THE PRODUCTIVE NATURE OF ATTENDANCE BOUNDARIES: HOW THEY ARE DETERMINED AND WHY THEY MATTER

by

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DISSERTATION ABSTRACT

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Public school attendance boundaries across the United States produce inequitable school environments in urban and suburban districts. Traditionally, suburban school districts have been understudied but are increasingly a site of research interest because of their rapid growth and significant changes in racial and economic demographics. Therefore, I explore the change in suburban school attendance boundaries in the Lodge City School District (LCSD). The LCSD boundary changes coincided with rapid district growth and profound demographic changes. In studying LCSD, I identify the practices used to determine the new high school attendance boundaries. I explore what these boundary practices produced, how they mattered, and whether these practices disrupted or cemented inequities within the district. To do this, I drew on the literature from three areas of education research: diversifying suburban districts, school boundary changes, and the use of spatial analysis in education research. Within these bodies of literature, I identified a lack of theorization of space, race, and class and how they're in a dynamic relationship with changing school boundaries and changing suburban demographics. I fulfill this gap through a unique theoretical framework based on Barad's (2007)

philosophy of agential realism, foundations of critical geography, and Molina et al.'s (2019) relational formations of race.

Emerging from my theoretical framework, I analyzed my data (meeting minutes, publicly posted parent comments, boundary advisory committee interviews, and district demographic data) using Barad's concept of the apparatus in conversation with spatial analysis via geographic information systems. I traced two unique apparatuses: the objectives and criteria for the boundary change and Highway 44, which cuts through LCSD. Through the analysis, I determined that the articulation of objectives and criteria and the need to foreground the geographic reality of the district are crucial practices when determining new attendance boundaries. These practices matter because they constrain and define what is interior to the decision-making process and what boundary configurations are possible or impossible. By being intentional in determining the objectives for the boundary process and centering a district's geography, a district can work to disrupt inequities, but if districts ignore these practices, they will further cement longstanding district inequities.

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CHAPTER I

BOUNDARY CHANGES IN LODGE CITY SCHOOL DISTRICT

I taught high school chemistry in a district located in the first ring of suburbs in the greater Houston area for seven years. The district had four comprehensive high schools, one smaller magnet high school, and an alternative high school. A student's address determined the school assignment at the four comprehensive high schools. A major interstate divided the district into northern and southern halves physically and shaped the schools' characterization. I taught in a high school on the north side of the freeway, which in my final year of teaching there (2014-15) had a student body composition that was 90.7% Latinx and 84.8% economically disadvantaged. At another district high school, on the same road but south of the freeway, the student composition was remarkably different. It was 61.5% White, 15% Asian, 17.9% Latinx, and only 10% economically disadvantaged. These stark contrasts created different school, teacher, and student identities. The community often construed my school as the "bad" school and the other high school as the "good" school. These characterizations, often based on demographics, housing prices, parent networks, and problematic standardized test scores (Holme, 2002), overlooked the incredible hard work, teacher comradery, excellent students, and innovative pedagogy that was occurring inside the walls of my high school.

This teaching experience piqued my interest in the relationships between geography, real estate, and school boundaries and left me with the following questions: How can schools in the same district, located on the same road only three miles apart, be so demographically different? How do the particular housing history, segregation history, and the determination of attendance boundaries in this district interact to

produce these differences? Additionally, how do these relationships maintain the privilege of some students and rob other students of opportunity? Finally, knowing the documented challenges in racially and economically isolated schools, why would a district maintain these attendance boundaries? It is out of this experience and these lingering questions that my dissertation begins.

Introduction

School boundaries have been used as economic and racial segregation tools throughout the history of the U.S. school system (Bischoff, 2008; Holme & Finnigan, 2013). Historically, some of the starkest student demographic separations have been between city and suburban school districts. According to Siegel-Hawley (2016), "the majority of school segregation occurs because students are enrolled in entirely different school systems, not just in different schools" (p. 3). Though with many exceptions, a common assumption is that Black and other students of color live in cities and enroll in city schools, while middle and upper-class white students live in the suburbs and enroll in suburban schools. However, this assumption is not valid anymore. Suburbs, defined as "the physical space beyond a city's boundaries, yet still within the metropolitan area," are no longer the white enclaves they once were (Kneebone & Berube, 2013; Lacy, 2016, p. 370). The white enclaves which were created through predatory and restrictive lending practices, racial steering, and restrictive covenants have been undergoing major demographic shifts over the last several decades[1].

[1] See Rothstien, R. (2017). *The color of law* for an in-depth look into how segregated suburbs were purposefully and legally created.

According to research, “Racially diverse suburbs are growing faster than their predominantly white counterparts. Diverse suburban neighborhoods[2] now outnumber those in their central cities by more than two to one" (Orfield & Luce, 2013, p. 395). According to Frey, "the black city/white suburb paradigm has almost entirely broken down" (2015, p. 149). Now the Latinx community is the largest growing population in the suburbs, followed by the Black and Asian communities (Frey, 2015). This suburban trend "of the growth in racial diversity… [being] rooted in increasing Latinx and Asian suburbanization" has education researchers calling for more work “that helps us understand the experience of these groups in suburban schools and communities” (Diamond & Posey-Maddox, 2020, p. 8). In addition to racial diversification in the suburbs, poverty in suburban areas is also rising (Lacy, 2016).

Along with the changes in racial and economic composition, suburban neighborhoods and suburban school districts’ enrollments continue to grow (Frankenberg et al., 2003; Tyler et al., 2016). Nevertheless, this growth and diversification have not necessarily led to a decrease in racial or economic segregation in schools and districts. In part, this is due to patterns of clustering of white residents in the suburbs further from the urban core and nonwhite residents closer to the urban core (inner-ring suburbs). By some measures, schools are more segregated now than they were before the Brown decision in 1954. "As of 2011, the number of Black students in majority minority schools has risen to 77.1%, higher than it was in 1968. The statistics for Latino students…[show] a steady increase in racial segregation over the last four decades" (Rosiek & Kinslow, 2016, p. 4). Frankenberg et al. (2003) report:

[2] “Diverse suburbs are defined as communities where nonwhite residents represented between 20% and 60% of the population in 2010” (Orfield & Luce, 2013, p. 398).

> In 1967 the nation's largest suburban systems were virtually all white. Despite a considerable increase in minority students in suburban school districts, serious segregation patterns have emerged in some sectors of suburbia as this transition takes place. Many of the most rapidly resegregating school systems since the mid-1980s are suburban. Clearly, segregation and desegregation are no longer merely urban concerns but wider metropolitan issues. (p. 5)

In addition to the racial segregation occurring across metropolitan areas, recent research has also shown that income segregation between school districts and between schools within the same district has increased since the 1990s (Owens et al., 2016). This trend follows growing income inequality in the United States.

These findings have led to a body of research over the last fifteen years investigating how suburban districts and schools respond to racial and economic demographic changes in suburbs. These studies focus on instructional and policy changes, teacher attitudes, parental reactions and briefly discuss changes in attendance boundaries or student assignment policies. Overall, the research indicates that districts do not have a clear plan of how to respond to the demographic changes. A common finding throughout this body of research is that when districts create programs or policies in response to the changes, they do so in race-neutral ways that ultimately do not improve schooling for students of color. In addition, attempts to address changes in the social class of students school districts do so with deficit frameworks finding fault with the students instead of changing larger school system policy.

Alongside the suburban school diversification research, there is a body of literature focused on school boundary research, either on between district boundary line

changes or within district boundary line changes and school assignment policies. Many scholars have attempted to determine whether boundary lines increase or decrease segregation between students (see, for example, Richards, 2014; Siegel-Hawley, 2013, Saporito, 2017). The results of this research are mixed, but all boundary studies find that changes in boundaries are contentious and political. Many of the boundary studies have occurred in districts that were previously under desegregation orders. However, I am curious about what is happening in districts where the current phenomenon of diversifying suburbs intersects with attendance boundary changes. Research (Richards, 2014; Siegel-Hawley, 2013) claims the attendance boundaries produce segregation, but how and why is this occurring? It is at this intersection of changing suburban demographics and changing attendance boundaries where this research sits.

Statement of the Problem

Overall, the problem is that school district boundaries have "reinforced inequities over time" (Holme et al., 2016, p. 14). If between district boundary lines produce inequities, it may also be true for attendance boundaries within school districts. Are the boundary lines within increasingly Black, Latinx, and Asian suburban districts reinforcing inequities over time? Are the within-district boundary lines protecting affluent community members at the expense of other community members? Holme et al. argue that educators and policymakers ignore how boundaries construct inequitable geographies for students; therefore, scholars need to conduct more research to determine what changing internal district boundaries produce. Do changes to attendance boundaries reinforce consistent segregation patterns and protect affluent, and many times white,

portions of the district? Or do new attendance boundaries create a set of new relations that disrupt these inequitable patterns?

Purpose of the Study

The present study is situated within one suburban school district. Over the past thirty years, the student population has grown, the district has undergone significant racial/ethnic and economic shifts, and the district redrew its high school attendance boundaries between 2015-2017. The purpose of this study is to understand the process and practices this district used to determine their new high school attendance boundaries and analyze what these practices produced within a changing community. By this, I mean I am interested in the following types of questions: What type of relationships are reinforced, established, or disrupted? What narratives about the schools within the district are produced? What is the outcome of the boundary drawing process, and how does it affect the community?

In the literature on how districts respond to suburban school diversification, research notes that school boundary changes are political and contentious. However, within the school diversification literature, the politics of boundary changes is only a tiny portion of their overall research studies. In the research focused on school boundaries, most research questions are framed through a geometric lens, focusing on questions of size and shape of boundary, or the study is on a district that had previously been under desegregation orders. This study takes on two major areas that are not historically treated together in the research, suburban school diversification and school boundary changes. Within this study, I center the political and contentious nature of boundary changes and use a topological lens to frame the study. A topological lens redirects the focus on

questions of size and shape of attendance boundaries and towards questions and an analysis of the spatial and temporal connections, relationships, and boundaries produced in district boundary-making practices. The boundary-making practices produce particular effects and only allow for specific changes to be made in the boundary process. These particular effects will be addressed in detail in the analysis chapters. My attendance boundary research will draw on expanded notions of data to be able to make this shift. The study will also assume that all space is racialized and that understandings of class dynamics are also spatial in nature.

More specifically, this study seeks to make relational connections between the changing racial and socioeconomic demographics of the suburb, the community's influence on boundary decisions, and the role of the advisory committee in making a final recommendation. The particular district used for this research study sits at the intersection of the national trends of suburban growth, suburban diversification, and continued racial and economic segregation of students. Since the 1990s, student enrollment grew 62.6%. In addition, in the 1990s, the student body was 76% white (non-Latinx) and decreased to 48% white (non-Latinx) by 2019. The Asian and Latinx communities grew the most in this school district during the same time period. There has also been a steep rise in students who qualify for free and reduced lunch. This study sheds light on positive and problematic ways to engage in inevitable boundary changes within suburban districts undergoing demographic shifts by focusing on a particular suburban school district that is an example of the national suburban trends. In addition, one will gain greater insight into the productive nature of boundaries on the material

distribution of resources and the circulating discourse about different schools within the district.

Research and Analytic Questions

As described in more detail in chapter three, my research questions emerge from my philosophical and theoretical frameworks. Situating myself within Barad's agential realist philosophy, my research will be performative, attempting to "account for how practices matter" (Barad, 2007, p. 90). In the context of this study, that means accounting for how boundary-making practices within school districts matter. Within agential realism, Barad also calls for researchers to engage in questions of a more topological nature (p. 244). Questions that are topological in nature focus on how boundaries create changing relationships between different entities and connection between these entities change too. Topological questions also consider what is interior or exterior to particular relationships. Thus, emerging from Barad's agential realism, I address three overarching questions for my research study:

- What are the boundary-making practices in a demographically changing suburban school district, and what do they produce?
- How do boundary-making practices matter?
- Do boundary-making practices cement long-standing inequities in school systems, or do boundary-making practices serve as a place to disrupt inequity?

To understand these broader research questions, I analyze collected data through analytic questions (Jackson & Mazzei, 2012). My analytic questions emerge from reading this data with Barad's philosophy of agential realism[3] and my focus on a relational and

[3] The Baradian concepts of agential realism, phenomenon, apparatus, and intra-action will be further defined and discussed in the theoretical framework in Chapter 3.

topological understanding of reality. I will identify several apparatuses that are at work within the high school boundary phenomenon. Once identified, I ask the following analytic questions:

- Through tracing these identified apparatuses, what effects do these apparatuses produce through their intra-action with the larger boundary determination phenomenon?
- What possibilities are included and excluded through the ongoing intra-actions?

These analytic questions help trace the effects and how the apparatuses' intra-actions within the frame configure and reconfigure the reality and the possibilities available within the boundary determination process.

Scope of the study

The study's scope is to research one suburban school district in Oregon that lies at the intersection of the following national trends: growing suburbs, suburban racial and economic diversification, and the continued presence of racially and economically segregated schools. The district I studied exemplifies these three trends. Over the last thirty years, student enrollment increased. The percentage of white students within the district decreased while the percentage of Asian and Latinx students increased. Finally, the percentage of students who qualify for free lunch increased. In addition, some schools in the district had low populations qualifying for free and reduced lunch, while others had a high percentage of qualifying schools. Also, the majority of Latinx students were clustered in two of the five high schools.

In response to the significant enrollment increase, the school district built a new high school, which opened in Fall 2017. With the new school's opening, it required that

the district redraw the attendance boundaries for the high schools. After completing the new high school attendance boundaries, the district redrew both the elementary and middle school boundaries at the addition of a school at each of those levels. These processes reconfigured the school feeder patterns of the district. For the scope of this study, I will focus on the high school boundary process only. Consistent with multiple studies on boundary changes (Siegel-Hawley, 2013; Siegel-Hawley et al., 2017; Bartels & Danato, 2009; Wiley et al., 2012), determining new boundaries in Lodge City School District[4] (LCSD) was complex, political, and required compromise.

In the sections that follow, I provide background on both the metropolitan area and the particular suburb in which the school district is located to provide deeper context into the school district's enrollment and demographic trends.

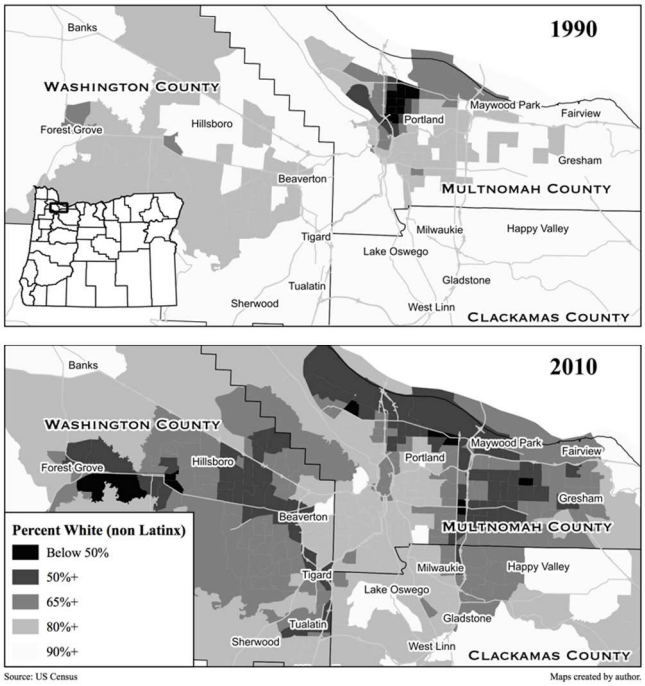
Demographic Background of the Portland Metro Area

The particular suburban district that serves as the site for this study is located in and around Lodge City, Oregon.[5]. Lodge City is a suburb of Portland, OR, and one of the many suburbs around Portland experiencing demographic changes both racially and economically (see Figure 1). As consistent with national trends, the suburban areas around Portland have become less white over time. As of the 1990 census, the largest concentration of nonwhite residents in Portland was concentrated in the city's northern part. Mainly concentrated in and around the historically Black neighborhood, Albina.[6]. In 1990, only areas close to the central Portland area had populations where the percentage

[4] Lodge City School District is a pseudonym as will be the names of all schools in this dissertation.
[5] Lodge City, OR is a pseudonym for the protection of the district. Its name will not appear on the maps that will follow in this chapter. I will present accurate demographic information from the suburb, but I will speak more in generalities when speaking about the metropolitan area. The patterns present hold for many of the suburban school districts around the Portland area.
[6] For a more in-depth history of Albina, see Gibson, K. (2007). Bleeding Albina: A history of community divestment, 1940-2000. *Transforming Anthropology, 15*(1), 3-25.

Figure 1

Shifting Racial Patterns in Portland Metro



of white (non-Latinx) residents was less than 50%. In suburban areas, in 1990, most census tracts had a population where 80% or more of the residents were white (non Latinx). Therefore, 30 years ago, most of the Portland suburbs matched the racial demographics people believe to be true of suburban areas nationwide: majority white.

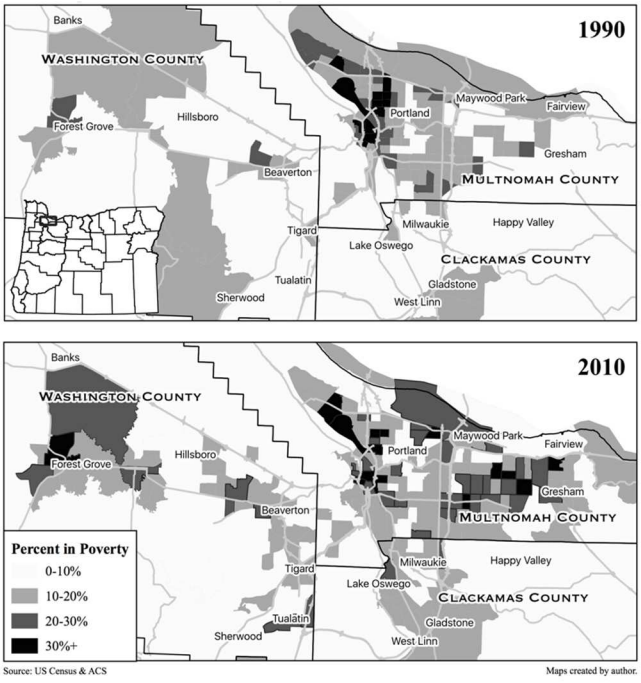
By the 2010 census, racial demographics had radically changed in the Portland metro area (see Figure 1). Overall, the Portland metro is less white. Even so, according to U.S. Census data, Portland has the largest percentage of white (non-Latinx) residents among the twenty-five largest cities in the United States. The average percentage among the twenty-five largest U.S. cities is 41.3% white (non-Latinx) residents, and the percentage in the city of Portland is 70.5% white (non-Latinx), almost 30% percentage points greater than the average for the nation's largest cities. Additionally, there was a

geographical shift in where nonwhite residents lived within the Portland metro. The areas with higher concentrations of communities of color moved out from central Portland and pushed north, east, west and south, away from the center of the city. Over the last twenty years, there has been a growing population of people of color in Portland's suburbs. As seen in the Figure 1 maps, the suburbs of Portland are no longer as racially homogenous as they once were.

In addition to racial demographic changes, there were also economic changes in the metropolitan area (see Figure 2). In 1990, areas of higher concentrations of poverty were located in central Portland. While pockets of poverty remain in central Portland, census tracts with a higher percentage of people below the poverty line have moved out west into Washington county and towards the eastern suburbs of Portland. Poverty has

Figure 2

Shifting Patterns of Poverty in Portland Metro



also increased southwest of Portland. As in many cities across the country, it has become increasingly expensive to live in the city center. The rent burden is too high. Therefore, more people of lower-income brackets are moving into the suburbs, where they are likely to find lower rental and housing costs. In summary, the suburban areas around Portland are no longer as white and affluent as they once were.

Demographic Background of Lodge City

Moving inward from the shifts in the greater Portland metro, I will focus on how these demographics have affected the specific suburb of Lodge City and its school district. The total population of Lodge City increased by approximately 30,000 people from 1990 to 2016 (see Table 1). Alongside this growth, Lodge City changed from a racially segregated suburb[7] 87.3% white and 12.7% nonwhite population in 1990 to a racially diverse suburb in 2000 by having a population of residents of color greater than 20% (see Table 1). After 2000, it has continued to become less white, and that trend is predicted to continue through 2021 and beyond. Mirroring national trends, the two largest growing demographic groups in this suburb are the Latinx (3.1% in 1990 to 17.1% in 2016) and Asian communities (6.9% in 1990 to 11.9% in 2016). In Lodge City, the Black population grows slightly, but the population remains small overall. According to the 2010 U.S. Census, Black residents make up only 2.2% of the overall Oregon population, which is consistent with the Black population in Lodge City (2.6% in 2010). This is due in part to the brutal history of white supremacy in Oregon. Oregon is the only state in the nation to write a Black exclusion law into their original state constitution. The American Indian and Pacific Islander populations also show modest growth in the area. In addition

[7] The terms racially segregated and racially diverse suburbs are from Orfield & Luce, 2013. When nonwhite residents are less than 20%, the suburb is racially segregated. When the nonwhite residents are between 20%-60%, the suburban is considered racially diverse.

Table 1

Lodge City, OR population demographics (race and ethnicity) from 1990 to 2021

Year	1990	2000	2010	2016	2021 (Projection)
Population					
Total	59,775	79,728	90,151	96,751	102,830
White	52,198 (87.3%)	63,295 (79.4%)	66,241 (73.5%)	67,991 (70.3%)	69,332 (67.4%)
Black	594 (1.0%)	1,345 (1.7%)	2,322 (2.6%)	2,824 (2.9%)	3,375 (3.3%)
American Indian	305 (0.5%)	518 (0.6%)	585 (0.6%)	637 (0.7%)	698 (0.7%)
Asian	4,107 (6.9%)	7,449 (9.3%)	9,174 (10.2%)	11,474 (11.9%)	13,685 (13.3%)
Pacific Islander	138 (0.2%)	258 (0.3%)	402 (0.4%)	449 (0.5%)	507 (0.5%)
Some other race	771 (1.3%)	3,946 (4.9%)	7,352 (8.2%)	8,470 (8.8%)	9,505 (9.2%)
Two or more races	1,661 (2.8%)	2,918 (3.7%)	4,074 (4.5%)	4,906 (5.1%)	5,728 (5.6%)
Hispanic origin* (Any Race)	1,849 (3.1%)	8,111 (10.2%)	14,500 (16.1%)	16,544 (17.1%)	18,690 (18.2%)

Note. Hispanic is considered an ethnicity, not a race, in census data. This is why it is separated at the bottom. This means the Hispanic population is contained within the percentages of white, Black, Asian, etc., races in the top half of the chart. It is essential to include the percentage of Hispanic/Latinx people because many do not identify as white. In addition, many are not perceived as white or considered white (See Haney-López (1996) and Bonilla-Silva (2003) for further discussion.). Source: Lodge City website.

to the changes in Lodge City's racial composition, there was a slight increase from 1990-2000 in the percentage of households in poverty. It increased from 6.0% to 6.3%, or about 500 families in the area.

Demographic Background of the Lodge City School District

As Lodge City's population has grown, the Lodge City School District (LCSD) has grown as well (see Table 2). LCSD incorporates all of Lodge City, as wells as some unincorporated neighborhoods in the county. Between 1990-2020, the district experienced a 65.7% increase in enrollment. There are approximately 16,000 more students enrolled today than in 1990. During this period, the district opened three new high schools. Two high schools opened in the 1990s, and the third and newest high school opened in 2017. To further emphasize this as a period of intense growth, before the district built the two high schools in the 1990s, the last high school to open in the area was in the late 1960s. The thirty years of intense growth are predicted to plateau. One indication of this plateau is LCSD has only gained approximately 1000 students in the last five years. According to district administrators, the leveling off of enrollment growth is due to the aging of the Lodge City population and the decrease in available space for new housing and apartment developments. The high school that opened in 2017 is projected to be the last high school to open in the district for the foreseeable future.

In addition to the enrollment growth, the Lodge City school district's racial demographics changed (see Table 3). Like many suburbs, the racial demographic changes that a city undergoes are seen even more starkly in the younger population that attends district schools. The percentage of white students in the district has steadily decreased from 76.0% of the student body in 1999-2000 to 48.2% in 2017-18. The school district

Table 2

Growth of Lodge City School District from 1990 to 2020

School Year	1990-91	1995-96	2000-01	2005-06	2010-11	2015-16	2019-20
Students	24,874	29,025	33,600	36,535	38,902	40,195	41,215

Note. Source: ODE student enrollment reports.

Table 3

*Percentage of Student Population by Race or Ethnicity in the Lodge City School Distric*t

School Year	1999-2000	2000-01	2005-06	2010-11	2015-16	2019-20
Race/Ethnicity						
% White	76.0	74.1	62.2	53.9	49.5	46.1
% Black	2.4	2.8	2.9	2.9	2.8	2.9
% Latinx	9.0	10.2	15.5	22.4	24.3	25.3
% Asian/PI	11.7	12.1	12.7	13.8	15.7	17.4
% AI/AN	0.8	0.8	0.6	0.6	0.4	0.4
% Multi-ethnic	0.0	0.0	5.8	6.5	7.3	7.8

Note. Source: Oregon Department of Education (ODE) Student Enrollment Reports. 1999-2000 was the early reported date on race and ethnicity on the ODE website for Lodge City School District.

moved from a majority white school district to a majority nonwhite school district in less than 20 years. This data provides evidence for how LCSD is an example of the new reality for suburban school districts. They are no longer racially homogenous, and because of that, new policies and practices that consider this must be created.

The two demographic groups with the largest growth in the school district were Latinx students and Asian and Pacific Island (API) students. This matches the trend in both the overall suburban and national trends. The Latinx population grew from 9.0% in 1999 to 24.4% in 2017. The Asian population grew from 11. 7% in 1999 to 17.4% in 2019. Unfortunately, the state department of education did not publish the racial demographic breakdown before 1999 and the advent of No Child Left Behind. My inference from the demographics maps that follow show that before 1999, the percentage of these two student groups would have been even smaller. The Black and American Indian/Alaskan Native student populations remain relatively flat compared to the other three groups.

In addition to percentages, the maps below present a spatial representation of the growth of the Latinx and API communities throughout the school district (see Figures 3 and 4). Neither group had a significant presence in the area before the 1990s. There was significant growth for both groups in the area between 1990-2000, and the growth continued through 2010. Their migration to the area had distinctly different patterns. The Latinx population resides in the central portion of the school district. There is also a concentrated population in the southeast portion of LCSD that follows along the west side of a major highway in the area. The API community began locating in the district's northwest portion and the southcentral part of the district. In comparing the two maps,

Figure 3

Increase in Latinx Population 1980-2010 in LCSD

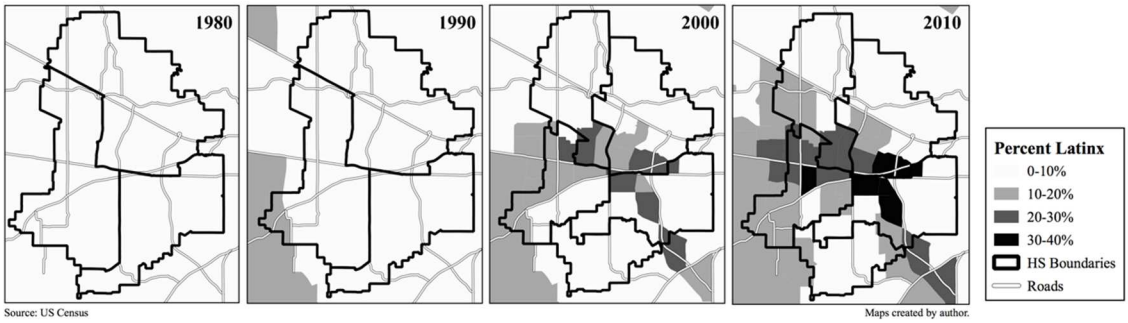
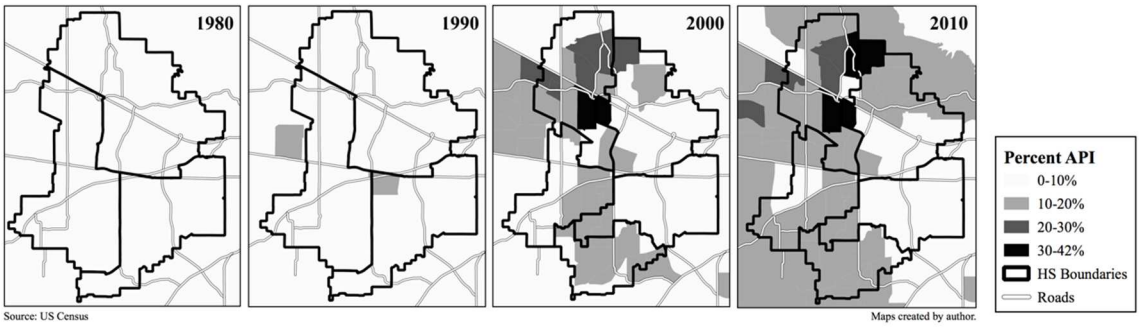


Figure 4

Increase in Asian/Pacific Islander Population Population 1980-2010 in LCSD



the areas with the highest concentration of API households occupy different geographical spaces than the areas with the highest concentration of Latinx households.

Alongside changes in racial and ethnic demographic changes in LCSD, the school district also experienced economic changes. The number of economically disadvantaged students has increased. A proxy for economically disadvantaged students in school districts is reporting the percentage of students who qualify for free and reduced lunch. A family qualifies for free lunch if their income is below 1.30 times the federal poverty level. A family qualifies for reduced lunch prices if their income is between 1.31 and 1.85 times the federal poverty limit. In Table 4, the percentage of students who qualified in

LCSD for free lunch is reported. In LCSD, the number of students qualifying for free lunch increased dramatically since 1990. The highest percentage of students qualifying was in the 2010-11 school year, directly after the 2008 national recession. From 1990 to 2018, there has been an increase of 314% of students qualifying for free lunch in the district.

As was the case for the changes in racial and ethnic demographics, poverty distribution is not even throughout the district (see Figure 5). Those families who fall below the federal poverty line are concentrated in the center and southwest parts along a major highway in the district. It is important to note that this map shows the concentration of the poorest households in the district. The map uses ACS data of families below the poverty line and not a measurement of students qualifying for free or reduced lunch.

Table 4

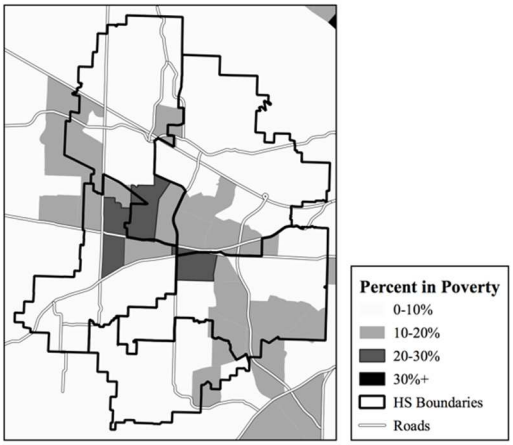
Percentage of Students in Lodge City School District who qualify for free lunch 1990 to 2018

School Year	1990-91	1995-96	2000-01	2005-06	2010-11	2015-16	2017-18
Total students	7.1	9.8	13.3	23.1	30.8	27.6	29.4

Note. The source for this data is the U.S. Department of Education, NCES, Common Core of Data (CCD).

Figure 5

2010 Distribution of Poverty in LCSD



Source: American Community Survey

Map created by author.

This demographic background information brings attention to the fact that LCSD has changed significantly in the last thirty years. Thus, changes to high school attendance boundaries occurred on top of and in concert with a very uneven geography. The boundary changes within this specific district or any school district do not happen in isolation from that location's specific geography. But all district decisions are continually influenced by both their current and historic spatial reality. It is my intent within this study not to leave this demographic, geographic, and spatial background of LCSD in the introduction but to continue to return to LCSD's uneven geography and weave it into the analysis and the findings of the high school attendance boundary changes that occurred from 2015-2017 in LCSD.

The specifics of this research are to study the district's process (2015-2016) to redraw the high school attendance boundaries in advance of a new high school opening (2017). As documented above, the district's boundary advisory committee made their decisions in a radically different racial and economic environment than in previous

school openings. To study this process, I used data from the school district boundary website, interviews with members of the boundary advisory committee and district administrators, and various demographic and housing data to create the spatial context of the geographic area. The LCSD boundary process study provides insights into the tensions produced through the decision-making process in a geographically uneven district. Since this study is focused on one particular district, I do not assert that the findings will be generalized across the country. However, we can learn from one situation's particulars to help guide actions in other similar situations.

Summary

In closing, suburban school districts are changing. They are no longer homogeneously white and middle to upper class. Suburban school districts are also continuously growing. With this growth, attendance boundaries and policies will be continually updated. This research study will take an in-depth look into the process and practices of changing attendance boundaries and help convey why boundaries matter in these suburban districts. Chapter 2 presents a comprehensive review of the current literature on diversifying suburban districts, research on school boundary changes, and the use of spatial analysis and geographic information systems in education research. The literature review is followed in chapter 3 with an articulation of the framework to guide my research methods. The theoretical framework is based on Barad's (2007) agential realism and an understanding of space from critical geography and relational formations of race (Molina et al., 2019). I finish the chapter by articulating a relational approach to spatial analysis and geographic information systems. In Chapter 4, I describe the methods and mode of analysis I used for my study of the boundary change in the Lodge City

School District. Following the methodology discussion, Chapter 5 is a short interlude chapter that provides a timeline and a descriptive narrative of the boundary determination process in LSCD. The description of the boundary determination process is then followed by two analysis chapters. In these two chapters, I trace the productive effects of the school board's objectives and criteria to guide the boundary process (Chapter 6) and the productive effects of Highway 44[8] on the process that runs through the district (Chapter 7). I conclude the research study in Chapter 8 and highlight the methodological implications of my study and the practical implication for LCSD and other school districts who are determining new boundaries in demographically changing suburban school districts.

