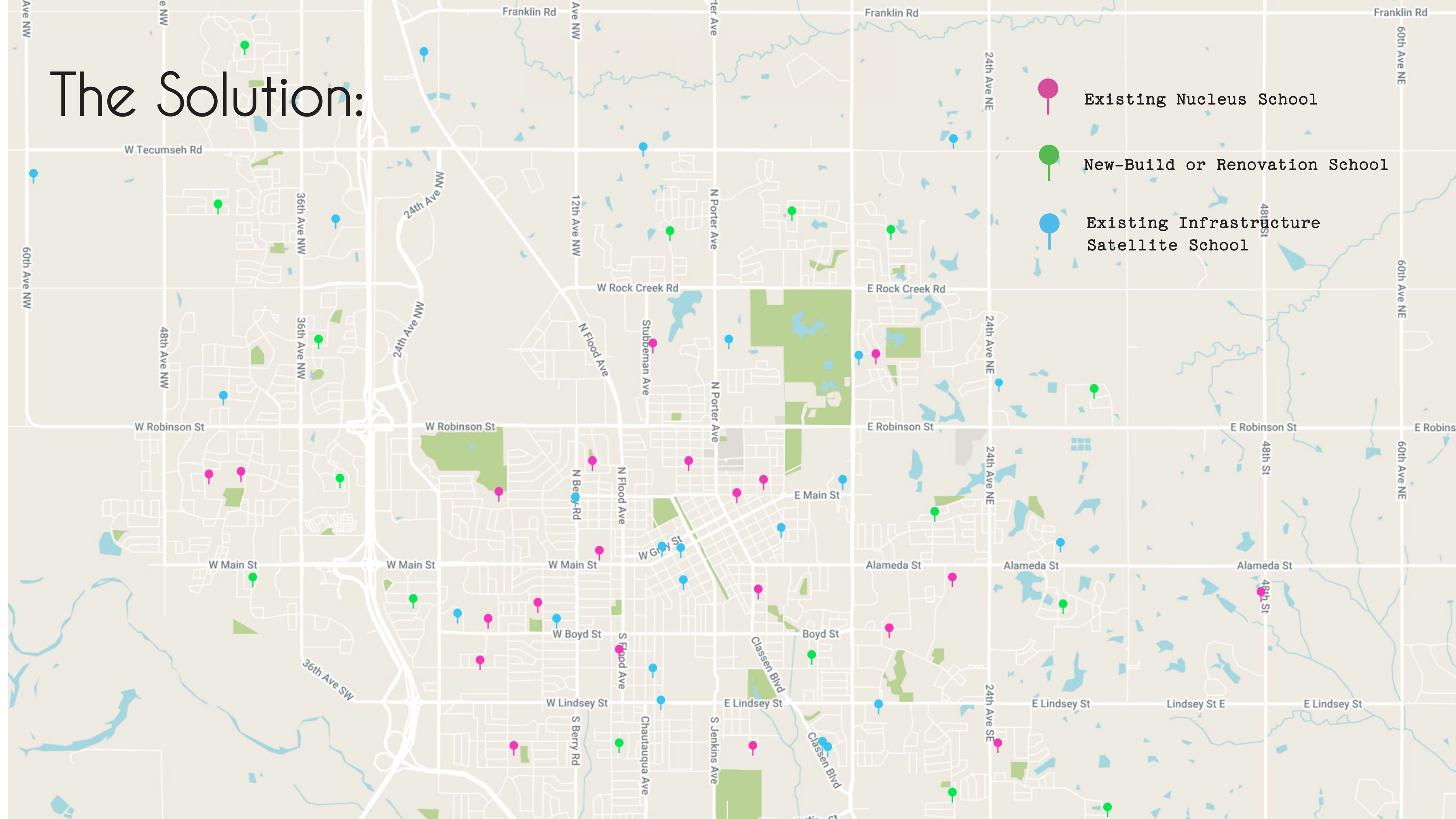
Norman is a growing town. Identifying the neighborhoods that are accommodating this growth also helps identifying where future school locations will need to be. In these maps, it is clear that the Northeastern section of Norman is growing rapidly as new neighborhoods spring up in this short span of 15 years, which is just long enough for a single student to cycle through the education system.