[8] Highway 44 is a pseudonym for the highway. The names of all highways and roadways have been changed for anonymity throughout the dissertation.

CHAPTER II

SUBURBAN SCHOOL DISTRICTS, BOUNDARY CHANGES, AND SPATIAL ANALYSIS IN EDUCATION RESEARCH

Introduction

In this chapter, I review literature connected to my study of the boundary changes in the Lodge City School District. Considering this study's scope, I determined three strands of literature of particular importance to frame the study of changing attendance boundaries in Lodge City. The first body of literature I review is the educational research on how districts, schools, administrators, and teachers respond to the changing racial and economic demographics in suburban districts. The second strand of literature reviewed focuses on attendance boundary changes both between school districts and within school districts and their effect on the segregation or desegregation of schools. What emerges from these first two strands of literature is a finding that most suburban districts avoid confrontation with the subject of race and class. When districts engage in discussion around race, they do so in race evasive ways, often talking about culture instead. When districts do discuss class, they do so from a deficit framework of those from lower-income backgrounds. The researchers describe much of the policies and practices within school districts as color evasive[9] (Annamma et al., 2017), race-neutral or districts conflate race and class. In addition, I found that the frameworks used by many of the researchers did not ground themselves in theories of geography or how suburban space is racialized.

[9] Annamma et al. (2017) critique the more commonly used notion of color-blind racism and argue for using the term color evasive instead. They argue that racism and ableism work in tandem and see color blindness as an ablest term that ultimately limits analysis. These scholars critique the theory of color-blind racism to move thinking and critique forward with the concept of color-evasiveness and how it operates to continue the work of white supremacy.

Thus, the third strand of literature I review is education research that uses spatial analysis and geographic information systems as analysis methods within their research. Because the research on changing suburban school districts and attendance boundary changes lacks a grounding in geography and spatial analysis theories, this third research area highlights studies grounded in these areas. My research on LSCD uses spatial analysis and geographic information systems as an integral part of my analysis. Thus, this dissertation brings together these three bodies of literature into one research study.

Educational Research about Changing Suburban Demographics

An emerging area of educational research is studying suburban districts' response to enrollment growth and changing racial and economic demographics of their suburban students. Diamond and Posey-Maddox (2020) assert that "suburbs are fertile sites for study of some of our most important educational challenges, [but] education scholarship has paid insufficient attention to these contexts" (p. 7). One of the reasons why Diamond and Posey-Maddox assert that more educational research needs to take place in the suburban setting is the changing demographics of suburbs to "examine how students, parents, and educators understand, navigate, and confront racial inequities and whiteness in suburban schooling" (p. 7).

According to the demographer William Frey (2015), 2011 marked the first year that the majority of babies born in the U.S. were babies of color. In 2021, these babies are now ten years old and an integral part of the U.S. Public school system. Thus, as the population born is less white, our urban and suburban public schools' student population becomes increasingly majority Black, Indigenous, and people of color (BIPOC). Historically, suburbs were homogenous white communities with mid to upper

socioeconomic status. Therefore, the student population was also more racially and economically homogeneous. Urban schools were considered the home of students of color and those in poverty, not suburban schools. This assumption no longer holds since suburban schools are experiencing an increase of Black, Asian, and Latinx students and an increase of people experiencing poverty. Therefore, "suburban school districts no longer fit the notion of homogeneous, affluent havens" (Frankenberg, 2012, p. 27).

As suburban populations have continued to grow, Frey's (2015) analysis of the 2000 and 2010 census informs us that "about one-half of the nation's suburban population gain is attributable to Hispanics, both native-born and immigrant" (Frey, 2015, p. 151). The Black and Asian communities also outpace the white community to contribute to the suburban population growth (p. 150). In addition to increased racial diversity in suburbia, "by 2008, suburbs were home to the largest and fastest-growing poor population in the country" (Kneebone & Garr, 2010, p. 1). Approximately one-third of people experiencing poverty in the U.S. live in the suburbs (Kneebone & Garr, 2010). Another area of demographic change for suburbs is the increase in immigrant communities living there. They are no longer choosing to settle in the urban core, but instead, "more than half of the nation's foreign-born residents live in major metropolitan suburbs" (Frey et al., 2009, p. 2).

As these suburban populations change, the demographics of public schools change as well. "Schools, particularly elementary schools, are often where the first manifestation of social and economic change is evident, with changes in enrollment patterns an early warning of impending flight by the middle class" (Frankenberg & Orfield, 2012, p. 10). M. Orfield (2002) echos this notion in his work, he writes, "as the

school population becomes noticeably poorer, nonpoor families with school-age children are likely to leave first," therefore, "poverty rates among school-age children...tend to rise more quickly than the overall poverty rate" (p. 10). In addition to middle and upper-class families leaving public schooling, M. Orfield (2002) also determined that the transition to becoming a school of majority students of color accelerates when the percentage of students of color reaches twenty percent (p. 10). This means that when a school has a student body with twenty percent or more students of color, the white families begin to leave the school and send their children to another school to receive their education. This can occur through various mechanisms such as moving out of the attendance boundary, sending their child to a private school, or sending their child to a magnet or charter school. The increase of both students of color and poorer families in schools is an important marker for changing neighborhood demographics.

Suburban demographic changes have necessitated new research about policies, programs, reactions, adaptations, and teaching strategies used within these changing suburban communities. In this section, I review research focused on racially and economically changing suburban schools. This review will be divided into two main sections: research that focuses on district-level reactions and research focused on individual school-level reactions.

Research on Changing Demographics of Suburban Schools from the District Level

In examining the literature on the diversification of suburban schools, I begin with a discussion of the research that focuses its analysis on the district level changes and response. After reviewing multiple studies on the diversification of suburban school districts, all districts are experiencing difficulty amidst the demographic changes.

Districts are hesitant to engage in conversations of race, culture, and class directly and most often operate from a deficit and color evasive framework. Thus far, the most comprehensive study in the area of district and community response to the diversification of suburban schools was a multi-year, multi-suburban district study led by Erica Frankenberg and Gary Orfield. The first significant publication of their findings is in the book titled, *The Resegregation of Suburban Schools: A Hidden Crisis in American Education.* According to Frankenberg and Orfield (2012), the book contributes to our understanding of how "the change[ing demographics] and resulting patterns of segregation affect schools" (p. 1). Their primary conclusion from this study was "that suburban school districts are feeling unsupported and unable to formulate a coherent response to the metropolitan demographic change of which their district is one relatively small part" (p. 1). In the first two chapters of this book, Frankenberg and Orfield provide a comprehensive historical overview of the demographic transformation in suburban communities and create a typology of suburban districts to set the stage for the seven case studies included in the book. These case studies are about districts in seven different metropolitan areas across the U.S. The seven case studies illustrate that none have "a fully developed strategy for responding to this change" (Frankenberg & Orfield, 2012, p. 23). Even so, the case studies provide insight into the challenges faced and possible direction to move in the future.

One thread running through several studies on changing suburban demographics is implementing race-neutral solutions in response to the demographic changes (Welton et al., 2015; Holme et al., 2014; Holme et al., 2012; Ares & Buendia, 2007; Wiley et al., 2012). The work of Holme et al. in a San Antonio school district analyzes and examines

"the types of policies that suburban school districts are designing and implementing in response demographic change and how these policies are affecting equity and access within suburban schools" (2015, p. 696). One finding was that the district "focused intensely on technical changes in curriculum and instruction" like increasing instructional specialists and differentiated instruction but "failed to address the more challenging normative and political dynamics within the district" (Holme et al., 2014, p. 48). For example, the district trained principals in a program called "Difficult Dialogues." It brought in a speaker on race and equity, but the researchers found that "limited central office efforts at diversity training did not consistently reach local campuses" (p. 51). Sustaining district efforts to produce normative changes would have "involve[d] changing 'deep culture' of schools by challenging deficit views of nondominant cultures and nondominant cultural capital" (p. 39), and political changes would have encompassed "struggles over power and the distribution of resources" and not yielding to "pressures from higher status or powerful individuals" (p. 40). Of the technical changes that the district made, they concluded that the changes were race-neutral approaches (Welton et al., 2015). Overall instructional changes "fail[ed] to adequately serve, the needs of the growing population of diverse learners" and thus "further perpetuates the racial inequities existent in public schools" due to the lack of normative or political changes (p. 696).

Much like the San Antonio school district's findings, Ares and Buendía (2007) determined that the primary approach to demographic change in a Utah suburban district focused on students as individuals. The district's advocacy policy was: "Each student will be known as an individual and their individual needs will be easily met" (Ares & Buendía, 2007, p. 563). Their research concluded that with the absence of any explicit

policy language around race/ethnicity and the sole focus on children as individuals, most schools translated the policy into a racialized discourse that framed students of color and their families in a deficit frame. Similar to the findings in San Antonio, Ares and Buendía argue that because there was no direct attention to students as members of cultural groups, opportunities were missed in the district to create reforms that would move away from assimilationist and deficit notions of "helping" students of color.

In Florida, where suburban schools had an increase in both racial and economic diversity, Wiley et al. (2012) determined that the prioritization of "state and federal accountability politics…[left] little incentive, time, or funding for programs aimed at improving cultural competency and school climate" (p. 158). The idea of training teachers to be culturally competent was one effort of the district to improve educational outcomes for the increasing Black and Latinx student populations. According to an interview of a district employee, she "believe[d] that district has failed to connect improved cultural relevance with increasing student achievement" (p. 159). This teacher received some training around cultural competency but did not see how it connected directly to improving student outcomes. Here again, we see another district wanting to improve academic achievement across the district but failing to engage racism and racial inequities directly and using culture as a proxy to try to improve disparities in outcome among different racial groups of students.

Moving beyond a one district case study, Diem, Welton, Frankenberg, and Holme (2016) compared three of the districts in the metro areas of San Antonio, Orange County, and Minneapolis to illustrate how state and local policy context matter greatly in the actions or inactions of a district, much like Wiley et al. (2012) found in Florida. For

example, in the San Antonio school district, the strong state emphasis statewide on accountability measures directed the conversation. “While there was a strong recognition that race ‘mattered,’ it appeared to matter only primarily vis-à-vis state and federal accountability targets” (Diem et al., 2016, p. 757). In the Minneapolis district, because the state had previously been under desegregation orders, "the district was required to engage in and received funding for race-conscious desegregation efforts" (p. 757). The article emphasizes the importance of contextualizing a school district within the larger state and historical context when trying to understand why certain policy decisions are made and implemented during periods of demographic change.

In addition to school districts' responses to racial changes, it is also vital to highlight school districts' reactions to the growing number of students whose families were experiencing poverty. Similar to districts' responses to racial change, several studies found that the reaction to increasing poverty in suburban school districts was based on a deficit lens (Welton et al., 2015; Diem et al., 2016; Tyler, 2016). This meant district solutions focused on fixing the students and their families and not identifying and changing district-wide systems biased against students experiencing poverty. For example, one district was “implementing… deficit-oriented professional development programs such as Ruby Payne's *Framework for Understanding Poverty* (2005). As this one teacher describes, Payne's poverty training centers on how students living in poverty should be "fixed" because their behaviors deviate from the middle-class norm” (Welton et al., 2015, p. 711). Some of the deficit frames districts espoused were that students lacked the prior experience to be successful in schools, families were not involved in

their children's lives or schools, and students lacked motivation and were discipline problems (Tyler, 2016).

When districts made attempts to engage their staff in professional development around the changing economics of their district, the framework districts cited most often was Ruby Payne's poverty framework. This framework has been critiqued for its deficit lens on poverty and essentializing students' characteristics experiencing poverty and perpetuates the myth of a monolithic "culture of poverty" (Bomer et al., 2008). Payne's poverty framework focuses on fixing the students and parents by increasing their awareness of middle-class norms. An example of this was a school district hired specialists to conduct parenting classes for low-income parents (Welton et al., 2015). This highlights the focus on individuals and not on systems within schools. Districts did not use structural approaches to mitigate the effects of poverty, as is presented in Paul Gorski's research. He argues for districts to use an equity literacy framework and to change school structures to improve outcomes for students experiencing poverty (Gorski, 2018). Some examples he provides are removing fees for field trips and sports participation, integrating art, music, and movement into the school day, and broadening the curriculum to push back on the narrowing of curriculum that has occurred due to heavy focus on standardized test data (Gorski, 2018).

In addition to perpetuating a deficit framework of poverty, researchers found school districts often conflated race and socioeconomic status (Welton et al., 2015; Diem et al., 2016; Tyler, 2016). While it is true that sometimes schools with high poverty rates also have a high percentage of students of color, this is not always the case. In addition, different policy decisions are required to address racial inequities and socioeconomic

inequities. Solving one set of inequities does not automatically solve the other set. The various school districts stated that the challenges they saw in districts were related to economics and not race or racism (Diem et al., 2016, p. 741; Tyler, 2016, p. 297). One district made this claim even when differences in test scores between racial groups it could not be explained by economic means (Tyler, 2016). Researchers also found that district personnel preferred to talk about SES as opposed to race. They often discussed the changing diversity within the district only in terms of class. Also, district solutions to increase diversity were framed in terms of class. For example, a district sought to increase diversity by placing a magnet I.B. program at a Title I school to draw more affluent students to this school (Tyler, 2016, p. 747). The assumption was that this change would address both the racial and economic segregation within the district. This is another example of how districts were race-neutral or color evasive in their response to changing student demographics.

As is true with racial change, changes in suburban school districts' income levels do intersect with policy changes in consequential ways. In a Florida school district, the district saw an increase in students experiencing poverty around the same time as two significant policy changes (Wiley et al., 2012). The first change was that the district was no longer under federal desegregation orders. The second was a state mandate to reduce class sizes at both the primary and secondary levels. Both of the policy changes required adjusting to how students would be assigned to schools and affected resource distribution throughout the district. In terms of resources, the district funneled more resources to the schools serving lower-income students. The impetus for the increase in resources was to make sure the low-income schools met state accountability standards. The response in

Florida mirrored the reaction in San Antonio because the districts in both Florida and San Antonio funneled extra resources towards low-income schools (Holme et al., 2012). While I agree that additional resources are needed at low-income schools, neither district developed systematic changes that would reduce the economic isolation of low-income students in the district. For example, in Florida, when the desegregation order was lifted, they implemented a voluntary choice program to attempt to maintain integration. Instead, the choice program created increased economic isolation at neighborhood schools for low-income students (Wiley et al., 2012). San Antonio also underwent a change in attendance boundaries that increased the district's economic segregation (Holme et al., 2012). Both of these studies indicated an interaction between changing economic demographics within a school district and the changing of internal district attendance boundaries. I explore this further in the next section of the literature review.

Across these studies, we learn that suburban school districts are struggling with both racial and economic changes within their student body. There is a conflict between state and national policy and the reality teachers and schools face on the ground. There is also a hesitancy of directly engaging race, culture, and class in school policy unless it is from a deficit framework. Districts need support in creating political and normative (i.e., ideological) shifts to benefit students of color and low-income students further. In addition to analyzing how policy is being implemented at a district level, it is equally important to see what we can learn from case studies at the level of individual schools.

Research on Changing Demographics of Suburban Schools from the School Level

In this next section of the literature review, I move from studies focused on a district-level analysis about demographic changes to studies focused on the impacts at

individuals schools. When the level of analysis moves from the district level to the school level, the thread of race-neutral or deficit approaches continues amongst school administrators and teachers. Also, researchers found context and history to be equally important within individual schools as it was at the district level. In Tyler's (2016) research, she interviewed principals, teachers, and other school staff in six suburban districts that were changing demographically. She concluded, "educators' aspirational commitment to diversity exists in tension with a deficit perspective on the reality of a diverse classroom in changing suburban schools" (Tyler, 2016, p. 303). Even when teachers expressed positive ideas about diversity like "exposure to diversity prepar[ed] students for the future" or "students' diverse experiences [were] a resource" in classroom discussions and learning, they were "undermined by the contemporary policy context, with its heavy emphasis on test scores, severely segregated schools, lack of resources, and less experienced teachers who feel underprepared and overworked" (pp. 302-303). Like Tyler, Cooper (2009) found that even when leaders are equity-minded, the implemented policies and structures do not always produce equity results. Both of these studies connect to Frankenberg and Orfield's (2012) conclusion that schools feel a lack of support and are unprepared to make comprehensive and sustainable changes in the face of new student demographics.

Integral to school level research was the importance of understanding how teacher discourse shaped the work inside schools (Tyler, 2016; Evans, 2007). Evans (2007) focused on discourse in schools with an increasing African American population. Evans (2007) highlighted how educators' belief systems, efficacy, and agency affected their responses within schools, which in turn affect the discourses circulating in schools. In

many cases, the increase in African American students was seen as a threat to school identity. She concluded, "ultimately, beliefs, perceptions, and interaction with African American students affect the ways in which school perceived their own efficacy and responsibility, and the ways they enacted their own will and developed their own capacity" (Evans, 2007, p. 345). Local racial histories and contexts were important influencers of these belief systems and whether teachers viewed African American students through a deficit lens or viewed their culture as an asset.

A significant contribution that Evan's (2007) study makes is the connection between local racial histories and geography. This is a unique framing within the suburban diversification articles literature. Most do not foreground a geographic frame in their research. The suburban landscape is the backdrop to their work but not critically integrated into the analysis. To analyze her data, Evans integrates critical race theory and concepts from Lewis (2001) and Buendia et al.'s (2004) work, who theorized that "racialized meanings [become] attached to geographical locations" (Evans, 2007, p. 343). The attachment in the suburbs "was the notion of the suburbs as a property right, as only certain types of people belonged there or know how to live there" (p. 343). The type of people that people believed belonged in the suburb correlated with those who were white, educated, and affluent. Educators carried these attachments with them into the classroom, which created a sense of "otherness" about certain children who did not fit within the narrow conception of a suburbanite (Evans, 2007, p. 343). As certain schools experienced an increase in Black students, the Black students were treated with a "sense of otherness'" because educators' attachment to the suburban geography told them that Black students did belong there. This geographic attachment undergirded their deficit notions of Black

students and thus shaped their interaction with these students. This connection between race and geography and race and place lacks much of the other research on changing demographics in the suburbs. I add to Evans work and address this gap in the research in my framework for the Lodge City School District study.

Research on District Boundary Changes

Buendia et al.'s (2004) theorizing around racialized meaning being attached to particular geographic spaces and Evan's (2007) extension of the theory to the suburban school districts and the discourses around which racial groups belong in suburban schools or have the right to particular schools plays out continually in regards to suburban school attendance boundaries. Much of the suburban diversification literature contains a subsection of their articles about school reassignment (Holme et al., 2012; Holme et al., 2014; Frasure-Yokley, 2012; Wiley et al., 2012; DeBray & Grooms, 2012; Evans, 2007; Diem et al., 2016). This connects the school diversification literature to a larger body of literature about the nature and politics of student assignment and school boundaries within urban, suburban, and county-wide public school districts.

The school boundary and attendance zone literature splits into two main research groups: studies on school boundaries *between* school districts and the attendance boundaries (or student assignment policies) *within* a single school district. Whether dealing with changes in boundaries between districts or within districts, all changes are both political and contentious in nature. The context, history, and racial and class dynamics play a role in all school boundary decisions as they do within the district and school policies responding to changing demographics.

Between District Boundary Changes

In examining the literature on school boundaries, I begin with a discussion of the research that focuses on changes that happen between the boundaries of different districts. Research shows that the boundaries between districts are the greatest cause of both racial and economic segregation among schools (Siegel-Hawley, 2016; Owens et al., 2016). A majority of the between-district boundary research either investigates the effects of consolidating multiple districts into a larger district (county-wide districts or urban-suburban consolidation) or the impact of school fragmentation where a metro area is divided into numerous school districts (Bischoff, 2008; Siegel-Hawley, 2016; Frankenberg, 2013; Holme & Finnigan, 2013). According to Siegel-Hawley (2016),

> between 60 and 70 percent, according to some estimates, of school segregation can be attributed to how students of different races are sorted across district boundaries. Much of this segregation occurs between urban and suburban districts. However, increasing minority suburbanization means that it is now also due to the segregation of students among different suburban school systems. (p. 18)

In addition to racial segregation between districts, since 1990, income segregation has also grown (Owens et al., 2016). Thus, it is essential to look at the impacts of the lines drawn between different school districts. Studies find that metropolitan areas with more fragmented school districts are more racially segregated than districts with larger boundary areas (i.e., county-wide districts, suburban-urban districts) (Bischoff, 2008; Holme & Finnigan, 2013).

One halting factor in decreasing fragmentation and racial segregation between school districts was the 1974 *Milliken v. Bradley* case out of Detroit. This decision halted

desegregation remedies which required students to move between urban and suburban school districts. It outlawed inter-district bussing, meaning bussing between different school districts. This decision is frustrating to researchers because many of their recommendations for combating residential and school segregation's lasting effects involve regional and inter-district planning (Orfield & Luce, 2010; Siegel-Hawley, 2016; Bischoff, 2008; Holme et al., 2016). Said another way, if school districts remain small, fragmented political units, it will be hard to make any lasting changes to racial segregation due to persisting residential segregation patterns (Holme & Finnigan, 2013; Siegel-Hawley, 2016; Bischoff, 2008).

Since inter-district bussing between the city and suburban districts has been outlawed, one way to combat segregation due to fragmented school districts across metropolitan areas is to merge and consolidate the school districts. If the smaller school districts are consolidated into one larger district, the consolidated school district is free to bus throughout the area. The bussing can then attempt to disrupt housing segregation throughout the large district to create less segregated schools. To study the effects of consolidation, Siegel-Hawley (2016) studied four city-suburban school district mergers. The Louisville-Jefferson County, Kentucky merger has had the most lasting stability in terms of racial desegregation. The city-suburban school district merged in 1975, and to this day, it is "the only district under study that continues to pursue a wide-scale, voluntary school integration strategy" (Siegel-Hawley, 2016, p. 71). Siegel-Hawley argues that small district fragmentation exacerbates school segregation. However, even if school districts consolidate, the district must continually pursue desegregation efforts, like bussing throughout the larger metropolitan area, to avoid resegregation.

Using Siegel-Hawley's work on Louisville-Jefferson County, Holme et al. (2016) show how the historical decision of *Milliken v. Bradley* remains intricately entangled in the "contemporary inequities between school districts" (p. 14). Their study shows the critical importance of the construction of space around school district boundaries and how these have "reinforced inequities over time" (Holme et al., 2016, p. 15). The comparative case study of 12 different school districts in four different metropolitan areas demonstrates how the solidification of district boundaries between suburbs and cities in Philadelphia and Detroit created more segregation and increased discrepancy in resource distribution. With the removal of suburban and urban district boundaries in Louisville, there was a much more equitable distribution of Louisville resources and opportunities than in Philadelphia and Detroit. Saint Louis, the fourth case study, used inter-district busing, which made marginal improvements in educational opportunities but remained somewhat segregated like Philadelphia and Detroit.

Like Evans (2007) study on diversifying suburbs, Holme et al.'s (2016) study makes a significant theoretical contribution to the literature by foregrounding geography and space in their framework. Within their research, Holme et al. (2016) use "Edward Soja's (2010) construct of spatial causality" to analyze their data (p. 4). Spatial causality "conceives of geographic space" as "actively reproducing inequality" like "patterns of racial and economic isolation"... "through their effects on the distribution of opportunity and resources" and emphasizes that "geographic space…[is] not a mere reflection of material inequality" (p. 4). Through this lens, Holme et al. (2016) concluded that the reproduction of inequality through historic boundary decisions is primarily ignored when creating current policy solutions around struggling districts. Instead, solutions revolve

around accountability policies and market-based reforms, bypassing the segregation and poverty created through boundaries (p. 31). These boundary policies have "promoted and protected the affluence and advantage" (p. 31) and ignored how "boundaries have contributed over time to urban and inner-ring suburban district difficulties" (p. 32).

These between district boundary studies convey the importance of boundaries and how they produce conditions that often maintain inequality and serve as protectors of white material advantage. There are examples like Lousiville-Jefferson County, where the changing of boundary lines has precipitated more equitable and integrated schools. The practices districts, cities, and counties employ when determining boundaries matter.

Within District Boundary Changes

While studies about between district boundary lines are necessary because they tend to segregate students, my research study on LCSD focuses on changes in attendance boundary lines within a single district and how those internal boundary lines function to produce inequities within a district. Thus, as I continue examining the literature on school boundaries, I next discuss the research that takes up within district boundaries and school assignment policy research. Within district attendance boundaries are equally as political and change more frequently than between district lines. These malleable attendance boundaries and student school assignments are altered for a variety of reasons: student growth and the need for a new school (Holme et al., 2012; Holme et al., 2014; Frasure-Yokley, 2012), overcrowding (DeBray & Grooms, 2012; Wiley et al., 2012), school closures (Siegel-Hawley et al., 2017), statewide class size reduction mandate (Wiley et al., 2012), an explicit integration plan (Diem et al., 2016), or the lifting of desegregation orders (Rosiek & Kinslow, 2016; Weinstein, 2016; Horsford et al., 2013; Wiley et al.,

2012). Included in this line of research are also questions about whether attendance boundaries are purposefully gerrymandered to increase (Orfield & Luce, 2010; Richards, 2014; Richards & Stroub 2015; Siegel-Hawley, 2013) or decrease (Saportio, 2017) segregation between schools. Throughout this section, I will discuss the findings and framings of scholars who researched the different ways, outcomes, and politics behind within school district boundary changes. First, I will review studies in districts previously under desegregation orders, next research on educational gerrymandering, and finally, studies that focus on the politics associated with changing of attendance boundaries and student assignment policies.

School Boundaries and the Lifting of Desegregation Orders. The following sections focus on school boundary research about school districts that used to be under desegregation orders. Historically, *Brown v. Board* (1954) was a supreme court ruling not quickly adopted by school districts. In 1968, *Green v. County School Board* was the court case that enforced *Brown v. Board* and required government oversight of school districts who had not desegregated their schools. To return to local control, districts had to demonstrate they had met unitary status, which, in short, meant that segregation was not likely to return. The set of standards were known as the Green Factors (Rosiek & Kinslow, 2016, p. 3). As districts met unitary status, desegregation orders lifted, and districts redrew boundaries or established new student assignment plans.

Four different studies followed what occurred in districts after the government lifted desegregation orders and returned local control, three in the south (Rosiek & Kinslow, 2016; Weinstein, 2016; Wiley et al., 2012) and one in the mountain west (Horsford et al., 2013). Under desegregation orders, the southern school districts

achieved integration in different ways. One district assigned all district ninth and tenth graders to one building and eleventh and twelfth to another (Rosiek & Kinslow, 2016). Because all students went to school together, the consolidation of students desegregated the district. In North Carolina, the school district used satellite zones:

> a school located in an area with a large percentage of students from one race drew students from this area and another area, possibly located many miles from the school, where a large portion was of another race. (Weinstein, 2016, p. 1367)

The system of satellite zones desegregated the school district. In Florida, the school district used satellite zones, suburban-urban busing, and magnet schools to desegregate schools within the district. (Wiley et al., 2012, p. 143).

Around 2000, all three school districts were declared to have achieved unitary status, and the desegregation orders were lifted along with federal oversight. Therefore, all three districts implemented new student assignment plans. In Rosiek and Kinslow's (2016) research, Riverton School District (RSD) rezoned students to three high schools. Two of the high schools' racial demographics were 50% white and 50% Black and located in brand new buildings. The third high school was 100% Black and placed in an old school building. In Weinstein's (2016) research, Charlotte-Mecklenburg Schools (CMS) removed all satellite zones and assigned students to schools nearby in connected zones. The school district in Florida hoped to maintain "integration [through a] voluntary choice program" (Wiley et al., 2012, p. 161). This choice program had no controls to monitor the diversity of students who applied to these programs. All three school districts became more racially and economically segregated due to the new student assignment plans.

All three studies shared important consequences of these new student assignment plans. Rosiek and Kinslow (2016) focused on how this resegregation of students functioned as a hidden curriculum and affected student identity. In addition, they highlighted how those with decision-making power rationalized the decision to create an all Black high school. Their work is a critical study showing how boundary lines produce real effects and have ethical consequences for the community. Weinstein (2016) focused on the consequences of school reassignment to neighborhood composition. As the percentage of black students increased in a school, white families moved out of that assignment zone to a zone where the percentage of black students was less than their previous school. Black families did not move based on school assignments. Wiley et al. (2012) reported that relying on a voluntary integration plan through school choice often leads to both higher concentration of poverty and increased racial isolation in neighborhood schools (p. 146). Leaving people to their own devices does not lead to integrated schools. All three studies show how school assignment policies have real effects on schools and the surrounding communities.

Horsford et al. (2013) make an important contribution to segregation/ desegregation research by providing a perspective outside of the southern U.S. and with counternarratives by Black community members. The original desegregation plan in Las Vegas bused Black elementary, middle, and high school students to various district schools. The one exception was sixth grade, when all district sixth-grade students attended school together in the Black neighborhood. In this community, the Black parents fought to end mandatory busing and desired a new student assignment plan. Only busing

black children 11 out of 12 years of K-12 education was burdensome and not worth the supposed benefits. The original desegregation plan ended in 1992.

Another critical argument the Black families made was that the plan no longer made sense for the cities changing demographics. In 1970, when the district implemented the original plan, the student body was 80% white and 16% Black. When the plan ended, the student body was 69% White, 14% Black, and 12% Latino. The parents argued that as the demographics changed, so too should the student assignment policy. Policies around student assignments will never be free from the influence of racial demographic changes. Therefore, Horsford et al.'s goal of responding to "Wells, Holmes, Revilla, & Atanda (2004) [call] to place educators, students, and parents into a broader social and political context to understand how their local communities and the larger society constrain or enable educational policies and the effects that schools have on children' (p. 50)" is worth continued pursuit in new research around attendance boundaries and student assignment policies (as quoted in Horsford et al., 2013, pp. 3-4).

Through these studies it demonstrates that sending all district students to the same schools worked better than bussing to desegregate all students through these studies. While seemingly simple, there are limitations as district size outgrows the feasibility of one school per grade level. But it does raise the same issue of consolidation versus fragmentation as found in between district boundary studies. The districts consolidate more students into fewer schools, the less segregation occurs. The more fragmentation in school options, the more segregated schools become. The bussing of only black students in Las Vegas was not particularly effective or accepted by Black parents because it places an overwhelming burden on the Black community. In all districts, districts did not

maintain levels of integration after the government lifted desegregation orders. Thus, it again demonstrates that district policy on attendance boundaries and student assignment policies directly affect the desegregation or isolation found within school districts. Another research line that further investigates the relationship of desegregation vs. segregation is the body of work focused on educational gerrymandering.

Educational gerrymandering. Another subfield of attendance boundary research that is important to capture is a newer field that focuses on the gerrymandering of school attendance zones or educational gerrymandering (Orfield & Luce, 2010). The research builds on the concept of political gerrymandering used by cities or states to set political boundaries that favor particular political parties. This results in political districts with odd, winding, and non-sensical boundaries instead of compact, geometric areas. According to Orfield and Luce (2010), "school districts can intensify racial segregation in their jurisdictions by gerrymandering attendance zone boundaries. Gerrymandering practices are often evident in discontinuous attendance zone boundaries, which either segregate whites from students of color or students of color from white students" (p. 133). Richards and Stroub conducted a large database study to further the assertion made by Orfield and Luce about educational gerrymandering (Richards, 2014; Richards & Stroub, 2015). Their research used a "large national sample of 15,290 attendance zones in 663 districts" to investigate gerrymandering (Richards, 2014, p. 1119). Both studies concluded that gerrymandering exacerbated segregation and is more prevalent in "districts experiencing rapid racial/ethnic change" (p. 1151). Contrary to their main finding, in racially changing districts, they found that "gerrymandering is less segregative and often affirmative in districts under active desegregation orders" (p. 1151). This

finding seems to be in line with the districts in Florida and North Carolina discussed in the previous section, which used satellite zoning to combat segregation under desegregation orders (Weinstein, 2016; Wiley et al., 2012). Overall, Richards and Stroub (2015) argue that gerrymandering racially segregates more students and conclude they are confirming previous research (Clark, 1987; G. Orfield & Eaton, 1997; M. Orfield & Luce, 2010; Siegel-Hawley, 2013; Vaznis, 2009).

Salvador Saporito (2017) completed another large database (304 school districts) study challenging much of Richards and Stroub's (2015) claim. His first critique was that the quantitative measures used in Richards and Stoub's research do not factor housing segregation into their measurements. Saporito argues "that racial segregation in school attendance zones is driven primarily by racial segregation in residential areas" and not by educational gerrymandering (Saportio, 2017, p. 300). He concluded

> that the great majority of school districts delineate reasonably compact attendance zones and that these compact zones are either indifferent to residential segregation or do little to exacerbate it. In fact, the data show that, on average, school districts with the most irregularly-shaped attendance zones have lower levels of racial segregation than comparable school districts with highly compact attendance areas even after accounting for residential segregation. (Saporito, 2017, p. 312).

This conclusion challenges Richard & Stroub's (2015) and Orfield & Luce's (2010) work in which they concluded that educational gerrymandering exacerbates segregation. Though, Richards and Stroub (2015) do have one important exception—when districts are under desegregation orders, gerrymandering decreases school segregation (p.4) which agrees with Saporito's work. In other words, when the actions of school districts are being

monitored, decisions as to school assignment boundaries produce schools with greater diversity. It also further illustrates how gerrymandering may help overcome the segregation that occurs based on where people live and their housing access.

The court case, *Spurlock v Fox et al.* (2013), is an example of how a non-contiguous attendance zone helped overcome racial isolation due to housing segregation. The Tennessee school district used mandatory non-contiguous transfer zones to achieve unitary status under desegregation orders. In the late 1990s, a new student assignment policy made the transfer zones optional. This prompted a grandmother to sue on behalf of her grandchildren. She asserted that the new policy "eliminated the desirable practice of being bused to a good, racially diverse school and replaced it with two inferior choices: staying in a bad, racially isolated neighborhood school or being bused to a bad, racially diverse school," which led to the resegregation of the school district *(Spurlock v. Fox, 2013).* This case in Tennesee mirrors what happened in both the North Carolina and Florida school districts described in the previous section. Both of those school districts had also used non-contiguous zoning to achieve integration, and when removed, the district reverted to being more segregated than before. Thus, educational gerrymandering through non-contiguous zones can lead to less school segregation, as Richards, Stroub, and Saporito claim.

Like this specific law case in Tennessee, case studies become important additions to the large database studies on attendance zones because we can learn about socio-political contexts in which districts make these decisions. Within the line of educational gerrymandering research, Siegel-Hawley (2013) conducts a case study analysis on one school district that is redrawing its attendance zones. This district built a new high school

due to growth. In addition, the racial demographics of the school district were changing. Siegel-Hawley's (2013) study "indicate[d] that school officials responsible for the district's rezoning process failed to embrace the growing diversity of the school system and instead solidified extreme patterns of racial isolation within high school attendance areas" (p. 582). The new boundaries created multiple schools in which the percentages of white students within certain schools were higher than the percentage of white students for the overall district. Therefore, Siegal-Hawley concluded educational gerrymandering within this district kept white students in racially isolated schools. Her findings connect to Richard and Stroub's (2015) work, where they concluded that educational gerrymandering was most common within districts with rapidly changing demographics.

Much of the educational gerrymandering literature centers on geometric questions of shape, size, and demographic numbers of students within each zone. While important, questions about the politics, decision-making practices, and influences on decision-making are also needed. Siegal-Hawley's (2013) case study had both quantitative and qualitative analysis. She quantitatively analyzed each boundary option's possible demographics, but through interviews, she provided insight into the politics accompanying the redistricting process. In the next section, I begin with Siegal-Hawley's findings on the politics of boundary changes and connect her findings to several other studies.

The Politics of Changing Attendance Boundaries

For the final section of my boundary research literature review, I highlight the politics that occur within communities experiencing boundary changes. It is important to see the connection between similar politics that communities experience across the

country when going through school assignments changes. One example study highlighting these political tensions is Siegel-Hawley's (2013) research, which occurred in a suburban district that had experienced both immense growth and demographic change. Over four decades, the percentage of the white student population had decreased from 90% of the student population to less than 50% of the student population (Siegel-Hawley, 2013, p. 581). This decrease in percentage is due to the rapid increase in Black, Asian, and Latinx families moving into the school district. The district built a new high school due to the growth, and thus the district redrew attendance boundaries. During this process, there was an "active group of parents protesting reassignment to schools with higher levels of racial diversity and poverty" (p. 592). These parents came from neighborhoods that were majority white. Following the protests, the district committee asked the consulting company to redraw one of the maps to accommodate these active parents from majority-white neighborhoods complaining about their children's assignment to a high school with a high percentage of students of color (p. 592). This reemphasizes how race and the suburban district's historical context being majority white intersects with school boundaries. This interaction will occur even if the district, like this one, publically avows that they "chose not to discuss race when devising the new boundary lines" (p. 593). Siegel-Hawley's findings are congruent with several other research projects, including another of her own that also discusses the contentious nature of school boundaries and the protest of white and/or affluent parents resisting assignments to school with a higher proportion of students of color or low-income students.

Siegel-Hawley et al. (2017) conducted another rezoning study in Baltimore. Instead of facing growth, the Baltimore district was closing schools due to the declining student population and rezoning students after the school closures. Similar to Siegel-Hawley's (2013) study in the suburbs that redrew a map to favor the presumably white families, the leadership "privileged the voices of White families in a city school system that is roughly 10% White" when drawing the new boundaries (Siegel-Hawley et al., 2017, p. 109). This privileging resulted in "closing one school and redrawing numerous elementary school attendance boundaries...dramatic[ly] increas[ing] racial segregation between elementary attendance zones" (p. 109). One positive result from the district's problematic decisions was the emergence of "a diverse coalition of community leaders" protesting the changes (p. 109). Overall, one of the big takeaways from the study was processes of "redrawing of attendance lines... are inherently political." (p. 111)

Bartles and Danato (2009) researched a district that rezoned students due to a newly built middle school. Similar to Siegel-Hawley, Bridges, and Shields (2017), the researchers characterized "the changes the district sought to implement [as] socially 'messy' and politically painful" (Bartels & Danato, 2009, p. 245). The district put forth three plans characterized as an integration scenario, which integrated middle and high socioeconomic students with lower socioeconomic students, the status quo plan, which maintained the socioeconomic stratification of students, and the compromise plan, which "was not much different than the Status Quo Scenario, but had slightly more inclusion of lower socioeconomic housing neighborhoods" (p. 235). Affluent parents immediately opposed the integration plan. "Much of the resistance mounted by these parents was centered on the idea that although diversity was an admirable goal, it should not be

achieved at the expense of educational excellence and a safe school environment for their own children" (p. 246). This resistance is common among affluent parents across the country. In the Florida school district, economic and racial integration plans were resisted the most by "middle- and upper-class whites who fear that an increase in economic and racial diversity…will lead to lowered academic expectations and a decline in test scores" (Wiley et al., 2012, p. 156). Affluent parents also said they "preferred overcrowding to enrolling their children in a school with students from the Section 8 area" (p. 156). Parents in both districts focused on their children's interests and not on the community's greater good. Overall, Bartels and Donato (2009)

> argue that school districts that seek to implement such plans will most likely be challenged, even where the physical distance to schools does not present hardships for parents and where minority and poverty rates are low enough to carry out such goals. (p. 222)

This resistance of suburban parents is consistent with resistance throughout history when school districts have attempted to decrease racial and economic isolation within school districts.

In addition to these studies, many of the studies discussed in the literature review in the first part of this chapter on research on schools and districts in diversifying suburbs also explored the political and contentious nature of changes to school attendance boundaries (Holme et al., 2012; Holme et al., 2014; Frasure-Yokley, 2012; Wiley et al., 2012; DeBray & Grooms, 2012; Evans, 2007; Diem et al., 2016). In all of these studies, the affluent and predominantly white parents have a strong political reaction to the changes. The impetus for changing attendance zones varied: student growth and the need

for a new school (Holme et al., 2012; Holme et al., 2014; Frasure-Yokley, 2012;), overcrowding (DeBray & Grooms, 2012; Wiley et al., 2012), statewide class size reduction mandate (Wiley et al., 2012), or an explicit integration plan (Diem et al., 2016). With one exception of a suburban school district near Minneapolis, MN (Diem et al., 2016), districts were not explicit about race or ethnicity when redrawing boundary lines. Part of this avoidance is due to several court cases. One example is *Parents Involved in Community Schools v. Seattle School District No. 1*, which bars districts from using individual children's race when making school assignment decisions. Under this decision, school districts are still allowed to consider the general racial demographics of a neighborhood when determining attendance zones (*Parents Involved*, 2007).

In the case of the Orange County, CA district, the district barred the boundary committee from considering race and ethnicity when determining where students will attend schools after the state passed CA Proposition 209 in 1996 (Frasure-Yokley, 2012, p. 154). A Minnesota school district hid from parents that they were changing boundary lines to desegregate schools further. Instead of talking about race, they communicated to the parents that they were making the changes to reduce the budget. Across the board, none of these suburban districts were willing to take on the complicated conversation of segregation, race, or demographic changes within their school community in relation to boundary lines.

Beyond legal restrictions, districts avoid difficult conversations around race and class because they fear retaliation from affluent parents. One school board member stated that there were "steep political costs for going against the wishes of those parents" (Holme et al., 2012, p. 56). Affluent parents seem to wrongly believe and fear that

increases in racial and socioeconomic diversity will result in "reduced educational equality" for their children (Wiley et al., 2012, p. 154). In a San Antonio district, the parents protested an undesirable school assignment by voting against a bond measure that would have rebuilt the older high school they were upset the district assigned their children to attend (Holme et al., 2012). In an Orange County, CA school district's parents filed a lawsuit over boundary changes (Frasure-Yokley, 2012). In two different districts, parents attempted and failed to either secede or de-annex their neighborhood in order to have more control over their children's school demographics (Evans, 2007; Diem et al., 2016). By seceding or de-annexing, parents would create a more homogenous town and school district and not have to comply with their former district's school assignment policies. Parents also protested by moving their students to private or charter schools (Sohoni & Saporito, 2009).

When the politics of school boundary adjustments became too political, school districts would attempt other non-racially explicit means of attending to demographic and enrollment changes within the district. Most of the time, this came in the form of in-district school choice/open enrollment programs or locating magnet programs at under-enrolled or racially isolated schools. (Holme et al., 2012; Holme et al., 2014; Frasure-Yokley, 2012; Wiley et al., 2012; Diem et al., 2016; Gumus-Dawes et al., 2012) In the San Antonio school district, the researchers found that "this choice policy has led to further segregation by race and class between schools, particularly schools undergoing rapid demographic shifts" (Holme et al., 2012, p. 57). Several other researchers echoed this notion that voluntary integration programs, school choice programs, or magnet schools do little to relieve and sometimes exacerbate racial isolation amongst district

schools, including classroom level segregation within schools. School choice literature is a large body of research that is tangentially connected to school assignment policies. Often, the reasons parents send their children to choice schools are the same reasons they oppose particular boundary changes. I want to acknowledge this overlap and recognize that reviewing the school choice literature or attending to the increase in school segregation due to school choice is beyond this dissertation's scope.

As I reviewed school boundary research, it became particularly evident that the spatial and geographic reality is integral to the decisions and practices school districts make when it comes to determining new boundaries or school assignment policies. Therefore, the final body of literature I review is the education research that uses spatial analysis and geographic information systems as a part of their methodology.

Spatial Analysis and Geographic Information Systems in Education Research

The third strand of literature necessary to the study and analysis of the boundary changes in LCSD is the educational research that uses spatial analysis and geographical information systems as a tool of analysis. This work attempts to highlight the educational inequities that are ever-present in the uneven geographies of our cities, suburbs, and rural areas. Three major theoretical strands in education research that use spatial analysis and GIS in their work are geography of opportunity, critical race spatial analysis, and educational gerrymandering research. In this third section of the literature review, I provide an overview of each of these three areas and describe how these studies inform my work and analysis of the school attendance boundary determination process in LCSD. I begin with the overview of research in geography of opportunity, then critical race spatial analysis, and finally, educational gerrymandering research.

Geography of Opportunity

In the first strand of education research that uses spatial analysis and GIS, the literature credits Glaster and Killen (1995) as the first to conceptualize geography of opportunity. Xavier de Souza Briggs' (2005) further develops the concept in the edited volume, *The Geography of Opportunity: Race and Housing Choice in Metropolitan America*. William Tate introduced geography of opportunity to the field of education in his 2008 AERA presidential address centering the question: "How does geography influence opportunity?" (Tate IV, 2008, p. 397). His work in Dallas provided an example answer to this question. In Dallas, through GIS, Tate visually displayed southeast Dallas' isolation from centers of economic growth. Additionally, Tate and student researchers "identified 25 problems they felt were negatively influencing their community, including the 13 liquor stores within a 1,000-foot radius of their South Dallas school" (p. 399). The predatory geography and isolation decreased opportunity for students. At the end of his speech, Tate urged educational researchers to "recognize the importance of geography in the research process where appropriate" (p. 408). Since then, many educational researchers have built upon his work of using spatial analysis and GIS, especially in the research areas of school choice, school segregation, and equity in subject area access.

Geography of Opportunity and School Choice. Many studies have emerged around the connection of geography and school choice via GIS and new spatial analysis techniques (Henig, 2009; Lubienski & Dougherty, 2009). These studies research questions thinking about how the geography and location of where people live provide or deny access to the opportunity to attend schools of their choosing. Scholars research multiple angles on schools choice: parental choice (Bell, 2009), location choice of

schools (Lafleur, 2016; Lubienski et al., 2009), the intersection of housing costs and choice (Dougherty et al., 2009), and the role of competition in school choice (Lubienski et al., 2009; C. Taylor, 2009). In this body of work, "geography as space is operationalized through variables such as distance, commute time, and the availability of transportation. It is measured in miles and minutes" (Bell, 2009, p. 495). The researchers' data and analysis are focused on space (e.g., distance, change in value due to distance, clustering, etc.). Conversely, when scholars discuss their results, they rely on arguments about place – "the social, economic, and political meanings people assign to particular spatial locations" (p. 495). But for most studies, scholars make conclusions without any empirical data from the people living and working in the spaces. They instead rely primarily on connections to other literature rather than empirical data sources.

For example, in Dougherty et al. (2009), the researchers compare test scores, school demographics, and housing prices for homes near school attendance boundaries. The cost of housing increases when test scores and the percentage of white non-Hispanic students are higher. Additionally, they find that the school's demographic composition matters more to housing prices than test scores. When attempting to explain this finding, the scholars move from geography of space conception to a geography of place conception. However, none of the data they collected is directly from local residents and the meanings they make about this particular location. The discussion feels somewhat speculative and disconnected from the communities themselves.

One exception to this pattern is Bell's (2009) work on parents' choice of schools because she both maps data she collected and interviews the parents who were making school choice decisions. Her maps show the locations of the set of schools parents

considered and the school they chose, in conjunction with median home values. She uses these maps to deepen the understanding of the interviews she conducted with the parents from the area about their school choices. Building on Bell's (2009) work, I combine geographical data like median home values and layer the maps with interview data from the boundary advisory committee and public comment data to make sense of the boundary decisions. I want to add to the educational GIS research that moves away from only a quantitative use of GIS maps in education research and is inclusive of interviews, archival, and public comment data to aid the analysis and conclusions of the spatial research.

Geography of Opportunity and School Segregation. In line with some of the school choice research, there is also a strand of school segregation research situated within geography of opportunity (Saporito & Sohoni, 2007; Sohoni & Saporito, 2009; Jones, Harris, & Tate, 2015). This school segregation research uses GIS via statistical modeling about school districts. These studies do document new methods of GIS analysis. However, none of these studies have a solid theoretical grounding in social theories of race or class, even though these studies are all about race and class. In both of Saporito and Sohoni's (2007, 2009) studies, through GIS, they combine census data, school data, and school boundaries to create hypothetical neighborhood schools where all neighborhood children attended. Saporito and Sohoni then contrast these hypothetical schools with demographic data in the actual neighborhood schools. Their analysis reveals that the rate of poverty and the percentage of non-white students are higher in the actual schools than in the hypothetical schools. Stated another way, their findings mean that there are more wealthy students and more white students living in the neighborhoods than

attending public schools in their community. Saporito and Sohoni (2007, 2009) attribute the higher percentage of poor, non-white students in the school relative to the neighborhood to the decision of white parents to send their students to private, charter, and non-neighborhood public schools.

Geography of Opportunity and School Subjects. A final strand of the geography of opportunity literature is the spatial analysis of equity issues for specific subject areas. Hogrebe & Tate IV (2012) map and describe links between student access to Algebra curriculum in schools and variables associated with the effects of poverty across Missouri. They conclude that local context is important when developing algebra policies across the state because different variables matter in different spaces. Building off Hogrebe and Tate's work, Jocson and Thorne-Wallington (2013) investigate literacy-rich environments (LREs) across St. Louis. They map the spatial distribution of the LREs in conjunction with race/ethnicity demographics, median household income, proximately to freeways, and performance on standardized assessments. Like other research using GIS, they only use large data sets and do not use any data gathered at the specific school sites to help deepen their understanding of the trends they identify. In my research on LCSD, I too use large data set from the U.S. Census and American Community survey. However, I pair it with data from interviews from district employees and community members and a large amount of public comment related to the boundary changes.

Opportunity in Geography. As geography of opportunity grows as a strand of research, Terrance Green makes a timely critique. Green (2015) discusses how geography of opportunity works well to identify historical structural barriers that create inequality, but in "only centering inequality between neighborhoods [it] can breed very narrow

perspectives about low-opportunity neighborhoods when decoupled from an analysis of the assets within them" (Green, 2015, p. 719). Therefore, he offers the concept *opportunities in geography*. This approach "repositions low-opportunity, urban communities of color as not only places of inequality, but also places of possibility by focusing on the assets within them" (Green, 2015, p. 718). His study maps schools, churches, community, centers, libraries, etc., within Detroit's two poorest zip codes. He determines 120 institutional assets in these two zip codes and challenges the intuitions to build partnerships between the assets to improve the community. Green's work makes a needed shift and moves this area of research to a more asset-based framework. Green's work could contribute to the political work school districts do to disrupt circulating narratives that some schools within a district are better than others. Mapping out assets near all schools in a district could help build a more positive framework for all district schools.

Geography *in* opportunity provides a viable construct and framing for the spatial analysis of education research in the areas of school choice, school segregation, and content access. Using this framing, though, is not rooted in theorists from critical geography. In the next section, I review two exemplars in education research rooted in critical geography as a theoretical framework for their spatial analysis work in education.

Critical Geography, Spatial Analysis, and Education

> "Critical geography tends to focus primarily on people and their relationships to one another, the ways in which they create spaces and places both physical and imagined, and the interaction between people and the ecological… At its core, critical geography… conceives of space and place as simultaneously constructed

and irrevocably material—their being entirely made up does not make them any less real" (Gershon, 2017, p. 126).

As I turn to the more critical education work at the intersection of geography, spatial analysis, and education, four theorists repeatedly emerged in the education literature: David Harvey, Henri Lefebvre, Edward Soja, and Doreen Massey. All four ground their work in Marxist theory, and Massey's work is also explicitly feminist. All speak to the fact that geography, space, and place are politicized, and space and place are constantly made and remade. In the field of education, two recently edited volumes, *Deteritorializing/Reteritorializing: Critical Geography of Educational Reform*[10] and *Critical Race Spatial Analysis: Mapping to Understand and Address Educational Inequity*[11] highlight how scholars use critical geography in educational research. The following two sections showcase a couple of studies from each edited volume as examples of the current work done in education.

Deteritorializing/Reteritorializing. In *Deteritorializing/Reteritorializing*, Walter S. Gershon's chapter launches from critical geography to theorize current U.S. schools as continual Jim Crow spaces. He describes his work as "mapping the resonance of Jim Crow and neoliberalisms" (Gershon, 2017, p. 128) within contemporary educational spaces. He builds his argument from D. Massey's (2005) conception of space as "a product of interrelations" that is "always under construction" (as cited in Gershon, 2017, p. 126). Because Jim Crow and neoliberalism are both "the continuing multiplicity of plural trajectories…[they] can be understood as space" (p. 126). His use of critical

[10] Ares, N., Buendía, E., and Helfenbein, R. (Eds.). (2017). *Deterritorializaing/reterritorializing: Critical geography of educational reform.* Sense Publishers.
[11] Morrison, D. Annamma, S. A., Jackson, D. D. (2017). *Critical race spatial analysis.: Mapping to understand and address educational inequity.* Stylus.

geography and Massey's conception of space to argue that contemporary education continues to operate as "Jim Crow spaces" and that the "violence done to young people of color is an artifact of an intentional alignment of practices and policies" that emerged from these historical Jim Crow spaces (pp. 146-147).

Also, from *Deteritorializing/Reteritorializing,* Edward Buendía and Paul Fisk's (2017) study on educational segregation takes up the notion of scales from the critical geography literature. This project is much different from the segregation articles I reviewed in an earlier section. Buendía and Fisk (2017) critique the educational segregation field stating that

> the field has concentrated on the end-effects of these [social sorting] mechanisms while sidelining the complexity of how local actors, policies, and the appendages of global capital—constituting nested contexts—destruct, reconstruct, and re-institutionalize spatial relationships in creating the mechanisms of contemporary education segregation. (p. 175)

To push back on what they view as a narrow framing of school segregation research, they seek to highlight these segregation processes through a "framework of scalar production" in order to "attend to and represent the complexity of socio-spatial creation" (p. 173). To do this, they research the processes, mechanisms, and practices that resulted in a school district's succession. This study is an important framing for my research in LCSD. I, too, am interested in the processes, mechanisms, and practices that occurred to determine the new boundaries over the end effects of the sorting due to boundary changes.

In addition to these two examples, all studies in this book have a solid theoretical grounding in critical geography. The theory is well integrated within the analysis,

including when researchers have used GIS. The integration of critical geography and spatial analysis techniques creates convincing arguments about the role uneven geography plays in producing inequity in our school systems.

Critical Race Spatial Analysis. The second edited volume, *Critical Race Spatial Analysis*, begins with Veronica Vélez and Daniel Solórzano's (2017) articulation of their framework: critical race spatial analysis (CRSA). CRSA is a conceptual and methodological approach that emerges from the intersection of critical geography, spatial analysis, and critical race theory (CRT). CRSA has six requirements: (1) "Foregrounding the color-line, underscoring the relationship among race, racism, history, and space;" (2) "Challenging race-neutral representations of space;" (3) "Focusing on mapping the spatial expression of the lived experiences of Students of Color, their families, and their communities;" (4) "Centering a transformative solution;" (5) "Utilizing the transdisciplinary knowledge base of critical race studies in education;" (6) "Emphasizing maps…as a point of departure for analyzing the sociospatial relationship between race and space and refusing to allow maps to speak for themselves" (Vélez & Solórzano, 2017, p. 21). From this framework, they provide two guiding questions, "*how can critical race education scholars use CRSA in their work? How can it be utilized as a transformative, antiracist practice?*" (p. 21).

Much like CRT, CRSA employs many different methods to do the work, but all center race and spatial analysis in their work. For example, Subini Ancy Annamma (2017) used education journey mapping as an analysis technique inside the CRSA framework. Education journey maps are visual creations done by research subjects "meant to capture trajectories throughout a student's education" (Annamma, 2017, p. 39).

She finds that the journey maps are “useful for exploring the cartographies of inequities that students experience in education as well as the ways they resist the narrow definitions of the lives” (p. 70). CRSA informed Leigh Anna Hidalgo's mapping of predatory landscapes and the creation of augmented *fotonovelas*. "Augmented *fotonovelas* draw upon the aesthetic of traditional *fotonovelas* but incorporate new technologies, such as video interview, interactive mapping, smartphone technology, and augmented reality (A.R.)." (Hidalgo, 2017, p. 71). This method helped to “uncover the racist nativism in the spatial dimensions of economic exclusion” (p. 47). Hidalgo maps both “geographies of despair” and “geographies of hope,” documenting the ways in which communities push back and create places for community and culture (p. 80). This echoes some of the same ideas of Green’s (2015) geography in opportunity work about the importance of highlighting assets found within any community.

Two of the studies (Solórzano & Vélez, 2017; Blaisdell, 2017) focus on the concept of redlining. Through CRSA and GIS, Solorzano and Velez write a historical piece detailing the ways redlining established segregation in South Central Los Angeles, which still affects schools today. Blaisdell uses the concept of redlining in order for teachers to investigate how they "redline" students in their classrooms. He calls his methodology racial spaces analysis (RSA), which has commonalities to CRSA but is not the same.

CRSA is a flexible theoretical framework that allows for many different spatial analysis methods within its frame. The requirement of CRSA is not to let maps speak for themselves. It is an acknowledgment of the colonial and oppressive history of maps that people still perpetuate today. The other requirement of CRSA that I believe moves this

field of research in a positive direction is the centering of transformative solutions. Blaisdell's work with teachers or Hidalgo's documentation of geographies of hope both highlight possible steps towards these transformative solutions.

Both edited volumes, *Deteritorializing/Reteritorializing* and *Critical Race Spatial Analysis*, provide examples of spatial research with deep theoretical grounding that moves beyond using only quantitative models or means of analysis when engaging in spatial research or using geographical information systems. My research seeks to add to this body of work by using a robust theoretical framework that includes new materialist frameworks alongside critical geography and theories about the relational nature of race and racism in the United States.

Educational Gerrymandering and GIS

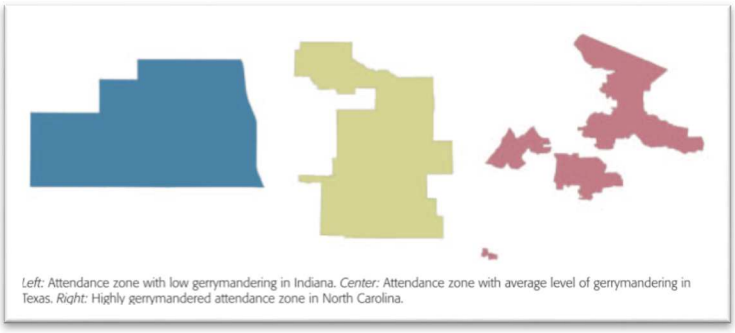
The final strand of education research that centers its analysis in geographic information systems techniques is educational gerrymandering. The school boundary literature review highlighted these studies, but I discuss a few school boundary studies again to highlight how the spatial analysis was integral to their findings. Furthermore, according to Orfield and Luce (2010), "school districts can intensify racial segregation in their jurisdictions by gerrymandering attendance zone boundaries. Gerrymandering practices are often evident in discontinuous attendance zone boundaries, which either segregate whites from students of color or students of color from white students" (p. 133). Of the many ways in which they state school districts can intensify segregation, one way is "they can manipulate their attendance zones in a racially segregative fashion" (Orfield & Luce, 2010, p. 133). Genevieve Siegel-Hawley (2013) builds from this research to investigate whether there was educational gerrymandering in the redrawing of

Henrico County schools' attendance boundaries. Henrico County school district, like LCSD, experienced a shift in racial demographics and had a growing student population. Thus, the district built a new high school. To determine whether the school district gerrymandered the new boundaries, Siegel-Hawley used GIS spatial analysis. She used spatial analysis to estimate the school size and percentage of white students in the original school attendance boundaries before the district built the new high school. She then compared them to the school size and percentage of white students for the various proposed new school boundaries. She analyzed the different boundary options to determine which boundary proposal would create more evenly distributed students in terms of school size, race, and ethnicity. Siegel-Hawley findings "indicate that school officials responsible for the district's rezoning process failed to embrace the growing diversity of the school system and instead solidified extreme patterns of racial isolation within high school attendance areas" (Siegal-Hawley, 2013, p. 582). The new school boundaries produced a few schools in which the percentages of white students were significantly higher than the percentage of white students for the overall district. Therefore, the new boundaries segregated white students and isolated them in particular schools.

Richards (2014) also conducts educational research on gerrymandering. Her GIS spatial analysis techniques differ from Siegel-Hawley because she based them on geometry rather than comparing different school boundary options. In general terms, Richards compares whether district boundaries are more compact and regularly shaped versus disconnect or irregularly shaped districts (see Figure 6). Overall, she discovers that "gerrymandering is particularly segregative in districts experiencing rapid racial/ethnic

Figure 6

Examples of low, average, and high gerrymandering



Left: Attendance zone with low gerrymandering in Indiana. *Center:* Attendance zone with average level of gerrymandering in Texas. *Right:* Highly gerrymandered attendance zone in North Carolina.

Note. Image from: (Richards, 2017).

change" (Richards, 2014, p. 1119). She does note that when districts are under desegregation orders, districts can use gerrymandering to decrease segregation with the district (p. 1119). Richards conducts a subsequent study that confirms gerrymandering is worse in places where demographics are changing rapidly (Richards & Stroub, 2015).

Recently, Salvator Saporito (2017) published an article directly refuting Richards' claims. Saportio (2017) concluded, "As school districts' attendance zones become increasingly irregular, racial segregation decreases…The more compact school district attendance zones are, the more racially homogenous they are" (p. 310). One of the reasons Saporito critiques Richards' research is that Richards does account for residential segregation directly in her spatial analysis model. In Saporito's spatial analysis work, he uses a different statistical modal that accounts for residential segregation. Through the explanation of these statistical results, he found that compact districts are more homogenous because cities are racially segregated due to historical and current housing patterns. Housing segregation created segregated schools when attendance zones are

compact. According to Saporito, districts can use educational gerrymandering to break up homogenous housing areas and create more diverse schools.

Like the educational gerrymandering research, I use geographic information systems to map and visually represent the spatial distribution of different racial/ethnic communities, socioeconomic status, and type of housing and zoning throughout the district. But unlike these studies, I do not use complex statistical modeling to analyze the distribution of different communities further. Instead, I rely on the visualization of descriptive statistics in order to analyze the spatial patterns of the data within the school district. I also use this spatial data in conjunction with interview data, archival data, and public commentary to learn about the high school boundary determination process in LCSD.

Frameworks Used in Reviewed Research and How They Inform My Study

Emerging from this body of literature around diversifying suburbs, boundary changes, and spatial analysis is a lack of direct engagement with or theorization of race, class, and geography and how all three are in a dynamic relationship that profoundly affects suburban school districts and district boundary changes. Districts and schools operate in a color-evasive fashion that does little to alleviate the problems they are seeking to improve. Other studies (Diem et al., 2016; Ares & Buendía, 2007; Tyler, 2016) use a critical discourse analysis framework to analyze the interviews and policies they collected from districts. In a similar vein to discourse analysis, Holme et al. (2014) use Oakes et al. (2005) "zone of mediation" framework that "sets the parameters of policy, behavior, beliefs, and actions" in schools and districts (p. 288 as cited in Holme et al., 2014, pp. 38-39). Much of the educational gerrymandering research relies heavily on

quantitative frames concerned with the district's size and shape and the number of students. Through these quantitative frames, they answer whether schools or districts are becoming more or less segregated. These large database studies do not dig deeply into the inner workings of the decision-making process of school boundary decisions, thus leaving many unexamined factors.

One of the racial frameworks that are used by several of the studies is Bonilla-Silva's (2006) framework for "racism without racists" and color-blind ideologies to provide explanations for what is transpiring within districts (Bartels & Donato, 2009; Ares, & Buendía, 2007; Welton et al., 2015). While this framework provides a basis for how color-blind ideology operates within districts, it still does not connect to the spatial and geographic aspects of race and class that also operate in districts. Three of the studies reviewed (Rosiek & Kinslow, 2016; Horsford et al., 2013; Evans, 2007) use critical race theory and the concept of whiteness to frame the analysis of their study. This direct engagement of race within their framework provides deeper insight into the effects of race on students and communities within the district and how race impacts the changes in boundaries within the districts. I want to continue the direction of these three studies in my research but build in the connection to critical geography and use a relational and spatial framework for race and class. In addition, I make a move to new materialist philosophy, which is a frame not used in any of the studies reviewed.

One of the reasons for the move towards relational frameworks is that, in most studies, the demographic history and current demographics of the researched districts sit as a backdrop to the research but are not connected within the analysis and discussions. Two exceptions to this generalization are the studies by Evans (2007) and Holme et al.

(2016), who engage in theories of geography and the racialization of space. Overall, the lack of theorization of space, race, and class and how these three and in an ongoing dynamic relationship is a shortcoming of these bodies of literature. Thus, my study seeks to fulfill this gap through a unique theoretical framework based on Barad's (2007) agential realism and concept of the apparatus, the general assumptions within critical geography, Molina et al.'s (2019) relational formations of race, and Vélez & Solózano's (2017) critical race spatial analysis. I further articulate this framework in the following chapter.

CHAPTER III

THEORETICAL FRAMEWORK: AGENTIAL REALISM, CRITICAL GEOGRAPHY, AND THE RELATIONAL FORMATIONS OF RACE

Introduction

The study of the process to determine new high school boundaries sits at the intersection of the research on the changing demographics in suburban schools, research on school boundaries, and education research using spatial analysis. In this chapter, I articulate the framework I use to conduct and analyze the process to determine new school boundaries in LCSD. I seek to use a unique framework that takes a relational epistemological and ontological approach to my research phenomenon. I first describe Karen Barad's (2007) philosophy of agential realism and how it provides the basis for this research study. I then connect Barad's agential realism to conceptions of space in critical geography and the relational formations of race (Molina, HoSang, Gutiérrez, 2019). I conclude the chapter by articulating how I take a relational approach to my spatial analysis and geographic information systems in my work.

Agential Realism and Diffractive Methodology

The overarching philosophical frame that guides my research is Karen Barad's (2007) concept of agential realism, firmly rooted in quantum physics. Within agential realism, epistemology and ontology are not distinct but entangled with each other. There is no inherent separation between knowing and being, but instead, "we know because we are of the world" (Barad, 2007, p. 185). Barad names this: ontoepistemology, which they define as "the study of practices of knowing in being" (p. 185). Barad pushes back on a Cartesian metaphysics that views a separation between body and mind, nature and

culture, human and nonhuman, discourse and matter, subject and object (p. 185). Within agential realism, these are not seen as distinctly separate entities, instead knowing and being, body and mind, nature and culture, etc., are all in dynamic, constitutive relationships. An agential realist philosophy assumes that "knowing, thinking, measuring, theorizing, and observing are material practices of intra-acting within and a part of the world" (Barad, 2007, p. 90). Agential realism is a dynamic, relational ontoepistemology.

With agential realism, the emphasis on practice moves the research into a performative framework and methodology and pushes back against representationalism and the quest for one true representation of reality. Barad (2007) names her performative methodology – diffractive methodology. In Barad's summary of the difference between a reflective methodology, which she equates with representationalism, and a diffractive methodology, which is performative in nature, is that a diffractive methodology "accounts for how practices matter" and is not just a "reflection on representation" (p. 90). A diffractive methodology is about relationalities and differences and how those differences materialize and come to matter (Barad, 2007, p. 89). Furthermore, it is about "taking responsibility for the fact that our practices matter" (p. 89).

Within agential realism and diffractive methodology, six concepts are foundational to this philosophy and methodology: phenomenon, apparatus, intra-action, entanglement, agential cuts, and spacetimemattering. In the following six sections, I provide a brief definition and explanation of each of these and how they inform my research on the Lodge City School District's boundary change process.