The Resources:

Caro, F., Shirabe, T., Guignard, M., & Weintraub, A. (2004). School redistricting: Embedding GIS tools with Integer Programming. Journal of the Operational Research Society, 55(8), 836–849. https://doi.org/10.1057/palgrave.jors.2601729
Carter, R. (2021). Many districts exempted from class-size limits. Oklahoma Council of Public Affairs. Retrieved December 17, 2021, from https://www.ocpathink.org/post/many-districts-exempted-from-class-size-limits
Cheryan, S., Ziegler, S. A., Plaut, V. C., & Meltzoff, A. N. (2014). Designing Classrooms to Maximize Student Achievement. Policy Insights from the Behavioral and Brain Sciences, 1(1), 4–12. https://doi.org/10.1177/2372732214548677
District exploring expanded support services. (2021). Retrieved December 17, 2021, from https://www.normanpublicschools.org/site/default.aspx?PageType=3&DomainID=100&ModuleInstanceID=2252&ViewID=6446EE88-D30C-497E-9316-3F8874B3E108&RenderLoc=0&FlexDataID=204&PageID=2249
LaVictoire, L. (2019). The 'trade-ups' and trade-offs of consolidating Oklahoma's Largest School District | Stateimpact Oklahoma. NPR. Retrieved December 17, 2021, from https://stateimpact.npr.org/oklahoma/2019/02/21/the-trade-ups-and-trade-offs-of-consolidating-oklahomas-largest-school-district/
U.S. Census Bureau (2019). Median household income in the past 12 months (in 2019 inflation-adjusted dollars)—Estimate. Retrieved from https://data.census.gov/cedsci/map?q=income&g=0500000US40027%241500000&tid=ACSDT5Y2019.B19013&mode=thematic&vintage=2019&layer=VT_2019_150_00_PY_D1&cid=B19013_001E&palette=GnBu

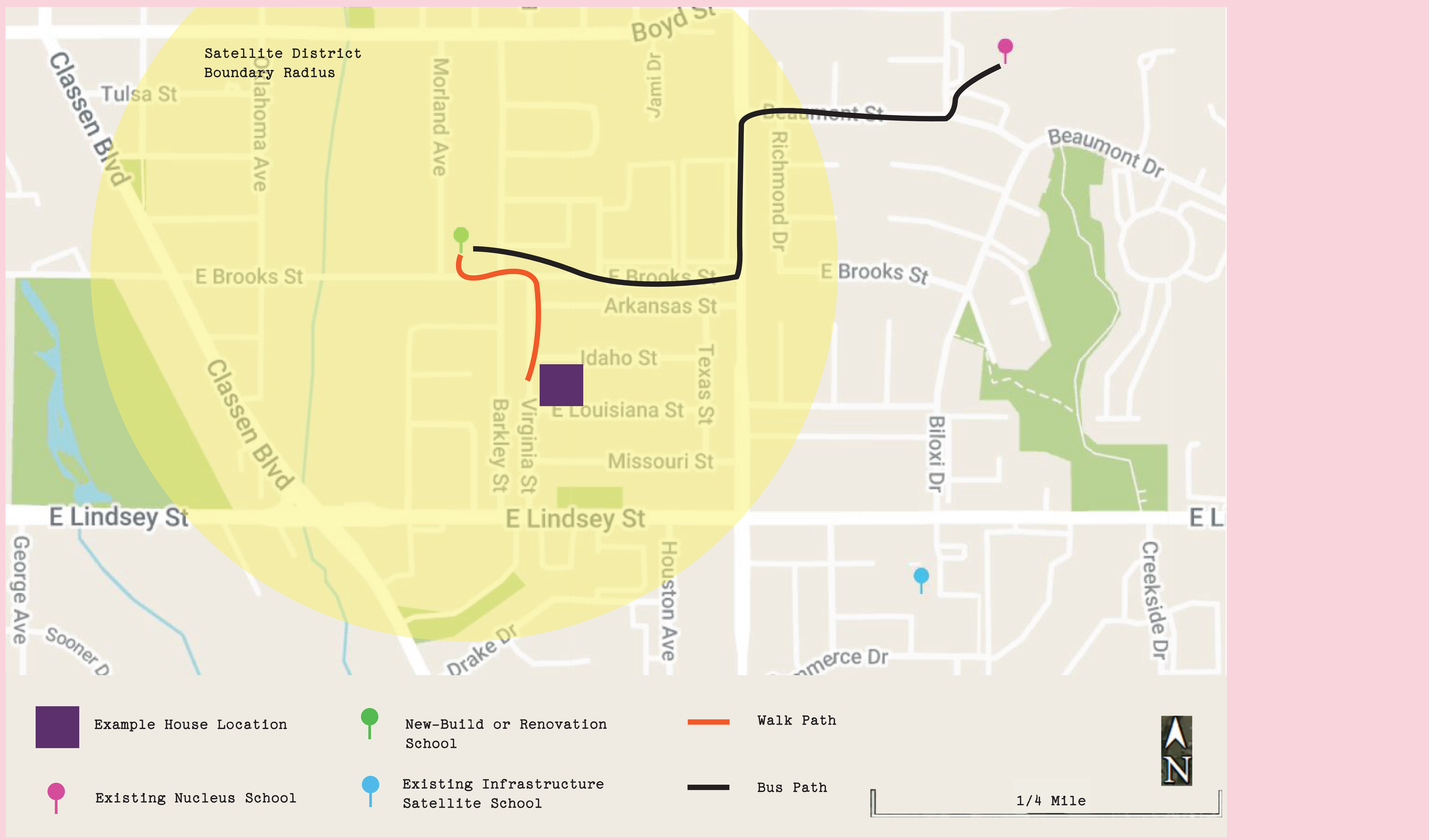
The Solution:



This map displays all possible locations of satellite schools and nucleus schools based on existing infrastructure and where extra locations are needed. Physical boundaries and commercial zones were also taken into consideration when adding places for potential school sites. Satellite schools that feed into the Nucleus schools would be diverse in racial and financial background to create a wider understanding of community for the students.

The Recommendations:

Considering all the information gathered during the research portion of this study, a small area of Norman is displayed to show a potential route in the day of a K-12 student. Students would start out walking to a satellite school location where they could foster a sense of community and connect with their close neighbors. Then, buses would take students to nucleus school locations where the students could engage in diversity and interact with students their own age. Nucleus school locations would be preexisting Norman Public Schools as well as existing infrastructure large enough to hold a greater amount of students of different grade levels. Here, students would have classes based on a block schedule. A block schedule allows some classes to be taught a few days, and then other classes taught on the opposite days. This lets classes have more time and allows community building time at the new satellite schools. At the end of class 3, students would be bussed back to the satellite location. Having buses move the students also saves on gas and reduces carbon emissions around the city. At the end of the day, students would engage in a community building project that helps better their immediate community in some way. The satellite schools would have all school ages and lends itself to establishing some sort of mentor-ship program within the school system. At the end of the day, most students could walk back home. Those who would be part of an after school program are located close to home allowing parents or guardians less travel time after work.



7:45 AM
Walk to the community satellite school

8:00 AM
Homeroom and homework time. A mentor-ship program can be established between older and younger students.

8:45 AM
Travel to nucleus school via buses. Junior and Senior students will have the freedom to travel by car to fit existing school programs such as concurrent enrollment and classes offered at Moore-Norman. Travel via bus will help decrease carbon emissions from excessive vehicle use.

9:00 AM
Class 1. With this new model of schools, it is also important to establish a block schedule. Block schedules will allow for more travel time throughout the day.

10:30 AM
Class 2

12:00 PM
Lunch

1:00 PM
Class 3

2:30 PM
Travel back to satellite school

2:45 PM
Community and wellbeing class. This class will encourage wellbeing in students and increase community morale or involvement. Satellite schools near parks will already be set up to do this well. This class will be for all age students within the satellite school location

3:30 PM
Walk home. After school programs will begin at this time.