Phenomenon

An individual object or subject with inherent properties and boundaries is no longer an appropriate unit of analysis with an agential realist philosophy. Instead, the unit of analysis is the phenomenon. Barad (2007) defines phenomena as "specific material configurations of the world's becoming," and they organize and establish our reality (p. 91). When studying a phenomenon, we honor the fact that things do not "exist frozen in time like little statues" for us to uncover facts about (p. 91). But instead, phenomena are a "*particular instance of wholeness*" that are continually shaping and reshaping the entanglements in which they are a part of" (p. 117; emphasis in original). By naming a phenomenon, we study a unique piece of our expansive, entangled, dynamic world.

For this research project, the high school boundary determination process is a specific phenomenon that is part of the ongoing dynamic history and future of the Lodge City School District, its students and families, the greater Lodge City community, the Portland metropolitan area, the spatial dynamics of the area, and the changing demographics of the suburb. The boundary process as a phenomenon does not exist in isolation but is entangled. It is a product of its relations with these intra-acting elements.

Entanglement

Barad uses the concept of entanglement from quantum physics in her articulation of agential realism. Entanglement is a specific relationship and connection between parts of the same phenomenon. These parts do not act independently from each other but are enmeshed and governed by a particular set of rules. In measuring and defining one element of the entangled relationship, it has consequences on what is possible for the other parts of the entangled state. Entanglement is essential to agential realism because it supports the assumption that subjects and objects are not independent beings but instead

are always in relationship. Another specific piece that is important to remember about entanglement is that it is specific; not everything is allowable. When fixing or defining one part of the entangled phenomenon, it fixes other parts of the phenomenon to be complementary. Entangled phenomenon, therefore, by nature, excludes certain possibilities. They draw boundaries on what is allowable for particular relationships. The mechanism that draws these boundaries is known as the apparatus.

Apparatus

Apparatuses are a vital part of the entangled phenomenon, and multiple apparatuses exist within each phenomenon. The concept of the apparatus builds from Barad's theorization of the work of scientist Niels Bohr. Bohr is known for the indeterminacy principle, in which he contends that particles do not have two different properties like position and momentum simultaneously; instead, these properties are indeterminate until one is measured. It is only in the act of measuring that one of these properties is determined. It is due to the specificity of the measuring apparatus that a property comes to be defined and known (Barad, 2007, p. 19). Therefore, an apparatus temporarily fixes a particular property for an object, a temporary resolution of sorts. Barad (2007) states that "apparatuses are not mere observing instruments but boundary-drawing practices—specific material (re)configurings of the world—which come to matter" (p. 140). Apparatuses are active. Apparatuses are "material-discursive practices" (p. 141). They allow for certain resolutions and preclude others. "Apparatuses do not simply detect differences that are already in place; rather they contribute to the production and reconfiguring of difference" (Barad, 2007, p. 232).

Within the LSCD boundary determination process, there is a multitude of apparatuses at work. For this study, in my analysis, I will trace the productive effects of two particular apparatus, the objective/criteria apparatus (Chapter 6) and the Highway 44 apparatus (Chapter 7). In these two chapters, I articulate the specific ways these two apparatuses produced particular (re)configurations of the boundary process and how the apparatuses and the practices they produce matter.

Intra-action

A distinct concept Barad uses throughout her development of agential realism is the word *intra-action* instead of *interaction*. According to Barad (2007), interaction "assumes that there are separate individual agencies" prior to the interaction (p. 33). Whereas "intra-action recognizes that distinct agencies do not precede, but rather emerge through, their intra-action" within the phenomena (p. 33). Again, intra-action reinforces the co-constituting nature of parts of the phenomenon and the lack of independence. Properties and practices emerge through the intra-action of the agents that are in constant dynamic relationships with each other. "Intra-actions iteratively reconfigure what is possible and what is impossible—possibilities do not sit still" (Barad, 2007, p. 234).

In terms of the LCSD boundary changes, the decision-making practices of the committee and community emerge through their intra-actions with each other, the history of the district, the future of the district, the uneven geography, the changing demographics, and the two apparatuses – the objective/criteria apparatus and the Highway 44 apparatus. Through these intra-actions, particular practices are enacted that lead to particular possibilities for the new high school boundaries.

Agential cuts

The way in which an apparatus produces boundaries and (re)configures the phenomenon is through enacting agential cuts. Carol Taylor notes, “Agential cuts are made (sometimes by humans, sometimes not) which instantiate boundaries, produce properties, and deliver differentiation, all while remaining entangled as phenomena within apparatuses” (2016, p. 209). Barad states that agential cuts are inevitably divisive (Barad, 2007). The cuts are divisive because they preclude researchers from "recognizing some things" but not others and cause researchers to "emphasize the importance of some things but not others" (Bodén, 2015, p.195). As Bodén (2015) states in her discussion of Barad's conception of agential cuts, "Different cuts will thus produce…different versions of the thing studied" (p. 195). As Taylor notes, both human and nonhuman agents make agential cuts. But it is important to note that the agential cuts I intentionally make as a researcher must be accounted for, and as such, I must take responsibility for them. Since I am a part of the research phenomenon I study, I am ethically responsible for my role. "The cuts we participate in enacting matter" (Barad, 2007, p. 178).

Spacetimemattering

For Barad, material practices within a phenomenon occur through the intra-action of time, space, and matter, or as she calls it, *spacetimemattering* to emphasize the continual and relational nature of these dimensions and that they are not discrete entities. As Juelskjaer (2013) explains, “matter and materialising are dynamic processes through which temporality and spatiality are produced as something specific” (p. 755). When theorizing space as a part of *spacetimemattering*, Barad connects to critical geographers Edward Soja, Henri Lefebvre, and David Harvey. I would add to this mix, Doreen Massey. All four of these critical geographers conceptualize space not as a container but

as a relation that is continually remade. Lefebvre argues that "space and society are mutually constituted and that space is an agent of change…it plays an active role in the unfolding of events" (as cited in Barad, 2007, p. 224). In the same vein, Massey writes that conceiving “space, as relational and as the sphere of multiplicity, is both an essential part of the character of, and perpetually reconfigured through, political engagement” (Massey, 2005, p. 183). Space is not static but an active participant in (re)configuring phenomenon. When analyzing the high school boundary process data, the researcher cannot ignore the space in which it occurs. But instead, it is active in shaping the process and practices of determining the new boundaries.

Adding to the dynamic and relational nature of space, Barad conceptualizes time as indeterminant and not linear. "A given particle can be in a state of indeterminately coexisting at multiple times – for example, yesterday, today, and tomorrow" (Barad, 2017, p. 67). The implication for my framework is that multiple possible histories coexist (Barad, 2017, p. 68). The past, present, and future of the school district, the community, and its particular geography are all at play within the high school boundary determination process. In addition to space and time, Barad conceives of "matter as a dynamic and shifting entanglement of relations, rather than a property" (Barad, 2007, p. 224). Matter is not static but is produced through the relation intra-action of time and space.

Topological Concerns

With this conception of a relational and productive *spacetimemattering*, Barad calls us to a different set of questions and a different type of analysis. Through this framework, "questions of size and shape (geometrical concerns) must be supplemented by and reevaluated in terms of, questions of boundary, connectivity, interiority, and

exteriority (topological concerns)" (Barad, 2007, p. 244). Barad calls for questions of a more topological nature born out of the mathematics of topology, a "mathematics of context, connectivity, and consistency" (Shields, 2013, p. 105). For example, according to Shields, if one created a map from a topological perspective, the "focus [is] on connections...The relationships are paramount rather than actual distances..." (Shields, 2013, p. 103). A map would emphasize where places connect or what place is inside or outside of a boundary instead of how far or close places are to each other. This change in perspective in a map shifts our emphasis from geometric to topologic concerns.

Researching within a topological framework then pushes the study in a different direction than the questions asked in much of the school boundary research and the education research that uses geographic information systems. Questions within this body of research are typically about the size, shape, and placement of the district's internal and external boundary line and the percentages of different races and ethnicities of students housed within schools. They also ask questions about how close or far students are from educational assets and opportunities or the lack of the assets close to the schools. These questions direct our understanding of solutions about segregation towards changing sizes and shapes of districts or how to move students from one location to another via busing or magnet schools. Questions of geometric concern potentially ignore underlying ideological and political issues that may lead us towards different solutions. The questions asked in these research projects are important, but as Barad says, they need to be supplemented by a different set of questions and different research aims.

Connection between Barad's Agential Realism and Critical Geography

Due to Barad's theorization of *spacetimemattering* using critical geographers, Barad's invitation for questions of a topological nature, Barad's call for transdisciplinary engagement in research, I put Barad's agential realism in continued conversation with critical geography. In addition, thinking with Barad and the concept of *spacetimemattering* does not allow the suburban geography and suburban community to remain a backdrop to the research study but instead becomes an integral and active part of the analysis. The same is true of the school boundaries themselves. Critical geography adds to this imperative because

> critical geography tends to focus primarily on people and their relationships to one another and how they create spaces and places, both physical and imagined, and the interaction between people and the ecological...At its core, critical geography conceives of space and place as simultaneously constructed and irrevocable material. (Gershon, 2017, p. 126)

Within critical geography, just like within Barad's agential realism, it emphasizes relationships between people and spaces and how the material and the discursive are not separate entities but instead mutually constitute realities. In addition, like Barad, who pushes back on the Cartesian notion of individualism, critical geography pushes back on the Cartesian notions of "geographic scale as a fixed, bounded, self-enclosed and pregiven container" (Brenner, 2001, p. 592). Instead, geographic scale is seen as being produced through "process, evolution, dynamism and sociopolitical contestation" (p. 592). Thus, the suburb's connection to the greater metropolitan area and the suburban school district, individual high school regions and particular neighborhoods are all in

relation, and their intra-action produces the particular characteristics and nuances of each space.

As Helfenbein and Buendía (2017) articulate in their critical geography in education framework, there is a "turn toward complexity within a critical geography that recongnizes that the study of the places we inhabit involves attention to forces at play, interaction, and the simultaneous blending of the discursive…and the material" (p. 32). Using Barad's (2007) concept of an apparatus in my analysis, which Barad defines as "material-discursive practices," is the tool to help attend to these geographic forces at play within LSCD and the boundary determination process (p. 141). The use of the apparatus as an analytic allows me to trace "the complexity of interaction between people and spaces" which Helfenbein and Buendía (2017) argue "provides a nuanced starting point for inquiry into the social" (p. 28).

Agential Realism, Critical Geography, Race, and Class

Part of the complexity of people and spaces is how race and class are entangled and implicated in these relationships. The role of race and class in suburban school settings is crucial to pay attention to in boundary research because these are the two areas in which suburban demographics are shifting significantly. These changes in the racial and socioeconomic composition in the suburbs impact the material and discursive reality of the suburban school district and the process and practices of changing school boundaries. Again, in Barad's (2007) theorization of *spacetimemattering*, she notes that it is important to explore "the dynamic and contingent materialization of space, time and bodies" and "the incorporation of material-social factors (including gender, race, sexuality, religion, and nationality, as well as class)" (p. 224). By studying these

relations, we can name some of the "agential possibilities and repsonsiblilties for reconfiguring the material realtions fo the world" that we must attend to in order to aid in the configuration of a more just reality (p. 224).

Critical geographers also note the importance of attending to race, class, gender, sexuality, religion, and nationality. Within this study, I focus on race, ethnicity, and class and the ways they are spatial related, and how all three continually intra-act with the boundary determination practices. Many critical geographers engage with how space is racialized (Pulido, 2015, 2017, 2018; Kobayashi & Peake, 2000; Gilmore, 2002). Kobasyshi and Peake (2000) write, "similarly, no geography is complete, no understanding of place or landscape comprehensive, without recognizing that American geography, both as discipline and as the spatial expression of American life, is racialized" (p. 392). Particular to this study are the ways in which the American suburb has been racialized and how notions of race and class have been constructed in this setting.

The same is true for capitalism's influence on cities and suburbs and how the spatialization of capitalism leads to a classed notion of space. One way the classed notions of space are manifested in everyday cities and suburbs is the way there is an "inequitable and unjust distribution of social resources across the space of the city" (Soja, 2010, p. 96). Race and class are also in relationship with each other and productive of our notion of certain groups of people or certain areas of cities. For example, the racialized and classed notion of the suburb is that it is majority white and wealthy. This idealized version of this space and this discursive and material understanding of the suburb informs the intra-actions of the community who resides in and around suburban American. To

continue thinking about race and the suburb together, I turn to the theorizing of Molina et al. (2019) and their theory of the relational formations of race.

Relational Formations of Race and the Suburbs

Molina et al.'s (2019) articulation of the relational formations of race is ontologically and epistemologically in resonance with Barad's agential realism. Both foreground the relationality of the material and discursive and the interdependence and entangled notions of race and class. As Michael Rodrígues-Muñiz (2019) explains, "A relational approach… does not presume the existence of independent, already formed groups" but "holds that ethnoracial boundaries, identities, and political affiliation do not precede, but rather are the *effect* of these relations" (p. 280). HoSang and Molina (2019) further explain a relational approach to the formations of race when stating,

> Race is not legible or significant outside a relational context. From this perspective, race does not define a person's characteristics; instead, it is better understood as the space and connections between people that structure and regulate their association. To inhabit, claim, or be ascribed to a particular racialized identity or grouping is to be located in an assemblage of historical and contemporary relationships. (pp. 6-7)

A final aspect that is important to thinking about the formation of race relationally is that it is not about comparison. Molina (2014) writes,

> By *relational*, I do not mean *comparative.* A comparative treatment of race compares and contrasts groups, treating them as independent of one another; a relational treatment recognizes that race is a mutually constitutive process and

attends to how, when, and to what extent groups intersect. It recognizes that there are limits to examining racialized groups in isolation. (p. 3)

This conception of the relational formation of race connects to Barad's philosophy of agential realism and specifically her concept of intra-action. Intra-action assumes that there are not independent agents that come together to interact, but instead, things emerge through their relations and intra-action. Similarly, a relational formation of race means our understanding of racialized groups emerge through the intra-actions of white, Black, Asian, Latinx, and Indigenous communities.

When thinking with a relational conception of ethnoracial identities, the context in which they live also becomes crucial to the formation. For this research study, the suburb, as a construct, structures and regulates relations between people and their associations. Racial and ethnic identities are formed in relation to the history and contemporary notions of the suburb. Including how people of the community intra-act with each other and the discursive and material notions of the suburb. The history of the majority white, racially segregated suburbs created through "racial zoning, restrictive covenants, mortgage redlining, blockbusting, steering, and a host of attendant practices" done "in order to have pure and homogeneous spaces" play a large role in how we come to understand and racialize the white and increasingly Black, Latinx and Asian bodies that inhabit the U.S. suburbs (Lipsitz, 2011, pp. 29-30).

With the demographic shifts in U.S. suburbs, the historically more homogeneous spaces are disrupted, and notions of who does and doesn't belong in these neighborhoods and schools are entangled with formations of race and ethnic identity, as well as class identity. In the case of the Lodge City suburb, the relational formation of the Latinx and

Asian communities is formed in relation to each other and to the ideal of whiteness that is pervasive in suburban spaces. These ethnoracial identities then become attached to particular spaces of the suburb and specific schools within the suburb, and the intra-action produces schools and spaces that are desirable and undesirable (Buendía & Ares, 2006). To help visualize and illustrate the formation of these relation racial patterns throughout the suburb, I turn to geographic information systems (GIS) as a method. Within this theoretical framework, I take a moment to articulate some of the assumptions I operate from to align the use of GIS within the relational ontoepistemology of Barad's agential realism, critical geography, and relational notions of race and class.

Use of Geographic Information Systems within a Relational Framework

To foreground the geographic complexity and race relations of the suburbs and the Lodge City School District, I turn to geographic information systems (GIS) to visualize the relationships and structural patterns at work within the school district and the boundary determination process. Often, GIS is used as a tool only in quantitative research. It is used as a way to model particular statistical analyses. But I think this approach to see it as only a quantitative instrument is a shortcoming. Mapping is much more than directions, distances, sizes, and shapes. As Barad (2007) called for a more topological approach to research that focuses on relationships and boundaries and what is interior or exterior to those relations and where the connection lies, GIS mapping can be a powerful tool to help visualize and analyze these topological concerns. Elwood and Cope (2009) articulate that the intersection of GIS and qualitative research integrates "multiple forms of evidence or ways of knowing, in order to explain how spatial knowledge, patterns, relationships, and interactions are produced, and with what sorts of social and

political impacts" (p. 4). It is from this articulation of GIS where my work extends—incorporating mapping with multiple forms of evidence to foreground the agential nature of the space in the practices and process of determining school boundaries.

To further frame my GIS use within this attendance boundary study, I draw from Vélez and Solózano's (2017) critical race spatial analysis (CRSA) framework. This framework brings together qualitative uses of GIS and the foregrounding of race using mapping and spatial analysis. This framework integrates both critical geography and critical race theories within the field of education and GIS. Vélez and Solórzano outline six tenants for CRSA, and I will focus on two of them most specifically: 1) "Challenging race-neutral representations of space" and 2) "Emphasizing maps…as a point of departure for analyzing the sociospatial relationship between race and space and refusing to allow maps to speak for themselves" (Vélez & Solórzano, 2017, p. 21).

First, I will challenge the race-neutral representation of space by tracking and incorporating the changes in the racial and ethnic composition of the district over time and how these demographic changes play a significant role in shaping the arguments for or against the new high school boundaries in LCSD. This concept of challenging the race-neutral representations of space also connects to Liévanos' (2019) work in Stockton, CA, and his theorization of the "relational racialization of space." He defines this as "the relational deployment of institutional actors and processes that organize residential settlements and the physical environment according to the perceived physical characteristics, behavior traits, and social value of hierarchically ordered social groups" (Liévanos, 2019, p. 228). One way Liévanos uses this concept in his analysis is by using "Luis Small's poignant observation that fixed physical boundaries are important tools in

socially differentiating and stratifying residential settlements" (p. 229). Therefore, in my analysis, I build on this work of Vélez and Solózano (2017), Liévanos (2019), and Small's (2004) work by using the fixed physical boundary of the major highway that runs through LCSD (Chapter 7). This highway disrupts the notion that the suburb is racially neutral and demonstrates how the communities and school district's relationship and intra-action with the highway differentiates and stratifies the community and school district.

Second, I use maps as a "point of departure for analyzing the sociospatial relationship between race and space." Maps are not an endpoint to the research but a means of building connections and illustrating relationships. Maps provide context and complexity, but they do not stand on their own. The use of GIS maps in this study is fully integrated into the analysis and is not meant to communicate an absolute truth. Instead, they are a tool to help illustrate the intra-actions present within the school boundary determination process to help articulate the differences and patterns present in the district and what matters to the practices as the boundaries change.

Summary

Barad's articulation of a relational ontoepistemology through agential realism is the overarching framework for studying the boundary change process in LSCD. This philosophical grounding and, in particular, her concept of the apparatus guide my choices for my research methods and analysis, as articulated in the next chapter.

CHAPTER IV

RESEARCH METHODOLOGY

Introduction

In this chapter, I begin by summarizing the epistemological and ontological assumptions in Barad's agential realism, critical geography's conception of space, and the assumptions in the relation formations of race. These assumptions guide the research design, data collection methods, and analysis. I collected data for the study of the LCSD boundary determination process from multiple sources. I base my analysis on Jackson and Mazzei's (2012) "thinking with theory," where I used the concept of the apparatus and spatial analysis to analyze the data collected for this study. I close this chapter articulating the limitations of interview data, demographic data, mapping, and the study's limitations as a whole.

Epistemological and Ontological Assumptions

Researching within Barad's agential realism requires the following assumptions. First, epistemology and ontology are not separate entities. Instead, Barad (2007) terms the two together as ontoepistemology or "the study of practices of knowing in being" (p. 185). This shift in the inseparable relationship between epistemology and ontology requires me to operate from a relational view of the world and not an individualistic view of the world. This relational reality shifts the research from uncovering the one true representation to instead focus on the practices enacted throughout the boundary process. It also requires me to foreground the spatial and temporal relationships as an integral part of the research process.

This relational view of ontoepistemology also extends into the conception of

space and spatial analysis. Via the lens of critical geography, space is not viewed as a container but as a relation that is continually remade. “Space and society are mutually constituted and that space plays an active role in the unfolding of events” (Barad, 2007, p. 224). Therefore, when conducting a spatial analysis via the use of mapping, I operate from the assumption of a topological use of maps. This means I view maps as a way to "focus on connections… Relationships are paramount rather than actual distances” (Shields, 2013, p. 103).

Finally, with a central contextual point of this study, changing suburban racial demographics, I also assume that racial categories are formed relationally and are not an inherent characteristic to any individual person. But instead, as Michael Rodrígues-Muñiz (2019) explains, "A relational approach… does not presume the existence of independent, already formed groups" but "holds that ethnoracial boundaries, identities, and political affiliation do not preced, but rather are the *effect* of these relations" (p. 280). In conclusion, I anchor this research study in a relational, non-individualistic conception of reality. Therefore, I prioritize questions about the process and practices occurring and what things are doing over questions of what things inherently are.

Research Design

To answer the overarching research questions: What are the boundary-making practices in a demographically changing suburban school district, and what do they produce? How do boundary-making practices matter? Do boundary-making practices cement long-standing inequities in school systems, or do boundary-making practices serve as a place to disrupt inequity? I studied the high school boundary determination process in Lodge City School District (LCSD) that occurred between Spring 2015 - Fall

2017. In the context of a Baradian agential realist framework, this process is a unique phenomenon. Barad (2007) defines phenomena as "specific material configurations of the world's becoming" (p. 91). Determining new attendance boundaries configures LCSD in particular ways. It creates new material and discursive relationships, which enact a different becomings for the school district and all those entangled with the school district and the new boundaries (i.e., students, teachers, staff, administrators, families, and community members.) In addition, according to Barad, phenomena are also a "*particular instance of wholeness*" (p. 117; emphasis in original). The changing of the high school boundaries has a sense of wholeness since the process is bound spatially and temporally. While never to be understood fully, there is a sense of what is internal and external to this phenomenon during the particular period in which I studied and also the bounded geography of the school district. It is essential to acknowledge that the boundary determination phenomenon is forever entangled with both the history, the present, and the future of this school district.

To study this particular phenomenon, I collected publicly posted data (e.g., meeting minutes, boundary map drafts, parent comments, letters, etc.) and conducted interviews with members of the boundary advisory committee and technical support team. Additionally, I researched the school district's historical boundaries, and I collected demographic and zoning information about the suburb and city in which the school district resides. I also collected data on future demographic predictions and growth projections of the school district.

Data and Participants

A large portion of my data is the publicly available data from the school district's

website, demographic data via various sources and databases like the Lodge City School District, the state department of education, the U.S. census, the American Community Survey, the Geolytics Neighborhood Change Database, the National Center for Education Statistics, and Region Land Information System (RLIS) Discovery, which provides spatial data for the Portland metropolitan area. The other study participants are the administrators and community members on the boundary advisory committee (BAC) and the BAC technical support team composed of employees from the district's central office. The LCSD school board charged the BAC with proposing the new high school boundaries for LCSD to the superintendent and school board. There were a total of 26 members between the BAC and the technical support team. I conducted interviews with eleven of these members to gain more insight into the boundary determination process in the LCSD.

Data Collection

I divided the data collection for this project into three phases of data collection. The first phase of data collection was gathering data for the LCSD website. The second phase was conducting interviews with the boundary advisory committee and technical team. The final stage was collecting demographic data from multiple sources to provide context for the study.

Phase 1: LCSD Website Data. The Lodge City School District published information on their website about the boundary changing process. LCSD created the website to keep the parents and local community informed about the high school boundary change process and was frequently updated. It included dates of public and committee meetings, minutes of these meetings, PowerPoint presentations from the

meetings, and the different iterations of the committee's boundary maps. Also, all community comments that were emailed to the district or handwritten at the meetings were posted online by the date of the comment. The superintendent's letters about the committee's progress and significant decisions were posted on the website, too. I downloaded all of the public data between October 25, 2017, or December 28, 2017, and took several screenshots to document the website if the district archived this specific boundary website from their primary school pages. This turned out to be necessary because the district overhauled its website in Spring 2019, and much of the information I originally downloaded is no longer publicly available on the new website.

Phase 2: Committee Interviews. The website listed the fifteen boundary advisory committee members who worked together to determine new high school attendance boundaries. Five principals, one from each high school and ten community members, two representatives for each district high school, were the people who comprised the BAC. A district technical team and an externally hired facilitator supported this team of fifteen. Between the committee, technical team, and facilitator, 26 were people involved in proposing the new boundaries to the superintendent. Of the 26 people involved, I interviewed 11 members. There were a variety of reasons for not being able to interview all 26 members. I interviewed two of the five principals. One principal had retired, one declined to be interviewed, and one never responded to the interview inquiry. I interviewed four of the eight technical team members. Of the four I did not interview, three had retired, and one declined to be interviewed. The outside facilitator had also retired.

The district protected the identity of the ten community members on the committee. The district did not allow me to contact them personally but emailed all ten members on my behalf. The email asked the community members to contact me if they were willing to be interviewed. From the district email, five of the ten community members contacted me and agreed to be interviewed. The remaining five did not contact me. Of the five community members I interviewed, I had representation from four out of the five high schools. For the high school that I did not interview a community representative, I interviewed the principal. Therefore, of the three people who represented each high school on the committee, I interviewed at least one person from each high school group, and for two of the high schools, I interviewed two people from their three-member team.

I conducted semi-structured interviews, which lasted from 30 minutes to 90 minutes. The principals and community members were all interviewed individually. I interviewed one technical team member individually, and I interviewed the remaining three technical team members as a group. I used the same set of questions to guide my interviews for the committee members and a second set of guiding questions for the technical team interviews (see Appendix A and B) In addition to interview questions and because of my desire to emphasize the spatial nature of boundaries, I also provided the maps of the district, before and after the boundary change (see Appendix C). I asked all participants to point out or circle the particular places within the district that were the most politically contentious during the process to determine the new boundaries. I also asked why they felt these areas are were hot spots. I held interviews in locations of the interviewees' choosing. Locations included coffee shops, office conference rooms, a high

school campus, and the school district's central office. I did not conduct follow-up interviews, but did email some technical team members asking for district data that people referred to within the interviews. The technical team also provided me with historical maps of the school district showing all of the different attendance boundary configurations since 1967.

The purpose of the interviews was to gain insight into the individual's, the committee's, and the district's process and practices around the boundary changes. This included how they processed all of the data they collected and what were the hard decisions they had to make to propose the final attendance boundaries. The emphasis of the interviews was to help inform the larger macro-social context that is entangled with the boundary-making practices. I audio recorded all interviews, took additional notes during and after the interviews and transcribed interviews after completion.

Phase 3: Demographic Data. In the third phase of data collection, I collected demographic data about LCSD from multiple sources. I collected this demographic data to produce maps via the use of the open-source software QGIS. The first set of data I collected was on the school district. The data I downloaded came from the school district, the Oregon Department of Education website, and the National Center for Education Statistic (NCES). This data provided student demographic data over a span of thirty years. This data offers contextual information on the different high schools in Lodge City to be able to compare and contrast school characteristics and whole district data. Some of this data provided the background for the district found in Chapter 1.

Specifically, I collected data about the student body composition and enrollment numbers of each high school as well as the school district as a whole from the 1990s to

the present. I collected this data from state school report cards and enrollment reports, NCES, internal district memos provided by the district's facilities planning coordinator, and two projection studies. The district contracted a nearby university to produce these projection studies for long-range district planning.

In addition to district data, I collected data from Geolytics Neighborhood Change Database and the National Historical Geographic Information System to gather historical census and American Community Survey (ACS) data on Lodge City and Carter County as a whole. The advantage of both of these databases is they provide the data in easily downloaded shapefiles to map the data via Geographic Information Systems (GIS). An additional advantage of the Geolytics Neighborhood Change Database is that it provides data from 1970 to 2010 that has been standardized into 2010 census tracts. This standardization allows for a better longitudinal comparison of a community because the census tracts' shapes are not changing every ten years. This data will provide a contextual understanding of the community populations surrounding the Lodge City schools over time.

The collection of all of these different data sources is to inform and eventually create new maps via QGIS that will inform the larger research project's analysis and findings. The maps collected and the interviews conducted will be data sources for the production of new maps to analyze the spatial, temporal, and racial relations of boundary-making practices.

Data Analysis

To analyze my data, I combine two different modes of data analysis. The first is Jackson and Mazzei's (2012) "thinking with theory" and use of analytic questions. The second is the use of spatial analysis via geographic information systems.

"Thinking with Theory." Jackson and Mazzei's (2012) "thinking with theory" as a mode of data analysis "challenge[s] qualitative researchers to use theory to think *with* their data (or use data to think *with* theory) in order to accomplish a reading of data that is both *within and against interpretivism"* (p. vi, emphasis in the original). To think with theory in my analysis, I draw on Barad's concept of an apparatus. In particular, I will use her concept of the apparatus to trace what the practices of redrawing boundaries produced within LCSD. Barad states that "apparatuses are not mere observing instruments but boundary-drawing practices—specific material (re)configurings of the world—which come to matter" (Barad, 2007, p. 140). By tracing two specific apparatus within the boundary determination phenomenon, I analyze the data to highlight ways that the LCSD community has been (re)configured through the boundary process and why these changes in boundaries matter.

The two specific apparatuses I identify within the boundary determination phenomenon are 1) the objectives and criteria set by the school board to guide the boundary process and 2) Highway 44, which runs through the school district. Both of these apparatus (re)configure the process in particular ways. By attending to these two specific apparatuses as a means of analysis, I name the ways in which these apparatuses intra-act with the committee, the community, and the particular spatial reality of the LCSD school districts.

In order to focus my analysis and trace the two apparatuses, I use analytic questions to guide the analysis. Jackson and Mazzei (2012) specify that analytic questions are made possible by the specific concept, in this case, the concept of the apparatus, and "emerge in the middle" of thinking with this concept and working with the data (p. 5). For each apparatus, two analytic questions emerged. In chapter 6, when working with the objective/criteria apparatus, the two analytic questions at work are:

> 1) How do the intra-actions between the objective/criteria apparatus, the BAC, and the community function to produce specific arguments and particular decisions about where to set the new boundary lines during the boundary determination process?
>
> 2) What was centered or interior to the decisions and what was excluded from the decisions, and how did this affect the final boundary lines?

In chapter 7, when working with Highway 44 as the apparatus, the two analytic questions at work are:

> 1) What effects did the intra-actions between Highway 44, the BAC, the community, and the geographic reality of the district produce during the boundary determination process?
>
> 2) Due to the highway apparatus, what was centered or interior to the decisions about the new high school boundaries, and what was excluded from the decisions?

Both sets of analytic questions and the data collected have a spatial dimension to them, as do Barad's theory of agential realism and the field of critical geography. To attend to the spatial dimension of the work, I employ spatial analysis via GIS to integrate the spatial

dimension throughout the analysis process. I describe my approach and use of GIS in the next section.

Spatial Analysis and GIS. Throughout this dissertation, there are many maps created to visualize the spatial nature of boundary work and the spatial nature of the interview and parent comment data. The creation of the maps emerged from the use of the analytic questions and noting throughout the data analysis where a spatial and geographic connection was involved. I created a majority of the maps using QGIS, an open sources mapping software. The district technical team or community members created a couple of the maps included in the dissertation, and I note this when these maps are included in the data. I used diverse sources for the maps, including the U.S. Census, American Community Survey (ACS) data, Oregon Department of Education Data, Oregon Spatial Data Library, the Lodge City School District, the Lodge City government website, and Zillow. When displaying information on the map, I used descriptive statistics, and in general, I displayed the data using equal intervals.

I used the maps throughout the analysis to make sense of what was being produced by the two apparatuses: the objective/criteria apparatus and the highway apparatus. The maps also help to visualize what is interior or exterior to the decision-making process and the characteristics of the district geography that continually intra-act with the apparatus, the BAC, the technical team, the community, and the boundary determination process.

Together, the use of Barad's (2007) concept of the apparatus, Jackson and Mazzei's instruction (2012) to use analytic questions, and the use of GIS software for

spatial analysis create a robust analysis process to make sense of what is produced through the high school boundary determination process in LCSD and why it matters.

Role of the Researcher

In line with Barad's notion of agential realism, as the researcher, I am an entangled part of my research. I cannot be positioned outside of the research as an objective observer. The research changes me, and I change the research. My history and experience are part of the research I conduct. Lenz Taguchi (2012) highlights that agential realism "requires us to engage in an event of reading and becoming-with (Harraway, 2008) the data, rather than reading it from a distance and as separate or apart from" (p. 272). She emphasizes that we, as researchers, are never separate. We can never be outside of our work but instead are always in a relationship with it and to it.

If I hold this to be the truth within my research context, then there needs to be some way to account for my "becoming-with," some way to be accountable to not falling into an interpretivist reading and analysis of the data. One way, and my research questions and data analysis plan help hold me to this, is to not "fall into the representational trap of trying to figure out what the interview [or other data] really means" (Lenz Taguchi, 2012, p. 269). In addition, it means resisting the separation of body and mind. To do this means paying attention to not only how my thoughts and ideas are changing throughout the study but also how other senses are reacting, changing, and experience throughout data gathering and data analysis. What is affecting/effecting me/them, and what am I/they in turn affecting/effecting?

But then here is the dilemma, since I am part of the entanglement, can I actually determine how I am effecting/affecting the research? Or by asking that question, am I

positioning myself outside and apart from the data? Exactly what I do not wish to do, nor can I do so, given my engagement with Barad and agential realism. While there is no easy answer, it is important to journal, document, write through the process about my thoughts, feelings, senses and have these journals become a part of the data, a part of the tracing. As noted before, this research is always partial and always could be otherwise.

Limitations of the Data, Data Representation, and Research Study

Limitations of Interview Data

In qualitative research, interview data is often a prime source of data. As Mazzei and Jackson (2012) write, "approaches to qualitative inquiry frequently privilege voice because it has been assumed that voice can speak the truth of consciousness and experience" (p. 745). Unfortunately, interviews and public comment are limited by the relationship the researcher has with their participants, what the participants choose to share or choose to conceal, and limitations of their memory when reflecting on past experiences. Participants voice is also influenced and confined by circulating discourses, the politics of the geography, and other people they are in relationship with. Because of these limitations, when using interview and public comment data, I "*think with theory* as a guard against being seduced by the desire to create a coherent and interesting narrative that does little to challenge hegemonic discourses and (over)simplified knowledge claims" (p. 745).

Limitations of Demographic Data

As I gathered demographic data via the U.S. Census, ACS, district enrollment reports, and NCES for the school district and the surrounding suburban area, I was careful, considerate, and critical of how I chose to record, account for, present, and map

demographic data particularly when it comes to racial and ethnic data. As mentioned in Chapter 1, the two largest racial/ethnic groups growing within the school district are Latinx and Asian populations. When I gathered data in such broad categories, it ignores and distorts many of the complexities found within these heterogeneous groups. Lopez (2003) writes, "Census data are a valuable resource because they document the entire U.S. population—at least in theory. However, they are limited in their scope because like other data sets, they are bounded by the response options provided, question formatting, and other factors" (p. 26). The limitations for the response options for race and ethnicity are particularly binding. When thinking with Barad, the census is an apparatus that produces specific, definable properties while excluding others.

Further complicating racial/ethnic demographic data is how racial and demographic data is collected by NCES and by the Oregon Department of Education for testing purposes. When school enrollment for Oregon is reported to NCES, the following racial/ethnic categories are used: American Indian/Alaska Native, Asian, Black, Hispanic, Native Hawaiian/Pacific Islander, White, Two or More Races. Within these categories, there are differences from the U.S. Census. First, in contrast to census data, race and ethnicity are merged in school enrollment data. School districts treat the category Hispanic/Latinx as a racial category. In school data, students who identify as Hispanic/Latinx are not included in the other racial categories as they would be in Census data. Students are not reported as white with Hispanic origin or black with Hispanic origin, etc., within school enrollment reports. They are classified as exclusively Hispanic/Latinx. This creates a challenge when working with both U.S. Census data and school enrollment data. Therefore, I note my data source for each map throughout but

know there are some differences in categorization, whether it is from census data or department of education data.

One thing I am unable to attend to in this dissertation is the intersection of race, social class, citizenship status, and religion. Irizarry (2015) raised the point that citizenship status and religion play a role in how students are racialized. Citizenship status and religion are data points that are not collected through standard school data collection. Schools are required to educate students in their attendance area regardless of citizenship status or religion. Therefore, citizenship status and religion are not attended to in this dissertation but would be an area of further scholarship in the future about how citizenship status and religion influence school boundaries and the desirability of certain public schools.

Limitations to Maps

Throughout this dissertation, I use a significant number of maps to represent data spatially. Maps help us to visualize patterns that occur across space. I also want to acknowledge the limitation of maps. Two-dimensional maps are static. They do not show the ongoing dynamics and reconfigurations that are constantly occurring in a place. In addition, maps have been very destructive throughout time, playing an active role in ongoing colonization and an integral part of the systemic racism in housing in the U.S. Although maps can be employed in harmful ways, they also help analyze the structural patterns formed in distinct geographic areas and provide needed geographic information to inform policy and practice.

Limitations of the Overall Research Study

We can learn a lot from an in-depth study of a specific phenomenon situated in a

particular place, space, and time. Even so, research is always partial. Choices and cuts are always part of the research process. Therefore, it can always be otherwise. My research in LCSD is limited by the agential cuts I consciously made, like my choice in overall research questions, my choice to interview the committee, my choice to analyze via the apparatuses of the objectives and criteria, and Highway 44, and my choice of particular analytic questions. These cuts all shape and configure the research analysis and story in specific ways. The research is also made by the agential cuts that I do not control. The cuts made by participants. The cuts made by other apparatuses operating within the phenomenon that I did not attend to. Thus, the narrative about the boundary process in LCSD could be otherwise. I or others could reanalyze the data and come to different conclusions. Research is dynamic, but learnings are to be gained in each iteration of analysis and with each reading of the data. While I don't claim my findings to be all-encompassing, they are no less real and have value in what educators and policymakers can do differently in the future when determining new school boundaries or school assignment policies.

Summary

In studying LCSD's boundary determination process, I grounded my methodology in a relational framework using Barad's agential realism, critical geography, and relational formations of race. I collected interview data from the boundary advisory committee and technical team members about the process alongside public comment data and demographic data about the city and district. I then analyzed my data through the tracing of two apparatuses in conjunction with spatial analysis vis GIS.

In the following three chapters, you will see the presentation and analysis of the data collected to study the boundary determination process in LCSD. I base these three chapters on the interviews, publically posted website data, and demographic data I collected over several months as a part of my research design. The next chapter, Chapter 5, presents a narrative account of the LCSD boundary determination process to provide a foundation for researchers to grasp better the two analysis chapters that put to work Barad's (2007) concept of the apparatus. (Chapter 6 &7). In Chapter 6, I analyze the data by tracing the effects of the objective/criteria apparatus. In Chapter 7, I analyze the data by tracing the effect of the Highway 44 apparatus. I follow these three data and analysis chapters with a chapter on my findings and the study's implications for theory, practice, and policy.

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CHAPTER V

DESCRIPTION OF LCSD'S PROCESS OF DETERMINING NEW HIGH SCHOOL BOUNDARIES

Introduction

In this chapter, I describe the Lodge City School District boundary determination process. This process established boundaries for a new high school when the new high school opened in September 2017. The school district moved from five high schools to six high schools, thus precipitating the need to redraw the attendance boundaries. This chapter aims to provide a descriptive overview of the process to provide the reader context for the two analysis chapters that follow. I begin this chapter with a timeline of the process (see Figure 7) and then write a chronological narrative of the boundary process. Key players in the boundary determination process are the Boundary Advisory Committee (BAC), the district technical team comprised of district administrators, the superintendent, and the school board. The community also provided much input into the process through email and two public input meetings.

Bond Measure and Policy JC

In the Lodge City School District (LCSD), the process of changing the high school boundaries began with the passing of a bond in 2014 that was allocated for the building of a new high school. The decision to raise funds to build a new high school was based on long-term school enrollment projections and the current overcrowding at two high schools in LCSD. The community voted for and passed the bond measure for the funds to build the new school. At the time of the bond, the district disclosed that they would build the new high school on land in the southwest corner of the district. The

Figure 7

Timeline of High School Boundary Determination Process in LCSD

district secured the land in this southern corner of the district in 2013 through an eminent domain lawsuit.

As the high school construction began, the school board created guidelines for how to determine new high school attendance boundaries and how to form the committee that would determine these boundaries. The district Policy JC guides the overall boundary process. In Oregon, all school board policies about school assignment policies and boundaries are known as Policy JC. The LCSD school board initially created this policy in March of 1980, and they have revised and readopted it several times over the years. For this set of high school boundary changes, the school board revised and readopted the policy on May 18, 2015.

An essential piece of the policy that guided the boundary determining process of the district was that "on any adjustment process involving three or more schools at one level, the District shall form an advisory committee to assist in applying the criteria and evaluating proposed adjustments" (Board JC Policy, 2015). The committee's role is to assist the superintendent in determining new boundaries. Ultimately, the superintendent proposes the new boundaries to the school board, who review them and decide whether to approve the recommended boundaries.

Before forming the committee, the superintendent and school board must determine and approve the adjustment process's objectives. In the case of the high school boundary adjustments, on June 1, 2015, the two objectives agreed upon by the superintendent and the school board were: Relieve current and projected future overcrowding (five years out), targeting capacity rates of 90% and to minimize transitions for students.

Another important piece of policy JC was the criteria the superintendent and committee could consider when making the adjustments. The primary criteria were "availability of space, proximity to school, safety, and neighborhood unity. Whenever possible, neighborhood areas, particularly at the elementary level, should be retained within a single attendance boundary." The secondary set of criteria the BAC could consider were "transportation costs, student body composition, staffing patterns, feeder school alignment, and the efficient and economical utilization of the buildings" (Board JC policy, 2015). Based on the objectives and the criteria, the committee would create a recommended set of new high school boundaries. The superintendent would evaluate the proposed boundaries on all of the criteria and approve or disapprove them. If approved by the superintendent, the board would then evaluate them on the same criteria to "ensure that (1) the set of objectives approved by the Board at the outset were met; and (2) the superintendent applied the relevant criteria" (Board JC Policy, 2015). If the board deems that the recommended attendance boundaries met the objectives and criteria, the adjustments will be approved. The new boundaries will be set and the transition plan approved for Fall 2017.

Boundary Advisory Committee Formation & District Technical Team

After the school board updated the policy and set the objectives, the high school boundary adjustment involved more than three schools' boundaries. In this case, the boundaries of all of the five current high schools would change. Therefore, the district formed a boundary advisory committee (BAC). The district decided to comprise the committee with the current principal from all five high schools and two community members from each of the five high schools. The district publicized the committee's

forming, and each of the principals publicized it to their specific community. Community members who were interested emailed or called the principals to let them know they were interested. The five high schools' principals chose which two community members they would work with to represent their schools. In total, there were 15 members on the Boundary Advisory Committee (BAC) for this adjustment process. In addition to the committee, the district hired an outside moderator to run the meetings and guide the process.

A technical team of employees from the district's central office also advised the BAC. The technical team included deputy superintendents, the director of facilities, the director of transportation, the communications officer, the facilities planning coordinator, and administrative support. The technical team's role was to support the boundary advisory committee with data to inform the BAC's decision. Examples of data the technical team provided were facility capacity, transportation costs, demographics of the school, number of students in a given neighborhood, etc. The technical team was also in charge of communicating to the broader district about the committee's progress and receiving and organizing the public comments sent to the district by the LCSD community. After these comments were received and organized, the technical team forwarded them to the committee members to read and process. The technical team also created the starting boundary maps and the revised boundary maps throughout the process.

Boundary Advisory Committee Meetings

The BAC began meeting soon after they were selected. These committee meetings occurred approximately twice a month from October 15, 2015, through March

17, 2016. Throughout the process, there were two types of meetings. The first type was working committee meetings, and the second type was a public preview meeting with community interaction and feedback. The committee working sessions took place in a conference room at the district's central office. All working meetings were open to the public. The committee at tables in the district conference room and community members who attended the meetings would observe from the chairs surrounding the tables. The public attendees didn't have any direct interaction with the committee at most of the meetings. At most meetings, they were observers and could submit their input only through writing.

The two public preview meetings took place at two different locations. The district held the first was a public boundary preview meeting at a district middle school. At this preview meeting, committee members sat in different groups at tables in the cafeteria. Maps of the proposed changes to the high school boundaries were on display throughout the room. The public could ask BAC members questions or express their opinions on the high school boundaries changes. The second meeting with the community interaction was a meeting late in the process where the BAC presented the final boundary adjustments. The BAC sat up on a stage, and the public had 2 minutes to come up to the microphone and share their thoughts. The committee did not directly respond to their comments at this meeting; they just listened.

Description of the Working Meetings

At the first couple of working meetings, the committee established working agreements about conducting the process. The technical team provided them with the district's objectives: 90% capacity at the high schools and minimizing transitions. They

were also provided background information on the high schools (i.e., the student capacity of each building, current enrollment numbers, projected enrollment numbers, racial/ethnic makeup of the schools, free and reduced lunch rates of the schools, etc.) and also provided information about projected population growth and new housing developments in different parts of the district.

The technical team provided the BAC with a springboard map to serve as a starting point for determining the new boundaries. The district technical team developed the springboard map at the recommendation of the outside facilitator. The springboard map took the five high school district boundary map and carved out space for an attendance boundary for the new high school. Another map shown to the BAC at these early meetings was a map of what the high school attendance boundaries might look like if the free and reduced lunch population was evenly distributed between the high schools. In addition to the free and reduced lunch map, demographic statistics of both the racial/ethnic composition of each high school student body and the free and reduced lunch rates of each high school accompanied the springboard map.

Once the BAC had district background information and had established working agreements, they worked in five small groups consisting of the three members representing each high school to make potential adjustments to the maps. They had paper maps that had small sections showing the number of students that resided in those sections. They would move different sections from the springboard map to various high school boundary areas to redistribute the student population. The district's facilities planning coordinator also had a computer at the meetings with ArcGIS software and the School Redistricting Suite on the computer. This would allow him to test out the

committee's ideas for moving different portions/neighborhood sections to different high school attendance boundaries. When making the adjustment in ArcGIS, the BAC would know the new enrollment numbers of the high schools and the change to the racial/ethnic demographics, and free and reduced lunch numbers at each high school.

Per the BAC's working agreements, once a small group, usually comprised of the three members from a particular school, would want to propose a change, they would have to talk to the committee members of the other school that it would affect. If those small groups agreed, then they could propose a change to the whole committee. For a change to be approved, 11 members had to approve of the change, and at least one person from each of the different high school groups had to approve of the change. If one entire high school group did not agree with the change, the BAC could not make the change. Additionally, to make a change, at least one member from each high school group had to agree to the change. This prevented committee members from outvoting one entire high school group.

Each time the BAC changed the springboard map, the facility planner would make a new learning map between the meetings. The learning map would provide the BAC with data on what would happen if they made the particular changes they discussed became permanent. As the meetings continued, the BAC began to make changes from the new learning maps instead of the original springboard maps. The committee continued to make incremental changes to the high school boundaries until they came to their final boundary recommendation map in March 2015.

District Communication and Community Input throughout the Boundary Process

As the BAC met, the district technical team updated a boundary website to keep the public informed. The district posted the time and location for each meeting, the meeting minutes, and each variation of the high school boundary map on the district website. If the BAC used any power points or other informational documents, the technical team also posted these on the district's website. Since the public did not have a way to directly communicate with the BAC at most meetings, they had the opportunity to email into the district or write down comments at the meetings and leave them with the communication director. The technical team also publically posted all of the emails and written comments to the district boundary website. Overall there were more than 2000 emails from the community submitted to the district over the course of the boundary change process.

Student Transition Plan

In addition to new high school boundaries, LCSD charged the BAC with determining students' transition plans. This plan would guide who would have to move schools and when. The plan started from the agreement that students that were to be seniors when the district implemented the new boundaries would not have to move high schools, but it was up to the committee to determine how and when other students would have to move. The BAC began discussing the transition plan towards the end of the boundary process. The first discussion focused on the transition plan took place at the February meetings.

A district deputy superintendent gave a presentation to the BAC to begin the transition plan discussion. He provided the committee with a summary of many community comments regarding students transitioning to another high school, which

included the district's stance on AP vs. IB schools since that was a considerable concern of parents. The deputy superintendents also summarized different potential proposals based on suggestions from community members. The committee proposed various plans, and a final plan was defined and determined at the March 17 meeting and presented to the superintendent with the final boundary recommendation. The BAC made their high school boundary plan and transition plan recommendations to the superintendent at the meeting on March 17, 2016. The presentation of the recommendations to the superintendent was the final task of the BAC and concluded their work and role in the boundary determination process.

Final BAC Boundary Recommendations and School Board Rejection

Upon receiving the recommended new high school boundaries and transition plan from the BAC, the superintendent evaluated the new boundary map and transition plan according to all of the different criteria in the JC policy and the objectives set forth by the board. The superintendent wrote up a report for the school board, outlining why he supported both the BAC's transition plan and new high school boundaries. The superintendent recommended the high school boundaries and transition to the school board on April 25, 2016.

After the school board reviewed the superintendent's report and recommendation at the school board meeting on May 16, 2016, the school board accepted the transition plan but rejected the boundaries the BAC recommended. They rejected it based on the criteria of proximity to schools and transportation. The school board wanted the district to do more research in these two areas.

Further District Research and School Board of Approval of Revised Boundaries

At the point of presenting recommendations to the school board, the BAC committee's work was complete. When the school board rejected the boundaries, it did not go back to the BAC to research and revise them. Instead, the district technical team and superintendent would conduct the research and adjust the high school boundary map. To further upend the process, the superintendent of the school district left. The district named an interim for a short time, and then a new superintendent was quickly named. Ultimately, the new superintendent was the one who guided further research on transportation and proximity to schools to inform the final set of new high school boundaries.

After the research, the technical team created a revised high school boundary map. After the technical team created this new boundary map, the district held listening meetings of the new and updated boundary map at each of the five high schools. These listening meetings allowed one last round of meetings for the community to voice their thoughts, concerns, or support of the new boundaries. The district held these meetings in the Fall of 2016 between September 12-26, 2016. After these meetings, the superintendent considered the comments, and the superintendent wrote his recommendation to the school board on October 17, 2016. This time the school board accepted the changed boundaries from the original BAC recommendation. The school board approved the new high school boundaries on October 17, 2016. The approved high school boundaries and transition plan went into effect the following school year, fall of 2017.

CHAPTER VI

OBJECTIVE/CRITERIA APPARATUS

Introduction

In the following two chapters, I analyze the data I collected in my study of the LCSD boundary determination process. In each chapter, I trace a particular apparatus and its effects on the process and how it (re)configured the process and the final boundaries. In Chapter 6, I trace the effects and the doings of the objective/criteria apparatus. In Chapter 7, I trace the effects and the doings of the Highway 44 apparatus. I structure both chapters with two distinct halves of the chapter. The first half of each chapter focuses on the intra-actions of the apparatus and the boundary advisory committee, which prioritizes the data collected through the interviews I conducted with the boundary advisory committee and the district technical team. In the second half of each chapter, I focus on the intra-action of the apparatus and the larger LCSD community. This prioritized the parent and community comment data posted to the LCSD website throughout the process. Woven through all parts of the chapters are tables and GIS mapping to provide context and spatial analysis to add to the complexity and to name what the apparatuses produced in conjunction with the spatial reality of the Lodge City School District.

In Chapter 6, I begin by introducing and theorizing why the objective and criteria set by the district school board function as an apparatus. I then trace the intra-actions of the objective/criteria apparatus and the BAC. Next, I trace the intra-actions of the objective/criteria apparatus and the LCSD community. I concluded by articulating the main ways the objective/criteria apparatus functioned throughout this process.

Objective/Criteria Apparatus

A primary apparatus functioning within the phenomena to redraw the high school attendance boundaries in LCSD are the objectives and criteria the school board set to guide the boundary advisory committee's (BAC) decision-making process. Before the committee began meeting, the school board and superintendent determined two objectives and nine different criteria to guide the boundary determination process. I discuss the details of the objectives and criteria below. Because the objectives and criteria functioned in tandem throughout the process, I name it the objective/criteria apparatus. As a reminder, Policy JC[12] required the school board to set objectives for this particular boundary adjustment and communicate the decision criteria to meet the objectives. The two objectives were:

1. Relieve current and projected future overcrowding targeting capacity rates of 90% and;
2. Minimize transition for students.

The decision criteria to meet these two objectives from Policy JC are displayed in Table 5.

The set objectives and criteria function as an apparatus because they draw boundaries around what the BAC should and should not consider when constructing the new high school boundaries. The objective/criteria apparatus makes specific agential cuts that render some potential new boundary lines possible and others impossible in order to meet the set objectives and criteria. The apparatus makes cuts that determine what becomes interior and exterior to the conversation and decision making process amongst

[12] The JC in Policy JC does not stand for anything in particular. All school board policies in Oregon are given two letter codes that are similar across school districts. Therefore, all school board policies with the code JC are about school boundaries and school assignment policies in the different Oregon school districts.

Table 5

Decision Criteria for the 2016 High School Boundary Change Process

Policy JC Criteria	
Primary Criteria	Secondary Criteria
Availability of space	Transportation costs
Proximity to school	Student body composition
Safety	Staffing patterns
Neighborhood unity	Feeder school alignment
	Efficient and economical utilization of buildings

the boundary committee, the technical team, and the wider district community invested in the changes. These cuts render some conversations as likely and within the available discourse, whereas other conversations are impossible and are situated outside the bounds of the current circulating discourse. The objective/criteria apparatus also pushes the boundary conversation in a particular direction. Additionally, the apparatus shapes what parents, students, and community members write in their emails and handwritten comments to the committee and district administration. It shapes the committee's arguments and final decisions about the new high school boundaries and why the school board ultimately rejects the set of boundaries the BAC recommends. The objective/criteria apparatus intra-acts and configures both the circulating discourse within the boundary process and the LC school district and intra-acts with the physical material reality of the set of boundary lines being moved.

In this section of the analysis, I will be thinking with the following analytic questions:

1) How do the intra-actions between objective/criteria apparatus, the BAC, and the community function to produce specific arguments and particular decisions about where to set the new boundary lines during the boundary determination process?

2) What was centered or interior to the decisions and what was excluded from the decisions and how did this affect the final boundary lines?

I will first trace the effects of the objective/criteria apparatus and the boundary advisory committee. Second, I trace the effects of the objective/criteria apparatus and the parents. I will end the chapter by providing a short conclusion of the two different groups' intra-actions with the objective/criteria apparatus. I address the implications based on the findings from these intra-actions in the final dissertation chapter.

Objective/Criteria Apparatus and the BAC

It is important to note, the objective/criteria apparatus is not a neutral entity. This is the nature of an apparatus. It enacts different agential cuts through its intra-actions with the committee, the school district, the geography, and all that is entangled with the boundary determination phenomena. As researcher Carol Taylor (2016) notes, "Agential cuts are made (sometime by humans, sometimes not) which instantiate boundaries, produce properties, and deliver differentiation, all while remaining entangled as phenomena within apparatuses" (p. 209). These cuts make particular decisions about boundary line changes possible and other decisions impossible and define both the boundaries and the decisions in particular ways. The intra-actions of the

objectives/criteria apparatus and the BAC constrain the decisions of the BAC in specific ways. When discussing the objectives and criteria with the committee members, most BAC members agreed that objectives and criteria were necessary and were open to the idea of making their decisions within a particular framework. As one BAC member who represented one of the district's central high schools recalled,

> I think setting the goals was a really good idea. It kind of gave us, everybody a guideline to what we were working towards. Cause really wasn't, it wouldn't have been fair to ask us to come up with those guidelines. We needed to know what we were working under. So I think it really set the table for a good framework.

The member felt that since they were working for the school district, it was good that the superintendent and the school board had set the goals that the committee would be working towards for the final boundary map. From the beginning, the provided framework informed committee members that they would work to reduce the overcrowding at some of the high schools and keep transitions for students to a minimum. The BAC member also noted the benefit of being provided a framework. They acknowledged that the district created boundaries for their decision-making process and provided a particular direction toward which they should work.

In addition to the capacity and transition goals, another BAC member, who represented one of the northern high schools, addressed the additional criteria the BAC was to use. He said, "I liked having the criteria for us...because it was good to look at those... and that's a good lens to look through what we are doing." This member appreciated that the criteria were a reference point throughout the process. The criteria provided a way to check-in and evaluate if their decisions aligned with the district's

goals. The BAC members appreciated that their decisions were bound. Not any move of the boundary lines was permissible. The purpose of the objectives and criteria was to create a bounded frame in which they worked and allowed specific configurations to be possible and others to be impossible. This is the function of an apparatus. By design, the objective/criteria apparatus allows for certain solutions and precludes others. From the outset, because of the particular objective/criteria apparatus that was in place for this specific process, only certain high school boundary lines would be possible.

Narrowing Focus: Capacity over Transitions

As the committee continued to make decisions produced through their intra-action with the objective/criteria apparatus, the effects of the apparatus unfolded in distinct ways. The apparatus-committee intra-action produced an effect of narrowing the committee's focus. One BAC member recollected, "We were probably more focused on capacity of schools…We really had to make sure we had the right amount of population in each school. That probably did take precedence over everything else." Another member echoed this same sentiment, "We probably in hindsight should have gone back and spent more on number two. We did the first one about capacity. We spent a lot on capacity…"

Throughout the process, the BAC had ten working meetings and spent time on the transition piece at three of the ten meetings. The BAC discussed capacity at all ten meetings. Of the two objectives set forth by the committee, the capacity of the schools became more important to the committee than minimizing student transitions. The committee focused more on moving the boundaries, making sure the new school had enough students, and removing students from the two schools in the north. Through the

intra-action of the committee and objective/criteria apparatus, the focus shifted towards one objective over the other. In order to achieve the capacity goal, many students would have to change schools. Thus, the two objectives were in conflict. Therefore, the contradictions did not allow for the possibility of attending to both objectives equally. Thus, once the apparatus was put in use by the committee and intra-acted with the committee, the boundary process and agential cut occurred, prioritizing capacity over transition.

Lack of Definition

Another effect produced through the intra-action of the objective/criteria apparatus and the committee was issues created by the lack of refinement of the apparatus. The nine criteria that are a part of the apparatus were not well defined. One committee member said: "I think at the very beginning of our process, the criteria for the boundaries were kind of nebulous." Another stated, "You gave me all these criteria. You didn't define any of 'em. You didn't weight 'em." The committee reflected on different questions they asked of themselves and each other during the process. Here are some examples of what the objective/criteria apparatus left the various BAC members wondering as they were trying to apply the criteria to the potential boundary changes:

> Example 1: "We were like what does this mean? What does school safety mean? What does... you know?"
>
> Example 2: "So one of them was keep a community together. [Sigh] What is a community?"
>
> Example 3: "They say we want to minimize transitions for students. Okay, what does that mean? What does minimize…first of all, what does minimize mean?

> What does transition mean? Are we minimizing transition in terms of we want to let a kid finish where they started high school? So we don't force them to change. Are we…cause that's not what we had done in previous years."

The committee became frustrated that the criteria were not well defined. This lack of definition made the criteria hard to implement and use as a guide. Ultimately, this vagueness created issues throughout the decision-making process. As the BAC attempted to put the objective/criteria apparatus into practice, it produced a frustrated committee instead of a committee with clarity about potential boundary decisions. According to Barad (2007), apparatuses are supposed to create specific cuts that determine what comes to matter. However, the objective/criteria apparatus was not refined enough and seemed to muddle what mattered beyond reducing the capacity of the overcrowded school instead of providing clarity. Therefore, the lack of definition in the other criteria also added to the effect of narrowing the committee's focus on the capacity of the schools since this objective was the most precisely defined with the goal of 90% capacity at each high school.

Not prioritized or ranked

In addition to the lack of definition of the objective/criteria apparatus producing a frustrated BAC, so did the lack of prioritization of the criteria. The committee expressed in interviews that they wished the objectives and criteria had been prioritized and ranked. One committee member recalled, "that's what we would ask. Can you prioritize to us what's more important? And they never really gave us a firm directive on that." Multiple committee members expressed frustration without a direct answer from the district.

Because there was no explicit priority amongst the criteria, multiple committee members articulated what the intra-action of the committee and the unranked criteria produced. One committee member who represented a high school in the central part of the district said,

> The other thing was they gave us a set of criteria. Um, which were — so hard. Because they left so much up to individual interpretation. They were not weighted. This one more important than this one. So it was up to each person, each group, whatever, to decide what you felt was the more important criteria. They were not— because they weren't weighted.

Another committee member who represented a high school in the northern part of the district echoed these same sentiments and articulated more specifically how he perceived the individual prioritizing of criteria played out amongst the different BAC members:

> Committee member: What happened is, caused I believed wholeheartedly that I wanted to keep [Spruce HS] extremely diverse, I was willing to say I'll keep 100 more kids, if that means that they're from this neighborhood[13]. And we maintain that diversity perspective. Um, but then you would have another school, that would be like, no we got to, I can't do that. I've got to relieve my capacity. So, you see what I am saying? You know, depending on who you are, and committee —
>
> Researcher: When they are not weighted, you can kind of bring your priority into it.

[13] The neighborhood he was referring to in this quote has a higher percentage of Latinx students then other neighborhoods in the area. It was also an area that had families of lower socioeconomic status than other neighborhoods in the area.

> Committee member: Correct, correct. I think, you just, and we — that would help um, cause it's a natural piece to want to advocate for your own building. And so I think that would help from a global perspective. Yeah, it is about [Spruce], but you've also got to think about, you know all the other schools as well. So I think that would definitely of helped.

As seen in these last two quotes, not only does the objective/criteria apparatus make cuts about what is and is not a part of the boundary decisions, so do the committee members. In their intra-actions with the objective/criteria apparatus, the committee members begin to make their agential cuts and thus began to reshape the original objective/criteria apparatus to fit their priorities. Because the original objective/criteria apparatus produced frustration and ambiguity amongst the BAC, the committee members begin to reshape and revise the apparatus. Through their prioritization of some criteria over other criteria, they create a new apparatus to make their decisions about the high school boundaries.

Although certain BAC members intra-act and reshape the criteria to shift and shape towards their priorities, the objective/criteria apparatus pushes back through its intra-actions with other members of the BAC. As the previous quote stated, the BAC member wanted to "maintain that diversity perspective. Um, but then you would have another school, that would be like, no we got to, I can't do that. I've got to relieve my capacity." Here the objective/criteria apparatus reinserts itself, preventing the decision-making from going too far in one particular direction. The focus on producing a "diverse" school body was tampered with by the need to reduce the overall number of students at another high school.

A third committee member who represented one of the high schools in the central part of the district described how he prioritized the criteria and thus changed the original objective/criteria apparatus. Consistent with the quote above, he also prioritized student body composition but defined this criterion differently than the previous member. For him, the socioeconomic composition of the school mattered more than the racial/ethnic composition of the school.

> Certain people glommed onto certain criteria. For me, it was student body composition. We cannot create two high schools that have 70% free and reduced lunch and the other having 9, 11, 15%...I was criticized pretty openly on social media because I was pretty open about the fact that that was my top criteria. You gave me all these criteria. You didn't define any of 'em. You didn't weight 'em. Well, I choose that one. That's my top. And so, the moves that I suggested, the moves that I put forward, the ideas that I was in favor of, all came back to that.

In this example, the committee member is the agent enacting a specific cut. His cut redefines and reorganizes the original objective/criteria apparatus. He based his new apparatus on the socioeconomic composition of the high schools are. For him, the geographic distribution of class across the district becomes the interior criteria to his decision-making practices. He cuts out all other criteria and thus produced a different set of boundaries than if he prioritized other criteria. The intra-action of the committee member and the original objective/criteria apparatus and frustration ultimately resulted in him putting a new apparatus to use in the boundary decisions.

Again, all three of these committee members articulate that as a consequence of this non-prioritization individual committee members or school groups ranked the criteria

based on the committee member's personal history or the needs of the school they represented. Since the school board or district administrators did not give a firm directive on the weight of the criteria or objectives, decisions became more influenced by personal experience and preference. These decisions by individual committee members then alter the original objective/criteria apparatus, which ultimately affected the possible final boundary lines.

Two of the committee members prioritized the criteria of student body composition over the other objectives and criteria. For the committee member representing a northern school, having a school with both racial and socioeconomic diversity was more important than hitting the 90% capacity number. But he admitted to receiving push back from other committee members who felt that the capacity objective should override the student composition of the school. The committee member representing a central area school prioritized the socioeconomic make-up of the student bodies at each high school as the criteria to make his decisions. He felt this was a greater priority than capacity or the racial/ethnic make-up of the school.

The committee members highlight how the criteria intra-acted with their personal leanings and priorities and thus alter the apparatus itself and ultimately the possible outcome for the boundaries. The intra-action between the objective/criteria apparatus, the lack of prioritization by the district, and their ideologies altered what possible decisions about the boundaries were available. As in the last quote, since the committee member modified his objective/criteria apparatus to solely focus on the schools' socioeconomic make-up, a move of the boundary lines that further concentrates rich and poor students

into separate schools was impossible moves to make. His apparatus did not allow for this to be a possibility.

To further understand what is happening, Barad theorizes that changing an apparatus changes the effects and outcomes and thus, changes the potential possibilities. Therefore, I can infer that if the district had ranked the criteria, the objective/criteria apparatus is different, and thus the outcome of the boundaries would have been different. The non-ranking of the criteria opened up the possibility of personal history to play an even more significant role in the decision-making process than it might have been if the school board ranked the criteria. Ultimately, the intra-action of the individual committee members with the objective/criteria apparatus altered the apparatus for each individual and shaped the way each committee member interpreted and argued for particular changes to the high school boundaries—Barad (2007) names this "iterative intra-activity" (p. 238). The process is dynamic, and the structures –the apparatus and the high school boundary are constantly being remade.

District Definitions: Too little, too late

Eventually, the district did answer the committee's plea to provide a better definition of the criteria. The district also clarified whether the district would agree to rank the criteria or not. One of the committee members stated in an interview that they only did this because the committee had been asking for it. At a BAC working meeting in February 2016, the district provided the committee with a document entitled, "EXAMPLES OF WAYS TO APPLY BOUNDARY ADJUSTMENT CRITERIA." When the technical team shared the document with the committee in February, they were already four months into their work and had held one public preview meeting with the

community. This document provided examples of how to operationalize the criteria. For example,

Safety. *To the extent possible,*

- avoid turning walkers into riders.
- avoid car or bus rises that are unusually long compared to others in the district.

Another example was:

Neighborhood unity. *To the extent possible,*

- avoid isolating a small number of students from the rest of their attendance area behind natural or constructed barriers.
- avoid splitting off a small portion of a middle school attendance area.
- avoid splitting self-contained residential areas, such as cud-de-sacs and single-egress developments
- avoid splitting off a small portion of a residential area defined by natural or constructed barriers.
- minimize elementary splits.

The district provided several different examples for how the committee could operationalize each of the nine criteria.

In addition to providing possible ways to use the criteria, the district also communicated that the criteria are not ranked, and the district administration or school board would not rank them. They acknowledged that the criteria are hard to apply "because they often conflict with one another." The district stated that "when they conflict, the resolution depends on the judgment of committee members." Here the

district acknowledges that the intra-action between the criteria and the committee will alter the original apparatus due to the conflicting nature inherent to the apparatus. In the next sections, I address what affects the conflicting nature of the criteria had on both the committee and the outcomes.

Ultimately, the operationalizing of the criteria came too late. There was a temporal conflict between when the district defined the criteria and when the committee began their work. The committee had already met six out of ten times and held a public preview meeting before the technical team presented these definitional examples to the BAC. The committee had already formed their working definitions and was at the point of refining their solutions. Therefore, the definitions provided by the district did not influence the committee and did not serve as an apparatus. While this document could have been useful, the delay in the creation made it obsolete in the boundary process.

Counter-mandating Objectives & Criteria

As the district stated in their February memo, another produced effect of the objective/criteria apparatus was that the criteria and objectives were often in conflict and "counter mandated each other," as one committee member said. Another committee member recalled, "the challenge was many of those — many of those priorities are at cross-currents to each other. And so capacity seemed to become number one." As the committee worked, their different decisions could not satisfy all of the criteria. One committee member described the decisions they had to make as the "most best decision," and another called it the "least worst decision." For the committee as a whole, there were so many criteria that they felt it was impossible to meet them. When they tried to meet one criterion, then they failed to meet several other criteria. They were also contending

with other apparatus that constrained decisions like building capacity and population concentrations in different district areas. As a reminder, there are always multiple dynamics at play within a phenomenon, and it is an agential cut I am making to focus in particularly on the objective/criteria apparatus in this chapter. A committee member who represented one of the overcrowded schools in the north described the decision-making process as follows:

> And you know there's a set criteria, and capacity's number one. Capacity is like the first one that's what have — So when we're making decisions, you have to think capacity. You have to think just overall student body population. Demographics. You have to think transportation. Like you don't wanna move a kid five miles when they live right next to — So those are all things, right you have to consider. You know, but the issue was you wouldn't be able to get say the culturally diverse school without changing some things, or moving some things, or maybe sacrificing on one other end. So you see what I am saying? So three criteria, but you're not going to be able to get all three. It's just not the reality because of how everything was set up across the district. The fact is your building— you have all this growth in the north, but your building the school on the south. So it was just it was a painful process. And then you know, it's so hard.

The committee member began by echoing the earlier effects highlighted, the narrowing down of the objectives and criteria to only the capacity objective. He then explained how hard it was to focus on three of the criteria together - capacity, transportation, and school body composition. Even with only three of the criteria, it was hard to make a decision that could satisfy the other criteria. He talks about how they had to sacrifice one criterion

for another. That leaves the question, what should the committee sacrifice? This question ties back to the committee's desire for the ranking of decision criteria. The committee realized they were going to have to make a cut. They were going to decide which criteria would be prioritized over the other criteria because there was no way to satisfy all nine criteria simultaneously. This prioritization was a responsibility that weighed heavily on the committee. It was also a decision that they wished the school board and superintendent made instead of handing over the responsibility to the BAC.

Within this quote, the apparatus pushes back on this committee member because if it were up to the committee member, he would focus on moving boundary lines to make the high schools "culturally diverse." But since there were multiple criteria, he was not free to do this. The objected/criteria apparatus forced him to consider numerous factors like capacity and transportation, among others, during the boundary changes. Because the objective/criteria apparatus had multiple facets, it prevented the singular focus the committee member may have preferred. The apparatus required conversations and decisions that the committee member would have rather ignored. It changed and constrained decisions because of the multiple parts to the apparatus. It prevented the committee member from achieving his goal of having six culturally diverse high schools.

Barad talks about all of these decisions that the committee was making as agential cuts. Each agential cut allows for some possibilities and forecloses others. The weight of the responsibility of the decisions is why Barad discusses how important ethics is in decision-making. There is a heavy responsibility because when making the decisions, you are automatically foreclosing other options. Are the boundaries that are created by the canceling of the criteria the most just boundaries? Are they aligned with the ethics of the

school district? Due to the ethical nature of the decisions and heavy responsibility put on the BAC by the district, it is reasonable that the committee felt a significant amount of weight with the decisions they made. It also makes sense that the BAC desired fewer criteria and/or ranking of the criteria by district officials. The responsibility to rank the criteria was a responsibility that the district administration and school board clearly stated they would not do, leaving the BAC feeling unsupported.

The Spatial Dimension of the Criteria: North vs. South

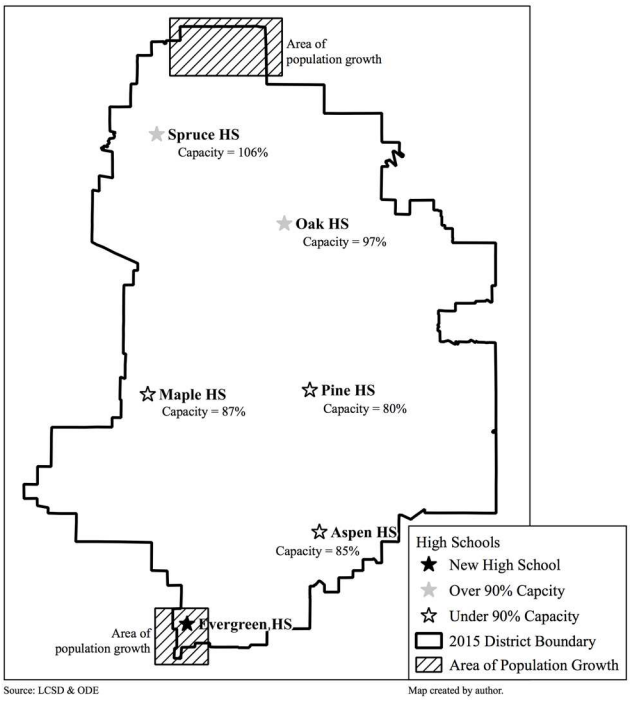
In the previous section, the comments from the committee member who represented one of the overcrowded northern high schools brought into focus another critical dimension that intra-acted with the BAC and the objective/criteria apparatus – the spatial reality of the district. The intra-action of these three agents affects the possible outcomes of the boundaries. Here is a reminder of the part of the BAC member's statement, "The fact is your building, you have all this growth in the north, but your building the school on the south. So it was just it was a painful process." The committee member highlights that the most significant growth in the district is happening in the north, but the only available land for a new high school was in the south (see Figure 8). Therefore, the new high school opened on the very southern edge of the district. Not acknowledged in this quote is the fact that there is significant housing being built in the area of the new high school as well, but the district projects more growth would happen in the north than in the south.

In addition to the growth occurring in the north, the two most crowded high schools before the change in boundaries were the high schools in the north (see Figure 8). The overcrowding of Spruce and Oak High Schools prompted the building of the new

high. Because the district built the new high school away from the overcrowded areas, the committee had to move students from all district high schools to relieve overcrowding and fill the new school. Thus, the most substantial question the committee wrestled with was—how do we move students to the south? Because the spatial reality required

Figure 8

2015-16 Student Capacity of LCSD High Schools and Areas of Population Growth



Note. This map displays the location of all six high schools in LCSD. There is no capacity reported for Evergreen HS because it was not open until 2017. LCSD reports on significant residential development are the basis for the population growth areas.

students to move south, the committee failed to see how the objective of minimizing transitions, proximity to school, and neighborhood unity were viable with the spatial reality of how far apart the growth and overcrowding were from the new school. With the new school in the south, the BAC knew there would be a significant disruption for all high school students in order to achieve the objective of 90% capacity at all high schools.

Attending to the geographic reality of the school district highlights the fact that both the objective/criteria apparatus and the BAC are not separate from the larger boundary phenomenon. The committee's decisions are affected by the intra-action of multiple elements of the phenomenon—the objective/criteria apparatus, the committee member's history and bias, and the geographic reality of the district, to name a few. The geographical space between high schools and the need to reduce capacity are entangled with both the BAC and the objective/criteria of capacity. One of the effects of this intra-action is it makes it impossible to satisfy all criteria and objectives at the same time when the BAC determines the new boundaries. Without the ability to fulfill all criteria, the objective/criteria apparatus continues to produce frustration and a lack of clarity around potential boundary solutions. For example, the apparatus pushes the committee to make the following things at the forefront of their decisions: keeping neighborhoods together, not having students travel far because of safety concerns, and minimizing who has to change schools. But keeping this interior to the decision-making process is in direct conflict with the spatial reality of the significant distance between the new high school location and the location of the over crowded high schools. This is yet another example of how once the BAC put the apparatus to use, it did not clarify and help define a good potential new boundary line but instead caused conflict and ambiguity. In addition to the

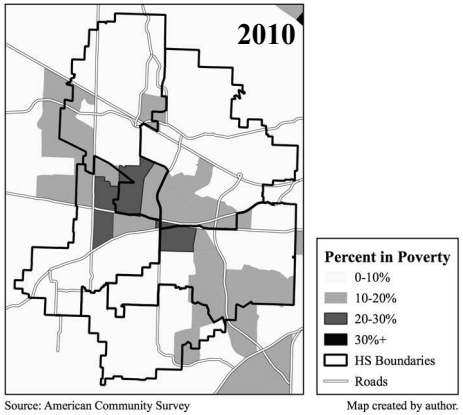
physical space between the overcrowded schools and the new high school, there is also a spatial component to the demographic reality of the school district that also intra-acted with the committee's decision-making process and shaped their use of the objective/criteria apparatus.

The Spatial Dimension of the Criteria: "Diverse" Student Bodies

The spatial distribution of different student demographic groups also intra-act with the BAC and the objective/criteria apparatus in specific ways. The same committee member who highlighted the distance between the student growth, overcapacity high schools, and the new high school also hinted at the fact that different communities live within different spatial areas in the district. This BAC member said, "You know, but the issue was you wouldn't be able to get say the culturally diverse school without changing some things, or moving some things, or maybe sacrificing on one other end." He discussed the fact that if the district wanted "diverse" student bodies at all of the high schools, it would require the committee to sacrifice some of the other criteria. For example, if the committee prioritizes "diverse" student bodies, it might require students to travel further distances to get to the school. The committee would also need to consider disrupting neighborhood unity to achieve more diverse schools. This is because people of different socioeconomic statuses and racial/ethnic backgrounds live in different parts of the district (see Figure 9, Figure 10, and Figure 11). Here again, the committee's prioritization of attempting to create "diverse" schools alters the original objective/criteria apparatus.

Figure 9

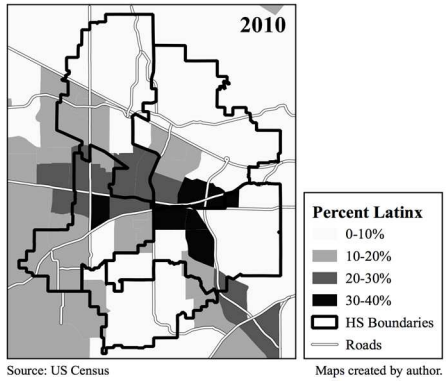
2010 Percentage of Households Below Federal Poverty Line



Note. This map uses ACS data instead of Census data because the 2010 U.S. Census did not collect financial information.

Figure 10

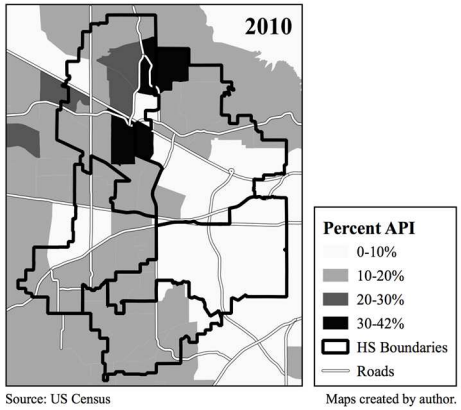
2010 Percentage Latinx Households



Note. This map is based on the 2010 U.S. Census data.

Figure 11

2010 Percentage API Households



Note. This map is based on the 2010 U.S. Census data.

The three district maps demonstrate the unequal distribution of particular populations in LCSD. Higher concentrations of the students experiencing poverty, Latinx students, and Asian students cluster in distinct district areas. Students experiencing poverty are clustered in the central part of the district and the southeast corner. Similar to students experiencing poverty, the Latinx community is also clustered in the central and southeast regions of the district. In contrast, the Asian community resides on the western side of the district, with the largest concentration in the northwest. If the districts wanted the student-body populations at each high school to vary in both income ranges and race/ethnicity, they could not prioritize proximity to the school or neighborhood unity to meet this goal because of the clustered nature of different populations around the district. If the committee prioritized proximity to school due to the uneven geography of distinct groups of people in the district, individual schools would inevitably have a higher percentage of Latinx students or Asian students or students experiencing poverty. Thus, the criteria of proximity to school and neighborhood unity were at "cross currents" to the criterion of student body composition. The intra-action of the spatial reality of the district, the BAC, and the criteria produced the effect that it was impossible to meet all criteria simultaneously.

The spatial distribution of communities is not separate from the BAC or the objective/criteria apparatus but exists in an entangled relationship. Where communities reside is part of the intra-acting boundary phenomenon and makes particular agential cuts that produce both possibilities and impossibilities. Due to the nature of the location of schools and the distinct clustering of communities, if prioritizing proximity to schools, the BAC will produce schools that include certain communities and exclude others when

solidifying the new boundaries for the high schools. This is another example that demonstrates how the committee was frustrated with the objective/criteria apparatus and how the criteria worked against each other instead of with each other. Attempting to keep all priorities in play when determining the boundaries led to a lack of decisions. Instead, the committee ultimately chose to amplify some criteria over others based on their priorities, thus altering the apparatus and, therefore, the potential options of the final boundaries.

Lack of Meeting Any Objectives or Criteria

The ultimate effect produced through the intra-action of the BAC and the objective/criteria apparatus was that none of the objectives or criteria were completely satisfied. Boundaries were significantly different, so many students experienced transitions. The capacity objective to reduce capacity to 90% at all high schools and relieve overcrowding was not met, even though it was the stated top priority of the committee. One committee member representing a central high school said, "I still don't believe, in the end, we moved enough kids." The criteria had so many competing priorities that, in the end, one school remained overcrowded (see Table 6). When reflecting on the process, another committee member from one of the central high schools said,

> I would have made us do the hard work to really reduce capacity at the two high schools in the north, [Spruce] and [Oak], that are overcrowded. And um, one of them is still overcrowded. We didn't solve the problem. We didn't solve the problem. And there should have been one overriding priority, and it should have been capacity. Get every school to 90% capacity. Cause [Pine is] not. [Pine]

Table 6

Student capacity numbers and percentages of all high schools in LCSD

High School	Aspen		Evergreen		Maple		Oak		Pine		Spruce	
Max Student Capacity	1850		2176		2176 (with 5 portable classrooms)		2203		2122		2421 (with 16 portable classrooms)	
School Year	# of Students	% Capacity	# of Students	% Capacity	# of Students	% Capacity	# of Students	% Capacity	# of Students	% Capacity	# of Students	% Capacity
2012-2013	1722	93%	-	-	1962	90%	1942	88%	1588	75%	2418	100%
2013-2014	1688	91%	-	-	1945	89%	1954	89%	1536	72%	2382	98%
2014-2015	1615	87%	-	-	1974	91%	2019	92%	1616	76%	2452	101%
2015-2016	1572	85%	-	-	1885	87%	2134	97%	1704	80%	2557	106%
2016-2017	1606	87%	-	-	1882	86%	2224	101%	1784	84%	2621	108%
Boundary Change												
2017-2018	1450	78%	885	41%	1797	83%	2073	94%	1608	76%	2491	103%
2018-2019	1401	76%	1350	62%	1773	81%	2019	92%	1513	71%	2364	98%
2019-2020	1437	78%	1835	84%	1825	84%	2040	93%	1521	72%	2473	102%

Note. The first number is the number of students each school can hold at 100% capacity. Then, the table shows the changing student enrollment by school year in LCSD and the percentage of the total school capacity for each year. Evergreen H.S. does not have numbers until 2017-18 because that is the first year it was open. Also, in 2017-18, Evergreen H.S. only had 9th and 10th grade. In 2018-19, it had grades 9-11. 2019-2020 is the first year it has all grade levels, 9-12.

> shrunk a lot. [Spruce's] huge. [Oak's] still huge. [Evergreen], the new high schools, is growing. And they will cause they're growing cause there's development there.

If the BAC would have done the hard work, the committee believed it would have further upset the LCSD community. One committee member said that this was because "our main criteria to make sure we are not overcrowded got sacrificed to make neighborhoods as happy as we could make them." Some of the hard decisions the committee wanted to make "created a lot of problems and the compromise was to you know, back off and leave [Spruce] and [Oak] a little overcrowded," as another committee member summarized it. These committee members all knew, in the end, they did not complete the job they set out to do — make all high schools less crowded. These quotes highlight that the intra- action of the community with the committee and the criteria/objective apparatus impacted the resulting decisions. This is addressed more in the following sections of this chapter.

Ultimately, with all of the different parts and pieces to the apparatus, if the committee did reduce the capacity of all high schools, another part of the apparatus would push back – like neighborhood unity – and then one of the high schools would increase to a higher capacity again. Ultimately, the lack of precision and the complex nature of the apparatus prevented the committee from coming to a boundary solution that satisfied any part of the apparatus or committee. The committee finished the process feeling defeated and not satisfied with their final solution.

The undefined, un-prioritized, conflicting criteria complicated the 90% capacity objective and resulted in two high schools over the 90% capacity goal, Oak and Spruce.

Three other schools are now well under capacity as of 2019-20 (see Table 6). Capacity did decrease at all high schools after the boundary changes. The year after the boundary change, Oak H.S. was at 94% capacity, and Spruce HS was at 103% capacity. Both of the capacity percentages decreased the following year. At the same time, two other schools, Aspen and Pine, were significantly under-enrolled the year following the boundary change. Aspen HS was at 78% capacity the year after the boundary change (2017-18) and then dropped to 76% capacity the following year. Pine HS was at 76% capacity after the boundary change (2017-18) and dropped to 71% capacity the next year. One reason for the drop in capacity percentage for all high schools from 2017-18 to 2018-19 school year is because the new high school, Evergreen, only opened with freshman and sophomores. Therefore, there was no relief in student enrollment numbers at the five high schools for the juniors and seniors in 2017-18 and the seniors in 2018-19.

As of 2019-20, Oak and Spruce HS was above 90% capacity, and there was space available at other district high schools, most notably Aspen and Pine HS, to move more students to achieve less than 90% capacity at all high schools. Nevertheless, in moving more students, it would have conflicted even more with several of the district criteria. For example, to move more students, the committee would have had to send students to a school that was not the closest school to their house. Ultimately, the intra-action between the BAC, the objective/criteria apparatus, and the spatial reality produced an effect that left meeting all of the objectives and criteria as an impossibility.

BAC-Apparatus Intra-Action Conclusion

As demonstrated throughout this section, the intra-action of the BAC and the objective/criteria apparatus produced multiple effects. First, it narrowed the committee's

focus to the capacity of the high schools over the transition of students. Second, decision-making became muddled due to the lack of refinement in defining and ranking the criteria. The district administration further operationalized the criteria, but it came too late in the process. They also refused to rank any of the criteria. The lack of definition and ranking of the criteria led to conflicts between the different criteria. These were often resolved through personal or school priorities. The objective/criteria apparatus also brought to the surface that it is not separate from the spatial reality of the district. The space between the overcrowded high schools and the new high school and how different communities cluster in different areas of the district affected the way the criteria were used. The ultimate effect of the intra-action between the BAC and the objective/criteria apparatus was that neither of the two objectives was satisfied. Two schools remained above 90% capacity while two other schools were significantly under capacity. Students also experienced a significant amount of transition when the district implemented the new boundaries.

In addition, because of the complex nature and lack of precision of the objective/criteria apparatus, it was continually altered and reconfigured by the BAC. The BAC prioritized different criteria and ignored other criteria as they determined the new boundaries. Each reconfiguration of the apparatus then changed what boundary solutions were and were not possible. The ever-changing apparatus and decision-making dynamics led to much frustration within the committee and the greater LCSD community, as will be seen in the last half of the chapter. Overall, the BAC struggled to satisfy any of the objectives and criteria set forth by the district in the final boundary recommendation.

In addition to the BAC's work as a committee, they were also in constant contact with the larger LCSD community. Parents, students, and community members regularly expressed their thoughts and opinions on the BAC's boundary decisions. This intra-action also influenced the outcome of the new LCSD high school boundaries. In the next section of this chapter, I highlight the intra-action between the objective/criteria apparatus and the larger LCSD community.

Objective/Criteria Apparatus and the LCSD Community

Another important group that the object/criteria apparatus intra-acted with was the LCSD parents, students, and extended community. As was the case with the intra-action with the BAC, the objective/criteria apparatus is not a neutral entity. The agential cuts enacted through the intra-action of the apparatus and community constrained how the community communicated with the BAC and district. It also constrained which community concerned were listened to more or less by the district and BAC based on whether their comments were interior or exterior to the boundaries set by the objective/criteria apparatus.

Throughout the boundary process, the district solicited input from the community in three ways: emailing the BAC and district technical team, leaving written comments at the BAC meetings, and oral feedback at two community meetings held in January and February 2016. The central office administrative staff organized the comments emailed to the district or written at the meetings and publically posted them to the boundary page on the school district website. The comments parents made at the community meetings were also summarized by the district staff and posted with the BAC meeting minutes. In

addition, the meeting minutes included the BAC's reflections of what they learned through their interactions with the community at the two community meetings.

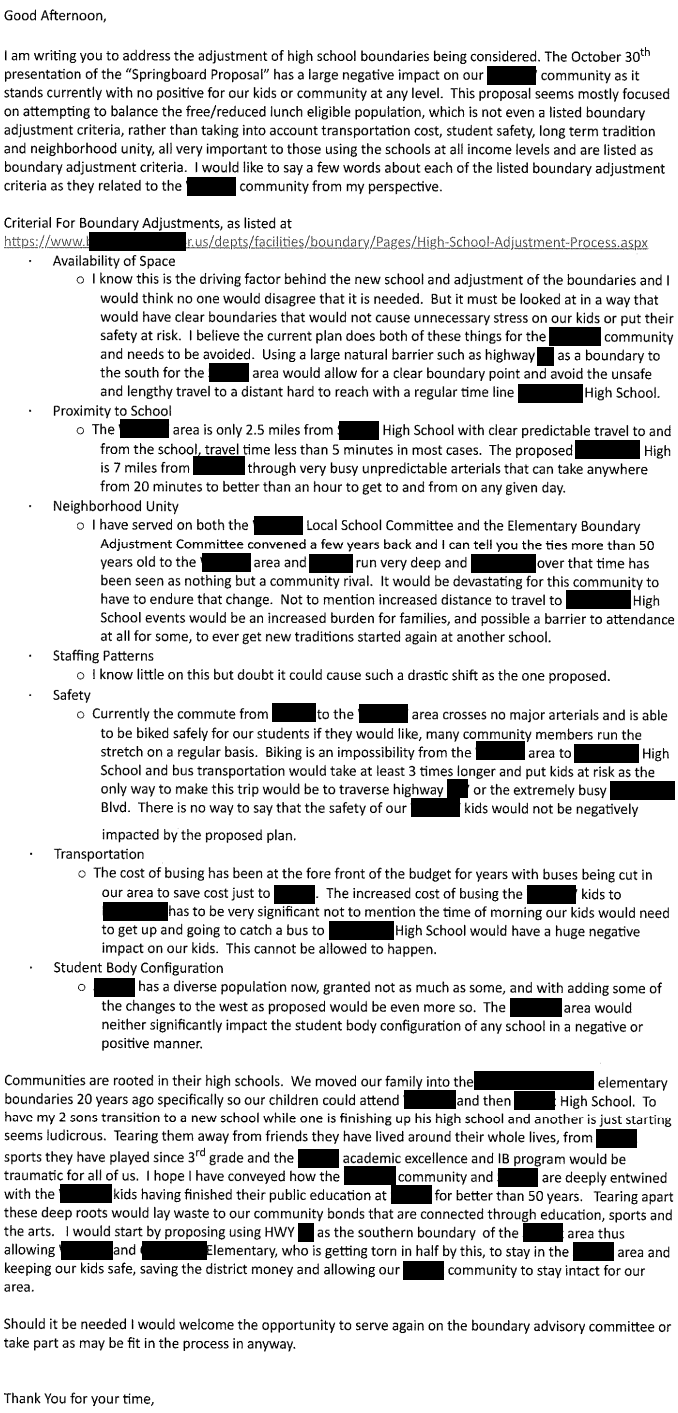
Comment Structure

One significant effect of the intra-action between the objective/criteria apparatus and the community was that it constrained and shaped what community members wrote to the BAC. In the majority of emails written, there was a specific reference to the objectives and the criteria. The objective/criteria apparatus shaped the community's arguments for or against the boundary changes. In many of the letters, the criteria became the outline and structure for their comments (see Figure 12). The objective/criteria apparatus defined both the format of their letters and the content. The letters became evidence of the intra-action between parents and the objective/criteria apparatus.

As seen in this example parent letter, this parent refers directly to the district's criteria to make boundary changes throughout the letter. The parent begins the letter by critiquing the committee for ignoring the criteria he felt to be more important. The parent writes, "rather than taking into account transportation cost, student safety, long term tradition and neighborhood unity," the committee is focused on free and reduced lunch numbers. From this parent's perspective, the criteria do not explicitly name free and reduced lunch percentages, and the committee neglects the other stated criteria by focusing on free and reduced lunch. To support his claim, the parent provides the link to the website where the criteria are listed. The parent then lists seven of the nine criteria and proceeds to explain that the current proposed map does not meet those criteria for his children or the other children in his neighborhood.

Figure 12

Letter sent to boundary advisory committee from a parent



Good Afternoon,

I am writing you to address the adjustment of high school boundaries being considered. The October 30th presentation of the "Springboard Proposal" has a large negative impact on our [redacted] community as it stands currently with no positive for our kids or community at any level. This proposal seems mostly focused on attempting to balance the free/reduced lunch eligible population, which is not even a listed boundary adjustment criteria, rather than taking into account transportation cost, student safety, long term tradition and neighborhood unity, all very important to those using the schools at all income levels and are listed as boundary adjustment criteria. I would like to say a few words about each of the listed boundary adjustment criteria as they related to the [redacted] community from my perspective.

Criterial For Boundary Adjustments, as listed at
https://www.[redacted].us/depts/facilities/boundary/Pages/High-School-Adjustment-Process.aspx

- Availability of Space
  - I know this is the driving factor behind the new school and adjustment of the boundaries and I would think no one would disagree that it is needed. But it must be looked at in a way that would have clear boundaries that would not cause unnecessary stress on our kids or put their safety at risk. I believe the current plan does both of these things for the [redacted] community and needs to be avoided. Using a large natural barrier such as highway [redacted] as a boundary to the south for the [redacted] area would allow for a clear boundary point and avoid the unsafe and lengthy travel to a distant hard to reach with a regular time line [redacted] High School.
- Proximity to School
  - The [redacted] area is only 2.5 miles from [redacted] High School with clear predictable travel to and from the school, travel time less than 5 minutes in most cases. The proposed [redacted] High is 7 miles from [redacted] through very busy unpredictable arterials that can take anywhere from 20 minutes to better than an hour to get to and from on any given day.
- Neighborhood Unity
  - I have served on both the [redacted] Local School Committee and the Elementary Boundary Adjustment Committee convened a few years back and I can tell you the ties more than 50 years old to the [redacted] area and [redacted] run very deep and [redacted] over that time has been seen as nothing but a community rival. It would be devastating for this community to have to endure that change. Not to mention increased distance to travel to [redacted] High School events would be an increased burden for families, and possible a barrier to attendance at all for some, to ever get new traditions started again at another school.
- Staffing Patterns
  - I know little on this but doubt it could cause such a drastic shift as the one proposed.
- Safety
  - Currently the commute from [redacted] to the [redacted] area crosses no major arterials and is able to be biked safely for our students if they would like, many community members run the stretch on a regular basis. Biking is an impossibility from the [redacted] area to [redacted] High School and bus transportation would take at least 3 times longer and put kids at risk as the only way to make this trip would be to traverse highway [redacted] or the extremely busy [redacted] Blvd. There is no way to say that the safety of our [redacted] kids would not be negatively impacted by the proposed plan.
- Transportation
  - The cost of busing has been at the fore front of the budget for years with buses being cut in our area to save cost just to [redacted]. The increased cost of busing the [redacted] kids to [redacted] has to be very significant not to mention the time of morning our kids would need to get up and going to catch a bus to [redacted] High School would have a huge negative impact on our kids. This cannot be allowed to happen.
- Student Body Configuration
  - [redacted] has a diverse population now, granted not as much as some, and with adding some of the changes to the west as proposed would be even more so. The [redacted] area would neither significantly impact the student body configuration of any school in a negative or positive manner.

Communities are rooted in their high schools. We moved our family into the [redacted] elementary boundaries 20 years ago specifically so our children could attend [redacted] and then [redacted] High School. To have my 2 sons transition to a new school while one is finishing up his high school and another is just starting seems ludicrous. Tearing them away from friends they have lived around their whole lives, from [redacted] sports they have played since 3rd grade and the [redacted] academic excellence and IB program would be traumatic for all of us. I hope I have conveyed how the [redacted] community and [redacted] are deeply entwined with the [redacted] kids having finished their public education at [redacted] for better than 50 years. Tearing apart these deep roots would lay waste to our community bonds that are connected through education, sports and the arts. I would start by proposing using HWY [redacted] as the southern boundary of the [redacted] area thus allowing [redacted] and [redacted] Elementary, who is getting torn in half by this, to stay in the [redacted] area and keeping our kids safe, saving the district money and allowing our [redacted] community to stay intact for our area.

Should it be needed I would welcome the opportunity to serve again on the boundary advisory committee or take part as may be fit in the process in anyway.

Thank You for your time,

Note. I blacked out sections that refer to the specific names of high schools or neighborhoods. I did this to keep the district anonymous.

If not for the objective/criteria apparatus, this parent's letter would have looked very different. The apparatus constrained and defined what the parent would comment on and communicate to the district. The letter is the result of the intra-action between this individual parent and the apparatus. The intra-action creates a unique set of reasons why the current proposed boundaries would negatively impact his child and his community.

Community Comments on the Nine Criteria from Policy J.C.

The parents, students, and community members had much to say during the process of changing the boundaries. The district publically posted more than 2000 pages of community emails and written comments to the boundary website. The public sent most of their comments to the district between November 2015 and March 2016, the same time frame in which the BAC held their meetings. Over the course of their submissions, comments addressed the nine different criteria set forth by the school board in policy J.C., though they public addressed some of the nine criteria more frequently than others. The direct addressing of the nine criteria in their comments is evidence of the intra-action between the community and the objective/criteria apparatus. Like in the last section, where the apparatus provided structure to the community letters, it also directed the content of their letters. In the following sections, I provide specific examples of how the community addressed the nine criteria that are a part of the objective/criteria apparatus, and I also communicate which of the criteria the public addressed the most and least frequently. The following comments represent parents, students, and community members from several different neighborhood communities within the LCSD school district. The comments selected provide the main community commentary the BAC and district administration sifted through while making their boundary decisions.

Proximity and Safety. Of the nine criteria, four of the most frequently referenced criteria were proximity to school, safety, neighborhood unity, and feeder patterns. Often school proximity and safety went hand in hand. Parents felt that the further students had to commute to school, the less safe they were during these commutes either due to increased opportunities for accidents, more crowded streets, additional bus stops, or lack of the ability to walk or ride a bike to school. In the first example, the parent whose child was being changed from Oak High School to Pine High School communicates how being at a closer high school would be better in line with their desire not to use a highway to get to school and provide more mass transit options.

> "Moving [Sycamore] school into [Pine] High School district would be very inconvenient for proximity to the school. Having to transport our students across HWY [44], down 413, and into downtown [Lodge City] does not seem consistent with the long-range plan to use mass transit. I believe the boundary should be HWY [44]. All those North of HWY [44] should be placed into schools North of the HWY. – K.E., Jan. 2016

This parent used a major highway, Highway 44, as the boundary line they felt made the most sense in proximity to certain high schools and allowed them to avoid driving on major highways to get to school. Major highways provoke a sense of danger for parents in the commute to and from school. This quote gestures towards the focus of the next chapter, where I focus on Highway 44 as a major apparatus functioning within the boundary process. Here Highway 44 serves as a marker for safety and proximity. For this parent, remaining north of the Highway is closer to home and also the safer area of the district.

Another example of a parent communicating about proximity is when a parent is surprised by the possibility of their neighborhood assignment being moved to different high schools since they felt they were so close to their original high school, Maple High School. They felt like their area was being "carved out," and they suggested an area of town they felt was more appropriate to add population to the new district high school, Evergreen.

> I was very surprised to notice that the latest map has moved our neighborhood out of the [Maple] High school boundary to the new…school. We are … only 2 miles away from [Maple] high school. I only recently looked at the map because I couldn't imagine our area would be moved. What I don't really understand is why our neighborhood was carved out to be moved. There are areas in southern [Lodge City] that would be closer to [Evergreen] that are being mapped to [Aspen] while pulling even farther northern neighborhoods like ours down to [Evergreen]. Part of the reason we bought in our neighborhood was the proximity to the schools and the reputation of [Maple] High school. I hope this is not final and we will be moved back to [Maple]." – D.C., March 2016

As in the first quote, this parent also suggests a specific move to the committee that they felt better aligns the boundaries with neighborhoods in close proximity to certain high schools.

Parent comments about proximity were not only fixed on longer distance and longer drive time, but they also equated the longer distance to a school as being less safe for their students. Parents complained of having to drive further, and in conjunction with the further distance, they also felt that the new routes parents and students would have to

travel to get to their newly assigned school would be significantly less safe. Like the first parent comment in this section, the following comment is from a parent who does not want their child to be moved from Oak High School to Pine High School. They write that they felt it is,

> Much more dangerous traffic route to [Pine] H.S. than [Oak] H.S.; Hwy [413] is overcrowded and difficult to traverse for experienced drivers and worse for new drivers; Need to cross through the intersection the [newspaper] calls the "Intersection from Hell" if chose to avoid Hwy [413] traffic; Bus route home from [Pine] H.S. takes 3 buses and waiting at two large transit centers – not o.k. for a young high school girl on her own; Unsafe to ride a bike from [Pine] H.S." – M.M., Nov. 2105

This parent even references an intersection students and families might have to cross, known as the "Intersection from Hell." While this was a valid concern at the time of these comments, the traffic lights have since been changed at this intersection, making it much safer. This parent also referenced the city bus transit centers in central Lodge City near Pine High School that this parent feels is unsafe for high school girls to use. This parent provided multiple examples of why they think the change in high school boundaries violated the safety criteria.

In this next parent comment about safety, they are concerned about congested roads. They feel that the road to Pine High School from their neighborhood are much less congested than the roads to their newly assigned Aspen High School.

> Traveling from the _____ neighborhood to [Aspen] would require using [H.] Blvd and/or [S.]. These are very congested roads that compromise the safety of

> our kids, when traveling to and from school. Traveling to [Pine] H.S. uses roads that are significantly less congested and will increase the safety of our children, when they are transported to/from school. – C.A., Feb. 2016

In all four of these example parent comments around proximity to schools and safety, the parents biggest concerns about the changes in school assignments are the new routes they will have to take to get their kids to school or their kids will have to drive independently. Parents make a connection in which the closer they are to the assigned high school, the safer the travel to and from school is for their student.

Neighborhood Unity and Feeder School Patterns. The next two criteria that were frequently discussed and often discussed in conjunction with each other in parent and community comments were neighborhood unity and school feeder patterns. These two criteria dovetail due to the fact that where LCSD residents live dictates where the students go to school. If a part of what people consider part of their neighborhood is assigned to a different high school, it can break up friendships that students might have formed in elementary or middle school. But there were inconsistencies throughout the parent comments and the committee discussions because there were various ideas of what constituted a neighborhood.

This first example about neighborhood unity is from a parent petition signed by 726 residents of the Sycamore community. The petition explicitly describes the areas the community considers as their neighborhood and that they believe should stay united.

> The proposed plan divides our neighborhood in two. [Hemlock] includes the area north of … Highway [44] which includes the [Sycamore] community. The proposal moves the part of [Hemlock] south of [Bard] Road to [Pine] H.S., cutting

> the neighborhood in half. We are part of the [Hemlock] Community. We support its local economy. [Hemlock] is where we shop, go to the library, farmer's market, and post office. – Part of a petition signed by 726 Residents of [Sycamore] Community, Jan. 2016

The greater neighborhood the Sycamore community feels they are a part of is the Hemlock neighborhood. The Hemlock neighborhood is located in the northwest section of the district and is north of Highway 44. With the new boundaries, the Hemlock community is being divided into a northern and southern half. The southern half, Sycamore, is being moved from Oak High School to Pine High School. The residents feel that everyone living north of Highway 44 should remain at Oak High School and keep the larger Hemlock community unified.

In this second parent comment, the parent is again very specific about what they see as a very problematic boundary line used to assigned students to different high schools. In this case, the troublesome boundary line is a footpath. This parent believes an actual street should be used instead, and therefore the neighborhood that uses the footpath would remain united. They even provided photos to show which students would be broken apart in high school if the boundary remained at the footpath (see Figure 13).

> I believe an error has been made in placing the [PHS]-[Aspen] H.S. boundary across S.W. ____ Avenue at the ____ Trail. This proposed boundary splits the vibrant ____ Subdivision and neighborhood in half and is in conflict with the boundary committee's goal of preserving Neighborhood Unity. I strongly believe that boundaries should follow roadways – arterial roadways, not footpaths – and respectfully request that the proposed [PHS]-[Aspen] boundary that currently

follows ____ Blvd continue to follow the main arterial as it turns south onto ____ Avenue, instead of continuing east along the ____ Trail.

THESE [CHESTNUT SCHOOL] K-8 AND [PHS] STUDENTS LIVING IN ____ ARE STANDING ON THE CURRENT [PHS]-[ASPEN] BOUNDARY THAT RUNS THROUGH ____.

PLEASE DON'T LET THE PATH THAT UNITES US... BE THE PATH THAT DIVIDES US!" – W.C., Feb. 2016

Parents and communities were very passionate about wanting to keep their neighborhoods together. Some communities even argued that they did not care which high school they were assigned to as long at the elementary school boundary group remained together. We can see this argument in the following parent comment that addressed feeder school patterns.

Figure 13

Photo of students being divided into different schools by a footpath

Note. Filter applied to pictures to preserve anonymity of the students.

> In the original proposal all [Palm ES] students would attend the new high school. In the new map a small section has been split off to attend [Aspen]. Students who start elementary school together need to graduate together. The fact that the split off section also happens to be the lowest income area of [Palm ES] is not ok. – C.H., Jan. 2016

This parent wanted to make sure that all Palm Elementary School students remained together at the same high school. In addition to elementary schools remaining together, some arguments for feeder patterns also called on the historical ties between certain elementary schools and high schools. "[Beech ES] has always been a feeder school to [PHS] since day one, how can you possibly break history" – K. F., Nov. 2015. This parent could not understand why the BAC would break this long-standing relationship in the new high school boundary assignments.

A final argument made by parents when addressing feeder school patterns was the continuity of district academic programs. Parents were arguing that if the BAC stayed true to the criteria of aligning feeder patterns, then the academic program trajectory they have planned for their students would not be interrupted. The parent comments were an attempt to point the BAC back to the criteria to maintain their pre-planned desires for their children. Some of the academic programs brought up in these comments were Summa programs, the IB program, and the two-way language immersion programs (TWI). The following parent communicates how they do not want the TWI program to be broken up in the creation of the new high school boundaries.

> The [Sequoia]-[Cypress]-[Pine] path cannot be interrupted without forethought as to how to keep this TWI program intact. Families have made a multi-year

commitment to this program and it is reasonable to expect the school district to uphold their side of this commitment" –M.E., Nov. 2015

Overall, whether a parent was commenting directly on neighborhood unity or feeder pattern, they argued for continuity for their students in their educational experience. The parents were frustrated with the BAC because they felt the BAC was not implementing and following the criteria of neighborhood unity and feeder patterns. The parents argued that if the BAC prioritized neighborhood unity, then the BAC would not break up their neighborhoods. Their comments try to point the BAC back towards these two criteria that they found extremely important.

In addition, this particular criteria intra-acting with parents invokes Barad's concept of *spacetimemattering*. The historical relationships between people and specific schools within a particular neighborhood and also the future projection of friendships and academic trajectories sit in that present moment of the boundary changes. All are tied up with the spatial connection to the neighborhoods and attendance zones. The arguments for the movement of physical student bodies to remain or change together are all tied to these spatial and temporal moments encapsulated in the criteria of neighborhood unity. It is the objective/criteria apparatus that brings this into focus.

Unfortunately, the parents' desire for continuity and unity rubs directly up against the need to move students to fill a new high school and relieve overcrowding at other high schools. This desire for continuity of their neighborhoods and for their individual children to remain in a certain academic pathway created tension throughout the boundary process. This tension was produced because unity was in conflict with the need to make certain schools less crowded and increase the student population at other schools.

Student Body Composition. One of the most controversial criteria was the criterion around student body composition. Some parents felt that it was being ignored and should be at the forefront to fulfill one of the district's guiding pillars: equity in schools. Other parents felt that they didn't think the BAC should consider student body composition and that boundary changes were not a time to balance student demographics. This first quote from the parent is an example of the argument made by parents about why student body composition should not be a criterion during the boundary determining process.

> [LCSD] is a large school district, with different neighborhoods and even different cities; Neighborhoods have their own demographics, and schools should reflect that, not be uniform; Equity should not try to be achieved through boundary changes; Families make their own choices about where to live and know what the student body configuration of their schools are. [LCSD] should not try to change that; I would suggest this not be one of your criteria –M.M., Nov. 2015

This parent, like others, argued that neighborhoods have their own unique demographics, and therefore the nearby school will too. They argued that families pick their schools by choosing where to live, and it is not the district's job to disrupt those choices. While this a commonly held perspective, it ignores the historical reality of housing choice across the United States and the limitations (cost, discrimination, lack of loans, proximity to public transportation, zoning) many families have when looking for housing options.

When referring to student body composition in their letter to the district, other parents argued the opposite of this parent. The following example is from a parent who is not in favor of the recommended boundaries because it further exacerbates the gap

between wealthy and poor students, as well as the difference in students in different racial/ethnic groups.

> First, it exacerbates the gap between "rich" and "poor" schools. For example, compare the "free and reduced lunch" percentages before and after the change. Schools like [Spruce] and [Oak] are spinning off poorer neighborhoods, while schools like [Maple] and [Pine] either lose wealthier neighborhoods or take on poorer ones.
>
> Second, it increases the difference in the racial demographics of the schools. Note that [Spruce] and [Oak] increase their percentages of whites and Asians while decreasing their percentages of blacks and Hispanics." –T.K., Nov. 2015

In this comment from a parent, they rely on free and reduced lunch data and racial/ethnic data of the student population that the district presented alongside some of the proposed boundary maps. This parent is concerned that two schools', Spruce and Oak, free and reduced lunch percentage decreased while other schools', Maple and Pine, free or reduced lunch percentage increased. This parent also noted a divide between the schools with a more significant proportion of white and Asian students versus schools with a larger proportion of Black and Latinx students. Although the parent does not say it directly, I can infer that the parent is hinting at the potential new boundaries creating lines of segregation on both income and racial/ethnic lines.

Another parent echoes a similar sentiment using the percentages the district presented alongside proposed boundary maps.

> Per the district data, the proposal will result in 61% of [Maple] HS students receiving free and reduced lunches (highest in the district.). Ironically, it will

> reduce the number of free and reduced lunches at [Oak] from 28% to 11% (by far the lowest in the district). This change simply does not fit with one of the [Lodge City] School District's main pillars: equity." –C.&P. G., Jan. 2015

In this opinion, the parents directly refer to the district's pillar of equity. The district operates from four pillars: excellence, innovation, equity, and collaboration. The parents felt that by creating schools with stark differences in free and reduced lunch rates, the district violated the pillar of equity. Their statement indicates that they thought the district could use the redrawing of boundaries to create less lopsided schools and that both schools could move towards the overall district average for free and reduced lunch, which hovers around 35% of all district students.

Availability of Space and Building Usage. Two criteria that parents rarely address directly were the availability of space within high schools and the efficient and economical use of the buildings. Interestingly, parents and the community seldom discussed these two criteria because these two criteria were at the forefront of the committee's mind throughout the process. As noted in the analysis section of the boundary committee, the BAC prioritized the 90% capacity and, therefore, the connection to these two criteria over anything else.

Every once in a while, a parent would comment directly on the availability of space at the high schools. This parent argued that the committee had moved too many students out of Oak High School as of November.

> Current grades 9-12 enrollment at [Oak] High School is 2,250 students. The capacity for the school is ideally 2,203. While that does show current 'crowding,' the forecast for current boundaries shows that number adjusting in the year 2020

> to only 2,138 students. Based on the proposed map, more than 35% of [Oak's] geographical boundary has been taken away. If you use that number as an estimate to take away 35% of the student population, that leaves only a 9-12 enrollment of 1,390 students in 2020, which is 63% capacity. That is FAR below the recommended 90% capacity levels." –B.K., Nov. 2015

It is important to note that the parent used a very different calculation method to determine how many students would remain in the school after the boundary moved. They calculated based on the percentage of the geographic area of the original boundaries being removed. This calculation does not account for the changes in student density in different geographic regions when making the enrollment prediction. Even though their prediction method is flawed, it represented one more way that parents argued to remain at a certain high school.

Another parent, who addressed the utilization of buildings, argued that the BAC had not assigned enough students to the new high school, Evergreen. They cited the district's predictions of the capacity of all of the high schools in 2020.

> From the beginning, the boundary maps have let the capacity of [Evergreen] at 81% or less. The student count you have estimated is for the year 2020. I don't understand why we would leave [Evergreen] underutilized in 2020 when [Spruce] and [Oak] would be at 98% capacity. Most of the growth in [Lodge City] currently, and I suspect past 2020, will be in North and Northeast [Lodge City]. I feel there could potentially be issues with capacity at [Spruce] and [Oak] past 2020 and [Evergreen] will be underutilized. By my estimates, if we put [the S.M. neighborhood] in [Evergreen's] boundaries, the utilization at [EHS] would be

93% which I think is perfect as it allows some growth and relieves some overcrowding in the other high schools." – K.B., Feb. 2016

At the end of this parent's statement, they suggest a neighborhood to move to the new high school boundaries to relieve further crowding at the northern high schools. Parents suggesting movements of different neighborhoods frequently happened throughout all of the comments. This one was unique because it directly addresses the availability of space within the schools.

Transportation Costs and Staffing Patterns. Parents rarely addressed the final two criteria, transportation costs and staffing patterns. Parents often addressed transportation in terms of proximity and safety, but they usually did not discuss the cost. If a parent mentioned cost in their comments, they based it on the simple equation of the further the bus travels than the more transportation will cost. Eventually, the district does a cost analysis of all new transportation routes and finds that there will be no new additional transportation costs with the added routes associated with the boundary changes. With the added high school, there is a new walk and bike zone that did not previously exist, which cancels out any additional costs the district may incur from some slightly longer new bus routes.

Parents addressed the last criteria, staffing patterns, less than ten times in all 2000 pages of comments. Parents admitted they did not know much about it, questioned what it was, and even wondered why it was a criterion to begin with. Needless to say, this criterion did not factor into the parents' arguments for the new boundaries. It was also not mentioned by the BAC. This criterion was a non-factor throughout the process. Thus, I argue that transportation cost and staff patterns did not function as an apparatus and had

little effect on the overall process. If the school board left these two criteria out of the objective/criteria apparatus, it would likely have not made a difference to the boundary decisions.

Conclusion of Parent Intra-action with the Nine Criteria. As evidenced by these community comments, the community had a lot to say about most of the district's criteria. They had specific details based on their neighborhood, dangerous roads, estimates of enrollment, knowledge of feeder patterns, and why they shouldn't be interrupted. The criteria were personal for them, and they impacted the lives of their families, whether it be a further distance to travel, breaking up of an elementary school, or appealing to saving on transportation costs. Parents put in a lot of thought and effort to communicate their ideas about the criteria and how the boundary changes affected their lives.

The intra-action of the objective/criteria apparatus and the community produced very specific comments. Throughout their letters, parents directly related their thoughts to the criteria laid forth in policy JC. It provided the focus for their letters and petitions. It shaped the arguments they put forth. If the nine criteria had been different, the letters the parents would have written to the BAC and district would have been altered as well. The objective/criteria apparatus intra-acted with the community to produce particular arguments for or against the different boundary options set forth by the committee.

In addition, the intra-action of parents and criteria produced the effect that the parents, for the most part, used the criteria in service of their individual preferences. For example, the new routes to school were not safe for their child to drive, or they wanted their student to remain with a particular set of friends or in a particular academic

program. The parents' individual priorities surfaced and were put before the implications the boundaries would have for the district as a whole. The individualization of the criteria by the parents placed them in continual conflict with the BAC and their intra-action with the objectives in criteria since the BAC took a more communal and less individualistic view of the criteria.

Though the nine criteria shaped the bulk of the letters, many parents were not satisfied by the criteria the district had set forth. The district's nine criteria did create boundaries around individual interests and their individual priorities, but the families often wanted the district to consider additional criteria. In the next section, I discuss the criteria parents felt were critical that were exterior to the objective/criteria apparatus.

Criteria that are in Excess of the Objective/Criteria Apparatus: Church, Scouts, Extracurricular Activities, & AP vs. IB

While many of the parent and community comments remained structured by and focused on the district's objectives and criteria for the boundary process, there were also a set of arguments in excess of the criteria that were constantly circulating and being articulated by parents. Just as the BAC altered the objective/criteria apparatus by prioritizing some criteria over others based on personal priorities, the community attempted to modify the objective/criteria apparatus by frequently suggesting other criteria that should be considered when determining the new boundaries. The criteria that the parents wanted the BAC to include also support the claim that community members had a more individualistic approach to arguments about particular boundary changes than the committee.

Some of the most common arguments outside of and exterior to the objective/criteria apparatus were a call to maintain the continuity of church groups, scout groups, extracurricular activities, and AP and IB curriculums. For example, one parent wrote that they felt the district should "Preserve neighborhood unity for families and neighbors who have created a community within the [Hemlock] area that includes sports teams, scouting programs, and friendships" –A.F., Dec. 2015. Here is an example of a parent's argument regarding AP and IB programs, "I do however have a problem with my 9th grader being asked to change schools her junior year, particularly moving from an AP school to and IB school. She is on track to take several AP classes her junior and senior years." Underlying most of these arguments is a sense of privilege and a sense of rights to a particular school or neighborhood group. They do not want the district to disrupt their social relations, or for the district to force their child to change to an academic program, sports team, or scouting program that they deem is less than or not as desirable. (In Chapter 7, I explore how desirable and undesirable schools are produced in LCSD). The parents want to preserve and remain insular to their small communities. They are frustrated at the committee for not meeting these demands even though they are in excess of the objective/criteria apparatus. Ultimately, the objective/criteria apparatus reinserts itself and does the work to name these factors, church, scouts, extracurricular activities, and AP and IB, as exterior to the decision-making process. Thus, the BAC does not consider these factors when making their decisions about the new boundaries.

Community Prioritized Transition over Capacity

In addition to wanting the BAC and the district to consider additional criteria, the community prioritized the objective of minimizing the transitions for students over the

objective of 90% capacity. This is an example of how the intra-action between the objective/criteria apparatus and the community differed from that of the intra-action with the BAC. Unlike the committee, who spent most of the meetings moving boundaries and thus students out of high schools to decrease overcrowding, parents were most concerned with the transition plan for their children. As seen in the additional criteria the parents wished the district would include, parents did not want their student's academic or extracurricular programs to be interrupted. Hence, the parents focus on the transition plans. The overarching argument from parents, students, and the greater community was to have students finish high school where they began high school. They did not want students to start at one high school and move to another high school after their freshman year. From the outset of the process, the district guarantee that all students that were to be seniors during the 2017-2018 school year would not have to change high schools, but the BAC would decide the plan for the rest of the students.

Parents wrote in comments from the very beginning, October 2015, through the process when the BAC finalized the transition plan in March 2016. In addition to wanting students to remain at the high school where they began, they also wanted younger siblings to attend the same high school to decrease transportation issues for families. The following are examples from comments sent in about the transition plan about halfway through the boundary process. These are all example comments written to the district in January 2016. This first parent argues for the minimum of juniors getting to stay at their high school along with the seniors.

> I would also like to ask you to consider allowing (at the very least) both juniors and seniors to remain at their current school. For students who are involved in

> school activities, junior year is the time when they start to take on leadership roles within their school. For example, becoming captain of their sports team, president of their class, or director of a play. These roles prepare students for their adulthood and to become contributing members of their communities. Making students move schools who have been taking honors classes at [Pine] High in preparation to take a slate of AP class during their junior and senior years will be moved out of the AP system to the IB system, cutting them off from that opportunity. –G.S., Jan. 2016

This parent supports her argument for juniors remain at their same high school based on both the continuity of extracurricular activities and academic course work. The following comment from a Pine High School Freshman also agreed with this parent about the districting grandfathering juniors and seniors to remain at their current high school. The student wrote: "For my sake and every other student who is the graduating class of 2019 in the [Lodge City] School District please, let us finish where we started" –A.A., [PHS] freshman, Jan. 2016.

The next remark is from a parent who wanted one more year of students grandfathered into the old boundaries: the 2017-18 sophomores, juniors, and seniors. The parent wrote:

> I don't need to go into all of the reasons why I want my 8th grader to stay in [PHS] –but the main one is I do not want him to start in [PHS] and then be moved to [Aspen]. As a person who moved herself in high school, I can tell you it does damage to teens during an already difficult time of life. Do not take these 9th graders out of high school and move them to another school entirely. Let those 9th

graders finish out their years at [PHS]. Put the boundaries wherever you need to, but anyone already at [PHS] –please let them stay." J.K, Jan. 2016

In this comment, the parent relies on their personal history of changing high schools and does not want the same for their kid. They do not care where the boundaries are as long as their student can remain at the same school for all four years of high school. Again, we have another temporal moment in this argument. It is another example of how history and the future always are a part of present moments. Time is not linear but continually intra-acting in productive ways in the present moments.

This final example is a parent concerned about keeping both of their children at the same high school. This parent asks, "Our oldest daughter will be a Junior and the youngest daughter will be a freshman next year at [Oak]. Can they continue if we provide for their transportation?" –N.P., Jan. 2016. This parent is again wondering if their students can remain in the high school together and is wondering if providing their own transportation can help make this more of a guarantee. The parent wants their students to stay together and not have to switch high schools once they have started there.

In an interview with a BAC member, he supported the idea that parents were more concerned about the transition plan. Upon reflection of what he would advise the district to do differently in the future, he stated, "If I came away with one piece of advice in your deal. Always handle the transition rules first." He continued to say why he thought it was a mistake not to communicate first to parents which students would be affected by the boundaries and which students would not.

And if we'd done the transition plan first and set out who was going to end up having to move. And making some of those concessions to the community

> about… we are going to let younger siblings if they have got a child in the high school stay at the same high school or choose where they want to go. We took it down, we let the juniors stay. And we… Anyway, if we had done that first, there would have been a segment of the community that was upset that would have just said I don't like it, but they would have been okay. But we caused extra drama, extra stress, extra upset community by not dealing with the transition plan first. That was a major mistake. –BAC Member

This BAC member was communicating the idea that if parents knew that if their kids were going to be a junior or senior when the new high school opened (Fall 2017) that their students were not going to have to move, they would not have been as angry about the boundary changes. Additionally, if they knew that if their child was in at least 7th grade the year the new high school opened (Fall 2017), they could also elect to attend high school with their siblings, a group of parents would have remained calmer.

In addition to grandfathering juniors, seniors, and siblings, the BAC made three additional concessions in the final transition plan (see Appendix D). The first pertained to sports; if a student was an active member of a varsity sport and the new high school they were assigned to do not have that varsity sport, they could petition to remain at their current school. The same policy was in effect if the student was already an active member of the school leadership. The third concession made was on academic grounds. The example provided was for a student who had already advanced towards a full IB diploma before their junior year, then they could petition to remain at their current school. The BAC member argued that if they had made this plan early on in October, there would have been a segment of the parent population that would not have been so upset about the

changes in boundaries because they would have known the boundary changes would not have affected their children.

As is demonstrated in this section highlighting the contrasting priorities of many of the parents – transition plan –to the priority of the BAC – capacity rates, the effects produced between a particular group of people and the objective/criteria apparatus was different. The objective/criteria apparatus is not isolated from its surrounding environment and those who are in relationship with it. People bring their agenda, history, relationships, and expectations to their intra-actions with the apparatus. In this case, the intra-action of the community and the objective/criteria apparatus produced greater concern from parents about if and when their students would have to change schools than if their schools would remain overcrowded. Because of their great desire to minimize the transitions their children and community will have to face, parents became their own data scientists. Parents produced a wealth of data to attempt to influence and maneuver the BAC to keep their children at a particular school or move them to a school they desired more. I will explore this wealth of parent- and community-produced data in the next section.

Parent Produced Data: Attempts to Influence and Maneuver BAC Decision Making

In addition to having different priorities than the BAC or district, the intra-action between the community and the objective/criteria apparatus produced an immense amount of community-created data. Based on the objectives and criteria defined by the district, parents, students, and community members sent in data about a multitude of the criteria to the district. Some examples of data sent in by the community were data about the extra distance their family would have to travel if assigned to a different high school,

data about changes in traffic volume, and data about accident rates. They also wrote in suggestions about how the district should change the boundary committee's process to determine the new boundaries in ways they felt would better meet the district's criteria. Furthermore, the community created a website where parents could create their boundary maps they felt the BAC should consider. Several numerical calculations accompanied these boundary maps, which corresponded to some of the objectives and criteria.

To bolster support for the community-produced data, two different parent organizations formed that both had Facebook pages. There were also petitions created and signed by hundreds of people in particular neighborhoods. When one community felt like they weren't being listened to, they also threatened to not vote for the next bond measure put forth by LCSD. In the next several sections, I provide examples from the publically published parent comments of the different data that the community-generated and shared with the BAC and district to attempt to influence and maneuver their boundary decisions.

Increased Travel Time and Distance to a Newly Assigned High School. As noted previously in this chapter, one of the most common concerns parents and students raised was the increased travel time and the distance they would incur to their newly assigned high school. Parents and students generated data in several different ways to communicate how they were wary of the increased distance and times. One parent expressed her concern by counting the number of stoplights they would have to drive through to get to the different high schools. This example is from a parent whose child might be moved from Oak HS to Pine HS. They wrote:

Speaking of auto/bus transportation, there are some serious traffic and safety

concerns which I feel are not being addressed by this boundary adjustment process. I am not an expert on traffic volumes or capacity…My…comparison based on my experience is this:

To [Oak] via Hwy [44]

- There are 5 signal lights…including an on ramp metered light, between my home and [Oak] via Hwy [44]…

To [Oak] via [Bard]

- There are 7 signal lights…between my home and [Oak]…

To [Pine] via Hwy [413]

- There are at least 10 signal lights between my home and [Pine]…

To [Pine] via [Hemlock] Hills

- There are at least 12 signal light via [Hemlock] Hills…and can get backed up very easily at each of them, increasing commute times.

– S.S., Nov. 2015

Another way students and parents communicated increased distance was through increased driving mileage. This second example is from parents whose children will potentially be moved from Spruce HS to Maple HS. They wrote:

There are two other high schools that are much closer to my home and would make more logical sense for my kids to attend. Here are the miles of the schools in proximity to my home/neighborhood at a glance:

[Oak]: 1.6 miles **[Spruce]:** 2.7 miles [**Pine]:** 4.6 **[Maple]:** 4.8

– M. & C. O., Feb. 2016

The following example is from a student who will potentially move from Oak HS to Pine

HS. They also used mileage numbers like the last example, but this student also included increased bike riding time to the newly assigned high school. This student wrote:

> I am concerned about, the long distance difference between [Oak HS] to [Sycamore neighborhood] and [Pine HS] to [Sycamore neighborhood]
>
> - [Oak] to [Sycamore] = 3 miles away
> - [Pine] to [Sycamore] = 4.3 miles away but requires crossing [B.] Road, Highway [44], and [C.] Road.
>
> Currently it takes me less than 10 mins on bike to get to [Oak] where to get to [Pine] it would take me over 40 mins to get to [Pine] plus all the added dangers. – 9th grade student, Nov. 2015

In the final example of community-generated data about the increased distance to school, the last parent provided information based on the public bus routes from their house to the newly assigned high school. Again, this a parent concerned about the change of assignment from Oak HS to Pine HS. They wrote:

- TriMet from [Oak] HS to …town square is 12 minutes, no transfers.
- TriMet from [Pine] HS to …town square is at best 32 minutes, 1 transfer.
- The area north of [Pine] HS – as a student would walk to obtain TriMet transportation – is not a safe area to walk due to traffic and crime statistics.
- There is a TriMet bus stop in front of [Oak] HS, or my student can cross the street and wait at the [Oak] Athletic Club – which we join, in part, for this purpose.

These four examples are the more simplified version of data parents provided to the district. Parents based their data on Internet map inquiries, counting, estimates of time, or driving/biking it themselves. This provided personalized information to the BAC on what

individual families were experiencing with the changes being considered by the committee. As is often the tension in this process, individual stories are important but have to be weighed against the greater good of the whole district, which was what the BAC was considering.

Community Provided Traffic Analysis. Some members of the community were much more sophisticated in the traffic data they emailed to the committee. One community member, J. S., who identifies himself as a professional engineer, emailed a minimum of three emails to the district and BAC. His letters support the argument that the BAC should not move the Sycamore community from the Oak High School attendance area to the Pine High School attendance area. The first email sent to the district was a list of information requests he wanted the district to provide. The following two emails were traffic analysis he conducted and suggestions on how he thought the district could improve the process of determining boundaries. He writes in his letter, "The following comments, analysis and questions were compiled in consultation with a land use planner and two traffic engineers." His letter provides data on average daily traffic/trips (ADT) on several different roads in Lodge City, accident rates at several different intersections, a map of traffic volume in one corridor of town, and concludes that particular corridor cannot add more traffic capacity. He also says the Sycamore neighborhood has safe walking and biking routes to Oak HS and no safe routes to Pine HS.

His main critiques of the process are that the district is moving too fast, it is not consulting enough other public entities in the decision-making process like the department of transportation, and the BAC does not have enough "tools" to make the best

decisions. J.S. used his professional skills and connections to provide the BAC and district very detailed information about the disruption to traffic patterns he felt the new boundary would cause. The district did have the director of transportation as a part of the supporting technical team for the boundary committee, but it was clear that this community member did not feel the district had done enough research or analysis on traffic patterns.

Need for Optimization Equations to Determine New Boundaries. J.S. is not the only community member to go to such great lengths and sophistication to produce data for the district and the BAC. Another community member, B.L., also submits numerous emails and presentations to the district. One of his first communications with the district is a thirteen-page slide show to argue that the district should use geographic information systems (GIS) to run optimization equations to determine the best boundaries. The district used GIS to help determine the boundaries, but B.L. thought the district should be using other tools within the GIS software to determine the boundaries. With optimization equations, B.L. suggested that the objectives and criteria would become the variables in the optimization equation, and the committee could refine the optimization through different preferences. B.L finds this to be a more objective process to determine the boundaries. The committee could then use judgment on the final set of optimization to determine the set of boundaries. Here B.L. was making an argument for using a different type of apparatus to determine the new district boundaries. This apparatus would most likely produce a different set of outcomes, and for B.L. He hoped the optimization outcome would be more to his liking than the BAC's different options.

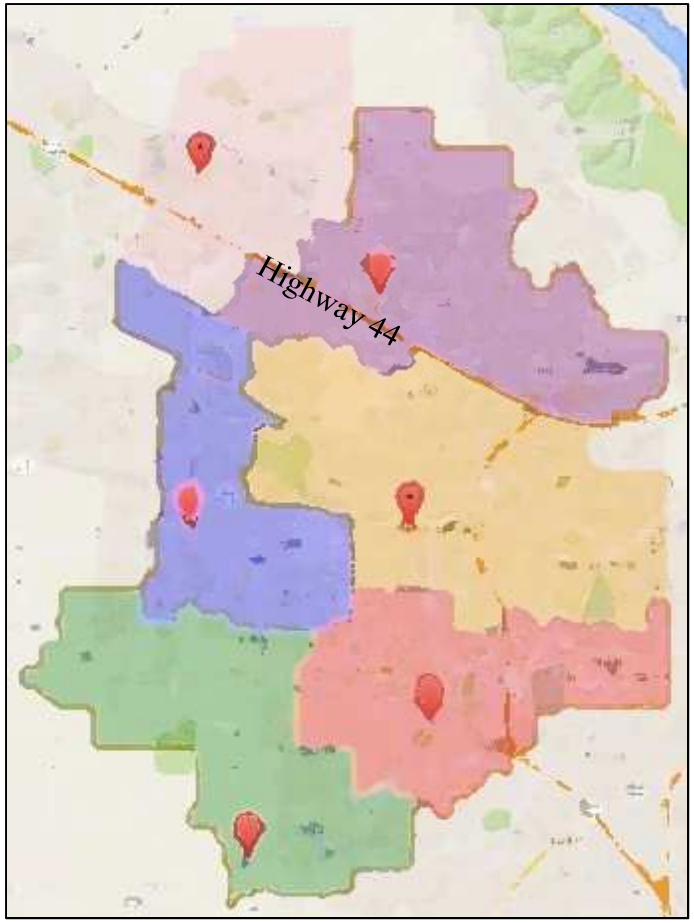
Community Generated Boundary Maps. In addition to B.L. arguing for the use of optimization equations, B.L. and another parent from the district created a website where community members could generate their own set of boundary maps. They could move the boundary lines around and email the resulting maps and analysis to the BAC. The community presented maps that they felt fit the district criteria better than the maps the BAC was considering. In addition to the desired boundary lines, the parent created program also calculated the percent capacity at each high school, the proximity of all people within the boundaries to the high school, how many students will be required to transition to the new boundaries, and the percentage of students within the new boundaries that qualify for free and reduced lunch. Later on, B.L and his partner also added the accident rate and/or crash rate on the routes people would travel to the high school.

In Figures 14 and 15, there are two examples of the parent-generated maps from the website created by B.L. and another LCSD parent. As seen in these two examples of parent-generated maps submitted to the district, the parent-developed program uses the district criteria to create the analysis charts that accompany the maps. The charts connect directly back to the objectives and criteria set forth by the district: capacity, proximity to schools, safety, minimizing transition, and student body composition (represented by free and reduced lunch). The parents who created the program determined calculations that could quantify these criteria to help justify to the BAC to consider the maps they made and communicate that they felt their ideas were better than the maps the BAC published.

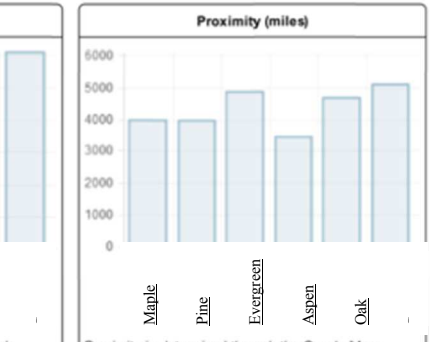
Both examples of parent maps were different from any of the maps put forth by the BAC or the district springboard map that kicked off the work in October 2015. In the

Figure 14

Parent Generated Map and Analysis Table #1



School	Capacity	Proximity (miles)	Transitions	FRL
Maple	96.88%	4002.72	622	64.92%
Pine	94.02%	3994.65	1225	44.28%
Evergreen	88.51%	4902.42	0	35.52%
Aspen	96.49%	3477.65	1116	41.14%
Oak	96.69%	4707.31	886	22.35%
Spruce	97.93%	5137.97	817	24.72%
District Total	**95.11%**	**26222.72**	**4666**	**38.43%**



The population data was extracted from the 'High School Boundary Springboard Proposal', where the numbers were listed per grid code. These values should match the [redacted] published boundary maps with little error.

Proximity is determined through the Google Maps service, calculating driving distance from each grid code centroid to the proposed high school.

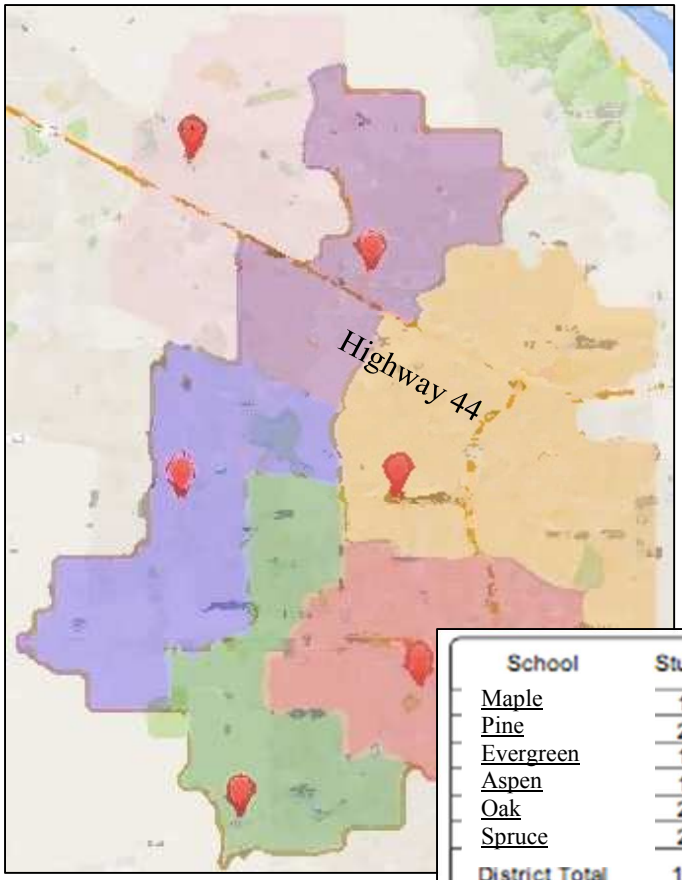
Transitions are the number of students changing high schools. The number is assigned to the high school they are leaving, indicating impact to that school's existing student body.

This data was extracted visually from the 'K-12 Students by Eligibility for Free & Reduced Lunch (SY 2014-15)' map published by the Beaverton School District on October 28, 2015. While this data has been fit to approximate the [redacted] data, these values may vary

Note. Filter applied to the original map to blur the street and city names. The black box covers the district name.

Figure 15

Parent Generated Map and Analysis Table #2



School	Students	Capacity	Proximity (miles)	Accident Rate	Transitions	FRL
Maple	1994	91.64%	3403.19	5066.48	555	59.68%
Pine	2095	98.73%	5255.20	13219.23	1236	44.56%
Evergreen	1767	81.20%	4655.30	11600.71	0	30.94%
Aspen	1837	99.30%	3459.29	6016.49	1063	49.20%
Oak	2141	97.19%	5064.85	8039.44	1267	18.03%
Spruce	2409	99.50%	5016.43	8267.38	779	27.12%
District Total	12243	94.56%	26854.27	52209.73	4900	37.68%

Note. Filter applied to the original map to blur the street and city names.

first map, Figure 14, the two high schools in the north, Spruce and Oak, are mostly filled with students from the northern part of the district north of Highway 44. In the second map, Figure 15, drawn by different parents, the schools' attendance areas span areas both north and south of Highway 44 in much greater frequency. I discuss Highway 44 and its significance in much greater detail in the next chapter, but I thought it was important to point out how the parents used the highway differently in these two example parent maps.

As exhibited by these community-generated maps, the community-generated data is very specific to the district's objectives and criteria. The intra-action between the community members, their backgrounds, and the objective/criteria apparatus produces particular arguments internal to the larger boundary discussion the district, committee, and community are having. Because the community connects their views directly to the objectives and criteria, it helps validate them as arguments that the district and the BAC should consider. Again, if the objective/criteria apparatus had been different at the outset of the boundary determining process, the different apparatus would have altered the community-generated data as well.

Grassroots Community Groups. As the community created maps, two grassroots community groups popped up as well. The goal of both of these groups was to sway the committee towards a particular set of new boundaries. The names of the community groups were Common Sense Boundaries (CSB), and All Children Deserve an Excellent Education (ACDEE). Both groups put forth a set of maps that they thought were better than those put forth by the BAC and worked to rally other parents and community members behind their particular maps.

The community group, CSB, emerged from the Sycamore community and centered their argument on Highway 44 as a boundary line. They argued that it was most sensible for people who lived north of Highway 44 should attending high school north of Highway 44. According to their statistics accompanying the maps, this would decrease transition, increase proximity to schools, and reduce the accident rate. The other group, ACDEE, emerged from the community near Juniper Elementary school. (Juniper Elementary is south of Highway 44 at the intersection of Highway 413 and directly south of the Sycamore neighborhood). This group also seemed to be concerned with student transition, but their most significant emphasis for the new boundaries was balancing the free and reduced lunch numbers throughout the district. They put forth maps to decrease the disparity of free and reduced lunch numbers between all the high schools across the district. Both of these groups made sure they had representation at all BAC meetings and frequently emailed comments to the BAC to make their presence known.

Community-Apparatus Intra-Action Conclusion

As demonstrated through this section, the intra-action of the LCSD community and the objective/criteria apparatus produced multiple effects. First, it constrained what the community commented on and wrote to the committee. The constraint by the apparatus also produced an organizing structure to their letters and petitions. It also produced the effect of the community advocating for additional criteria to be considered in the decision-making process even though these ideas were exterior to the objective/criteria apparatus. The intra-action of the community and the apparatus also produced the prioritization of minimizing transitions for students over reducing the capacity at the high schools. Finally, the intra-action with the apparatus produced a host

of community-created data to attempt to influence and maneuver the BAC's final decisions. To increase this influence, the community formed two grassroots groups during this process. Ultimately, the community groups did not get everything they advocated for, and many parents remained frustrated after the district set the final boundaries.

Objective/Criteria Apparatus Conclusion

Using the objective/criteria apparatus as the analytic lens to analyze the data from both the BAC and the greater LCSD community, I was able to trace the effects of these intra-actions and determine what was interior and exterior to the decisions being made throughout the process. When focusing on the intra-action with the BAC and the apparatus, the effect produced was the preference given to the objective of high school capacity over many of the other criteria. Capacity was the criterion that was centered the most in the decision-making process. In addition, the committee made the concession that they could not meet all of the criteria since they were ill-defined, not ranked, and in conflict with each other. This meant that even though the district put forth nine criteria for the committee to use, many of these criteria became exterior to the apparatus and were not considered very often, like staffing patterns. Ultimately the intra-action between the BAC and the apparatus did not produce the committee's desired results. All high schools did not meet the 90% capacity barrier, and the new boundaries required a large number of students to transition to different high schools.

When focusing on the intra-action with the community and the objective/criteria apparatus, the effects were somewhat different from that of the BAC. The parent group addressed the district's criteria, but the intra-action also had the community arguing for

additional criteria to be included in the decision-making process. Because the BAC viewed criteria such as extracurricular activities and AP and IB classes as exterior to the apparatus, tension arose between the BAC and the community. This tension often made the community feel as if they weren't being listened to. Another reason the community thought they weren't being heard is that the community prioritized individualistic needs while the BAC prioritized the good of the overall school district. With the community's focus on individual needs, the intra-action of the community and the apparatus also produced a large amount of community data to attempt to influence the committee towards these specific needs. The other significant difference between the intra-action of the community verse the BAC was the community's focus on minimizing transitions for their children. They wanted all students to be able to stay at the high school where they began. While they did not achieve this goal, the BAC did decide grandfather one more grade level and transfer options for siblings, school leaders, varsity athletes, and a select few academic cases.

Unfortunately, the objective/criteria apparatus turns out to be poorly constructed. When thinking of an apparatus in terms of a scientific experiment, an apparatus defines an object in a particular way through its intra-action with that object. Using the example of defining the nature of light from Barad's (2007) work, depending on the apparatus that light intra-acts with, light is produced and defined as either a wave or a particle. The apparatus and its intra-action with light define light in a particular and distinct way. The objective/criteria apparatus used with the boundary process in LCSD does not provide this sense of definition or clarity. Its lack of precision and the conflicting nature of the multiple parts of the apparatus led to nebulous understanding, lack of definition, and high

levels of frustration among all those involved. Ultimately, the apparatus that was supposed to help guide and clarify the process and get the committee to the two main goals, 90% capacity, and limited transitions, when intra-acting with the committee and community did not function and produce this as a possibility. As was shown through the following analysis, the BAC met neither objective through this process. The designed apparatus and its intra-actions with the BAC, the community, the district demographics, and the old boundaries did not produce the possibility of meeting either stated objective. The objective/criteria apparatus also pushed back on the BAC recommended boundaries resulting in the school board rejecting the BAC recommended boundaries. Overall, the intra-action of the objective/criteria apparatus and the BAC and community produced very distinct and specific effects. I discuss these effects further and why they matter, and I address the implications for future school policy in the final chapter.

The objective/criteria apparatus was the apparatuses that had one of the most pronounced effects on the boundary determination process. Not only did it intra-act with the BAC and greater LCSD community, but it also intra-acted with the spatial reality of the school district. In the subsequent data analysis chapter, I explore the impact of the spatial and geographic reality of the school district further by tracing the Highway 44 apparatus and its productive effects and (re)configurations of the high school boundary process and the final boundary decisions.

CHAPTER VII

HIGHWAY 44 APPARATUS

Introduction

In the previous chapter, I analyzed the data from the BAC and the LCSD through the analytic of the objective/criteria apparatus. In this chapter, I trace the effects of a second apparatus, the Highway 44 apparatus, and its intra-action with the BAC and the LCSD community. The Highway 44 apparatus is a geographical and social marker that helps to trace the ways in which the uneven geography of the LCSD has a significant impact on the process and practice of the school boundary decisions. I first attend to the intra-actions between the Highway 44 apparatus, the BAC, and the geography and demographics of LCSD. I then attend to the intra-actions between the Highway 44 apparatus, the LCSD community, and the geography of LCSD. I end with a summary of how the Highway 44 apparatus (re)configure the attendance boundary process and the Lodge City School District and community.

The Highway 44 Apparatus

Another apparatus functioning within the phenomena to redraw the high school attendance boundaries in LCSD is Highway 44. Highway 44 has been a significant thoroughfare in this area for quite some time. It is the primary route in northern Oregon to get from Mount Hood, in the Cascade Mountains, to Portland, the largest metro area in the state, to the Pacific coast. While the road has been there for an unknown amount of time, it gained status when it became a highway as part of a public works project in the 1930s and 1940s. Additionally, as the Portland metro area has grown, the highway's importance and busyness have only increased. Even if one does not plan on driving to the

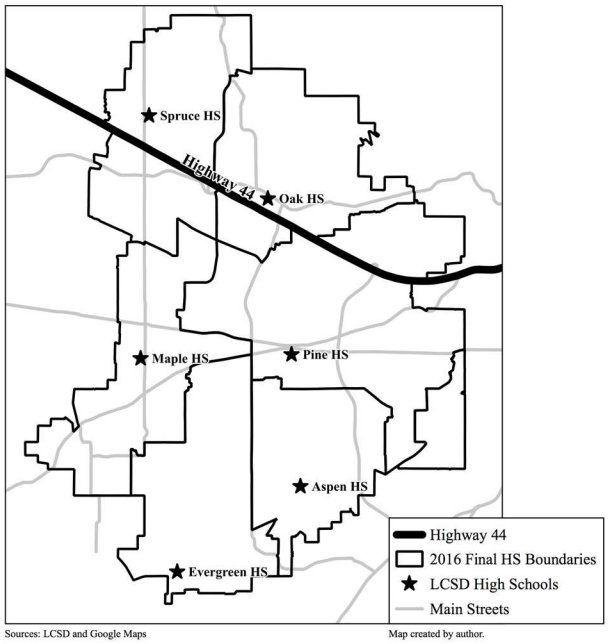
coast, as the suburbs around Portland have grown, it is the main route to get between the eastern and the western suburbs. Thus, not only does Highway 44 play an important role within LCSD, it is a significant highway throughout the Portland metro area and the greater state of Oregon.

The Lodge City School District is one of the many suburban school districts in the Portland metro area intersected by Highway 44. LCSD became one large consolidated school district from many smaller rural elementary and high school districts in 1960 (Varner, 2000). The consolidation was after the completion of Highway 44, and thus, Highway 44 has always been prominent in this district. Within LCSD, Highway 44 runs through the district from east to west and cuts the district into a northern third and southern two-thirds. Two high schools are located north of Highway 44, Spruce HS and Oak HS. Four high schools are located south of Highway 44. In the middle third of the district reside Maple HS and Pine HS. In the southern third of the district are Aspen HS and the new Evergreen HS. The map in Figure 16 provides a spatial orientation of the six high schools in the district relative to Highway 44.

Highway 44, like the objective/criteria apparatus, is "not [a] mere observing instrument" but instead reconfigures the LSCD world in ways that come to matter for the community, the LCSD parents, students, and the greater community (Barad, 2007, p. 140). In turn, the highway matters to the determination of the new LSCD high school boundaries. Highway 44 is an apparatus because it actively configures and reconfigures boundaries around those included or excluded inside specific communities within LCSD. It also enacts boundaries between communities based on race/ethnicity and socioeconomics and denotes spaces of privilege. As a physical object, Highway 44 is

Figure 16

Highway 44 and the 2016 Final Boundaries for the Six LCSD High Schools



Note. The boundaries displayed on the map are the final boundaries approved by the LCSD school board in the fall of 2016. Evergreen HS is the new high school that opened in Fall 2017, which caused the need for changes in boundaries.

both an important material and spatial marker within the LCSD community. Thinking of the highway as an active apparatus and as both a material and a spatial marker will allow me to trace and illustrate the social and material relations at play within the LCSD community.

This theorization and conception of the highway as an apparatus draws on Barad's analysis of Leela Fernandes' work. Fernandes analyzed the social relations at play in a jute factory in India. Fernandes "used the spatial positioning of workers on the shop floor as a material marker of the structural dimensions of class" at play in this factory (Barad,

2007, p. 236). Barad then built on Fernandes' work and discussed how the spatial configuration of the mill intra-acts with the workers, managers, unions, and the power dynamics of gender, community, and class. These entangled intra-actions make some working conditions and workers' actions possible and others impossible. It also brings to the forefront that decisions and actions are continually constrained and produced by the spatial reality of a phenomenon along with the circulating power dynamics. Drawing from the work of both Barad and Fernandes, I use the spatial positioning of Highway 44 relative to the LCSD high schools as a material marker to illustrate the structural and spatial dimensions of class, race, and ethnicity, and the desirability/undesirability of high schools at play within LCSD. Focusing on the highway will illuminate the boundaries drawn around who and what are exterior or interior within desired social relations throughout the LCSD community. These social relations revolve around which high school community their students will be assigned to within the newly determined high school boundaries.

Contested Spaces: Sycamore and Elm

One of the ways Fernandes focused her analysis was by "paying close attention to the ongoing contests over space, time, and movement in the life of the factory" (Barad, 2007, p. 288). Again, taking guidance from Barad's analysis of Fernandes' work, I pay close attention to specific contestations within LCSD. In terms of space, the highway will be central to my analysis along with two communities, Sycamore and Elm, which border the highway. These two communities are the focus of this chapter because of their spatial location in relation to Highway 44 and the continual protests by community members of the new high school boundary lines. Thus, I enact an agential cut through the intentional

focus on these two communities over other communities in the LCSD school district. One reason for this agential cut is due to the communities' spatial relation to Highway 44. A second reason was due to the vocal nature of these two communities throughout the process. Both the cut to focus on the highway and the cut to focus on the two communities are inevitably divisive (Barad, 2007). The cuts are divisive because both preclude me from "recognizing some things" but not others and cause me to "emphasize the importance of some things but not others" (Bodén, 2015, p.195). As Bodén (2015) states in her discussion of Barad's conception of agential cuts, "Different cuts will thus produce…different versions of the thing studied" (p. 195). Thus, I take responsibility for this particular focus on the two communities and how the highway acts as a framing device for the following analysis.

I also acknowledge that I am not the only agent involved in making the cut to bring the two neighborhoods, Elm and Sycamore, into focus. The highway enacts a cut because it is a physical boundary line for both neighborhoods. The boundary advisory committee (BAC) also produced a cut because many members highlighted these two neighborhoods in their interviews as the most contentious spaces throughout the boundary process. The sheer volume of the publicly posted written comments from these two areas also influenced the cut to have these two neighborhoods as the focus of analysis in this chapter. The socioeconomics, racial/ethnic makeup, and historical associations of these two neighborhoods are also entangled and influential in this particular agential cut. I acknowledge my responsibility for enacting this particular cut and how it will shape and frame the analysis in the following chapter. As Barad notes, it could always be otherwise, and I acknowledge that this is only one possible way to

analyze and think with this data, this highway, this district, and these changing boundary lines.

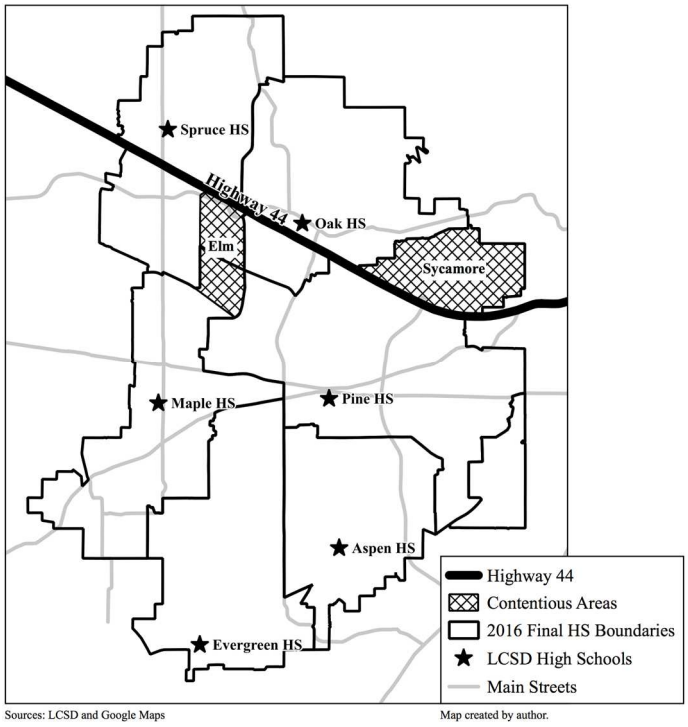
However, by narrowing my analysis to focus on the intra-action *of* and *with* Highway 44, the BAC, and these two communities, it will help to illuminate how both the committee's and community's arguments for specific neighborhoods to be included inside the boundaries of particular high schools are highly contested across space, time, and movement through the greater LCSD school district. In particular, the intra-action between Highway 44 and Sycamore and Elm helps to trace how the structural dimensions of class, race, and ethnicity and the desirability and undesirability of specific high schools are at play within LCSD. The map in Figure 17 displays these two communities' locations relative to Highway 44 and the six district high schools. Highway 44 is a boundary line for both communities. Highway 44 is the southern boundary of the Sycamore neighborhood and the northern boundary of the Elm neighborhood.

Continued Theorization of Highway as Apparatus

Returning to the Baradian concept of the apparatus, Highway 44 functions as an apparatus because it is not a static material object. Instead, it continually intra-acts with the BAC, the community, and the geographic reality of LCSD in both material and discursive ways that produce possibilities and impossibilities for the greater school district. "Apparatuses are the practices of mattering through which intelligibility and materiality are constituted (along with an excluded realm of what doesn't matter)" (Barad, 2007, p. 170). In the context of the process to determine new LCSD high school boundaries, these intra-actions make particular boundary configurations possible and

Figure 17

Contentious Neighborhoods, Sycamore and Elm, and Highway 44



Note. The two neighborhoods, Elm and Sycamore, were the most resistant to the changes the BAC made. Elm is located south of Highway 44, and Sycamore is located north. The boundaries on this map are the final boundaries approved by the LCSD school board in Fall 2016.

intelligible to the community and render other boundary configurations as impossibilities and absurd.

In addition, the highway marks and configures distinct social relations among students and families and produces characterizations of particular neighborhoods and high schools in classist and racist ways. It marks spaces and bodies that are desired and those that are to be avoided. Barad (2007) writes,

> Bodies do not simply take their places in the world. They are not simply situated in, or located in, particular environments. Rather, 'environments' and bodies' are intra-actively co-constituted. Bodies ('human,' environmental,' or otherwise) are integral 'parts' of, or dynamic reconfigurings of, what is. (p. 170)

Thus, the highway enacts temporary agential cuts that are continually reconfigured to mark different ways in which different bodies within the district are defined and come to matter to how schools and students are seen as good and desirable.

Furthermore, the highway apparatus comes to matter in the ways in which it can actively create a segregatory boundary between high schools. The highway communicates an ethical message – does the district want to communicate one of economic and/or racial/ethnic segregation or one that attempts economic and/or racial/ethnic integration? By this, I mean does the district create two high schools with a very affluent student body and two high schools with a much poorer student body? Or does the district want to create schools where only certain races and ethnicities are present but not others? Ultimately, the spatial position of Highway 44 and its ability to act as an exclusionary barrier of movement in relation to the final boundaries powerfully communicates the district and committee's stance.

Thus, the Highway 44 apparatus is an integral part of each BAC meeting and conversation and the overall boundary determination phenomenon. Beyond the committee members' discussions and decisions, it also shapes what parents, students, and community members in Sycamore and Elm write in their comments to the committee and district administration. Through the committee interviews, community comments, and use of spatial mapping of the district, I trace these contestations of space and the spatial

relations of class and ethnicity/race within the district to analyze how they come to matter in the final determination of the high school boundaries.

In this next section of the analysis, I will be thinking with the following analytic questions:

1) What effects did the intra-actions between Highway 44, the BAC, the community, and the geographic reality of the district produce during the boundary determination process?

2) Due to the highway apparatus, what was centered or interior to the decisions about the new high school boundaries, and what was excluded from the decisions?

I first trace the effects of the intra-action of the highway apparatus and the boundary advisory committee using data from BAC interviews. Second, I trace the effects of the intra-actions of the highway apparatus and the Elm and Sycamore communities using data from their written comments emailed to the BAC and then posted to the LCSD website. I will end the chapter by providing a short conclusion of the two different groups' intra-actions with the highway apparatus. I address the implications based on the findings from these intra-actions in the final dissertation chapter.

The following several sections will focus on analyzing the data gathered from interviews with members of the BAC. They often spoke about the highway in relation to their understanding of the district dynamics and how they thought about their decisions for the new boundaries. I analyze their comments in conjunction with spatial analysis via GIS maps of the districts to foreground the intra-actions of the highway, the committee, and the determination of new high school boundaries.

Highway 44, the BAC, and the Geography of LCSD

One effect produced by the intra-action between the committee and Highway 44 is the committee's acknowledgment that their thoughts, decisions, and reasoning were continually being shaped by the geographic reality of the school district and the continued spatial references marked by Highway 44 throughout the discussions. In other words, they were continually intra-acting with the uneven geography of LCSD and the boundaries enacted by Highway 44. The different spatial distribution of bodies, socioeconomic classes, and racial and ethnic groups throughout the district played a prominent role and factored into every boundary conversation and decision. The highway was both the material and discursive object that marked the borders between different social, geographical distinctions within the school district. The highway functioned materially because it is an unavoidable physical object running through the district, but it is also discursive because of the ways that the committee used the highway within conversations as an indicator of a separation of wealthy and poor neighborhoods and white and Latinx neighborhoods in the district without ever having to name class or race/ethnicity directly. Instead, the BAC continually talked about who lived north or south of the highway and how a stark north/south division in boundaries would create much more homogenous schools versus the more diverse schools the committee desired.

The highway marked the boundary between the northern "desirable" high school communities and the "undesirable" central high school communities, as the communities who live north of the highway are much more affluent than those who reside south of the highway and the central areas of the district. This distinct material and discursive highway boundary functioned in similar ways to mark "geographies of difference" that

Buendía and Ares (2006) noted in their study of a school district with distinct notions of "east side" vs. "west side" and what these direction terms communicated about race, class, and desirability of different parts of the school district. In their study of a school district, the west side was seen as "undesirable," "dangerous," and "uninterested in education," whereas the east side was seen as "enlightened" and "intellectually prepared" (pp. 8-9). As the school district in Buendía and Ares study was divided into separate geographies with a distinct narrative around its desirability, so too was LCSD. As in Buendía and Ares's research, in LCSD, the northern "desirable" high schools were perceived to be safer, more academically rigorous, providing a better chance for students to go to good colleges. In contrast, the "undesirable" high schools were perceived as less safe and places where students were not challenged academically. Additionally, as is explored throughout the chapter, desirability, and undesirability were also tied to geographic locale, income levels, particular racial and ethnic groups, test scores, and property values.

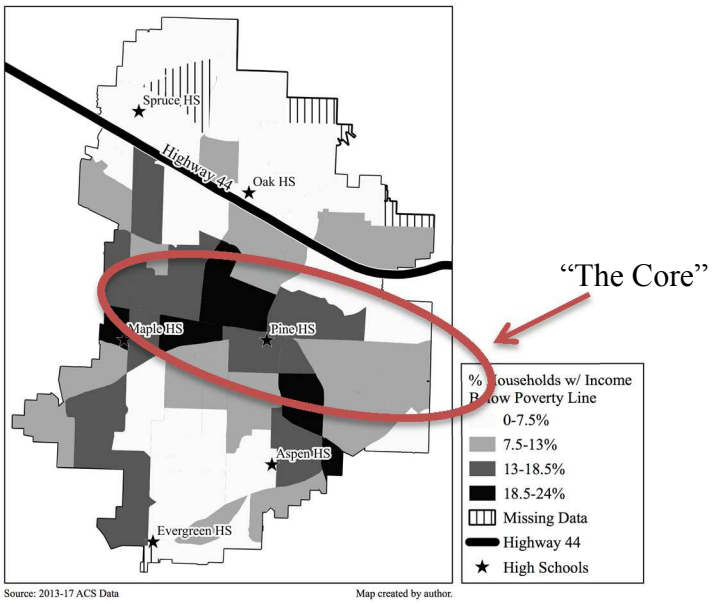
In LCSD, it is the highway apparatus that actively works as both the material marker but also as a discursive element to create distinct and bounded desirable and undesirable areas of the Lodge City School District that I explore throughout this chapter. Highway 44 marked the "geographies of difference" within LCSD (Buendía & Ares, 2006). Before, during, and after the boundary changes in LCSD, the highway apparatus was continually reconfiguring the district and determining that which came to matter (Barad, 2007, p. 140). The highway apparatus is one apparatus that configures social relations, categorization, and desirability of schools and what matters to the district.

LCSD is a "Poverty Sandwich"

One way that the highway apparatus functions to enact boundaries that matter and communicate "geographies of difference" is as the material and social marker between the wealthier and poorer areas of the district. In an interview, a BAC member described the district as a "poverty sandwich." She said, "you have a very affluent top and very affluent at the bottom. And a large population in the middle that is not affluent" (see Figure 18). The divider between the top and the middle is Highway 44. When pointing to

Figure 18

*Percentage of households with income **BELOW** the poverty line*



Note. Dark areas represent poor areas in the district. In 2015, the poverty line for a family of 4 was $24,250. Areas of missing data are because the area is a small sliver in a different county or because the data was not reliable enough to report. I calculated the reliability of ACS data according to (Liévanos, 2019, p. 181). I represented non-reliable ACS data as missing data.

a map of the district, another committee member stated, "the poverty tends to be here along the core." Again, the core area of the district is the middle area of the district south of Highway 44.

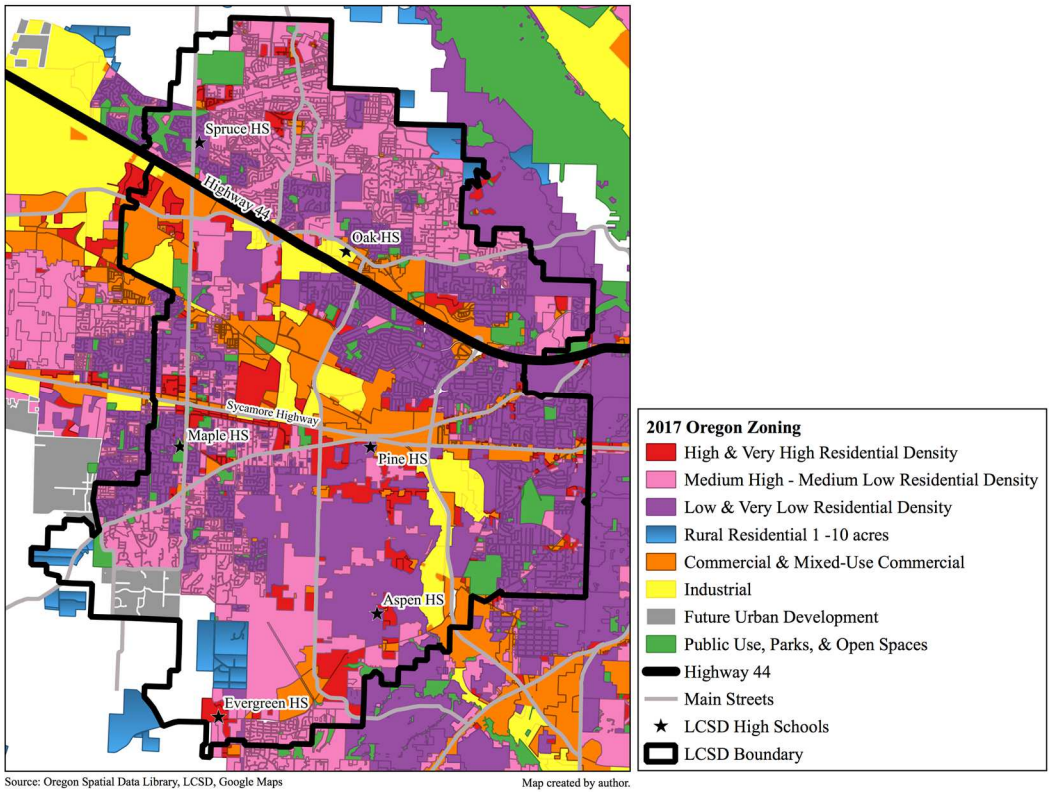
Zoning in LCSD & Highway 44

The poorer core area of the district is also in line with zoning laws for different areas of the district. In the core area of the district lies two other important thoroughfares, Sycamore Highway and railroad tracks. Due to these transportation routes, this core area of town is the area zoned for industrial (yellow) and commercial use (orange) use (see Figure 19). In addition to the commercial and industrial zones, the middle third of the district is also where the greatest amount of area is zoned for high-density housing (red). High-density housing (red), which often equates to lower-income and multi-family housing in cities, is commonly found closer to the more industrial areas of town, as is the case for Lodge City (see figure 19) (Liévanos, 2019). This proximity of housing to railroad tracks and industrial parts of the town contributed to the characterization of this area as an undesirable area in the city to live in or attend schools.

In LCSD, whereas the zoning for high-density housing (red) is mainly found in the central part of the district, zoning for medium-density (pink) and low-density housing (purple) are found primarily in the north, south, and far eastern parts of the district. There is also much less commercial (orange) and industrial (yellow) zoning in the northern and southern thirds of the district. In addition, more public, open, and green space (green) can also be found in the northern, southern, and eastern areas of the district. The lack of industry and dense housing contribute to the characterization of these areas being much

Figure 19

2017 Oregon Zoning Categories



Note. I combined some zoning categories for simpler visual communication of zoning laws that impact residential communities connected to the LCSD school district.

more desirable. These are also much more homogenous areas of the district because one mostly finds single-family homes in these areas.

Zoning laws could be another apparatus used to analyze the boundary determination process in LCSD. Like the highway, zoning laws are active in how they enact boundaries and (re)configure cities in ways that come to matter (Barad, 2007, p. 140). For the purpose of this chapter, I remain focused on the highway apparatus to highlight how the highway is a significant boundary between the denser housing and

industrial zones of LCSD and areas of less dense housing. The highway as a dividing mark of zoning practice reinforces the "poverty sandwich" described by community members in which the poorer, more dense, and industrial areas of the district are found in between Highway 44 and Sycamore Highway. Within LCSD, the high poverty areas are the places zoned for industrial and commercial zoning. The high poverty areas are also zoned for high-density housing more than higher-income areas.

Poverty in LCSD & Highway 44

The committee members' descriptions of the "poverty sandwich" or the poorer core area of the district cements their understanding of LCSD as a geographic district of thirds. The top third, located north of Highway 44, is affluent and full of single-family homes, the bottom third, where their new high school is located, is also wealthy and full of single-family homes, and the middle third, where Maple HS and Pine HS are located is not very affluent, contains the bulk of industry in the area and also includes most of the more dense residential housing. The spatial representation of this "poverty sandwich" is displayed in three different ways in the following three maps of the district (see Figure 20, 21 & 22). The first map (Figure 20) highlights the affluent areas of the district, the second map (Figure 21) highlights the poor regions of the district, and the third map (Figure 22) is a filtered version of a district created map highlighting the areas where there is the most frequency of students qualifying for free and reduced lunch[14].

The map in Figure 20 displays the areas of the district with the highest percentages of households with an income two times or more above the poverty line. The darker the location on the map, the higher percentage of households in the area is

[14] Free and reduced lunch is often the proxy district use to track which schools contain the most students from lower socioeconomic backgrounds.

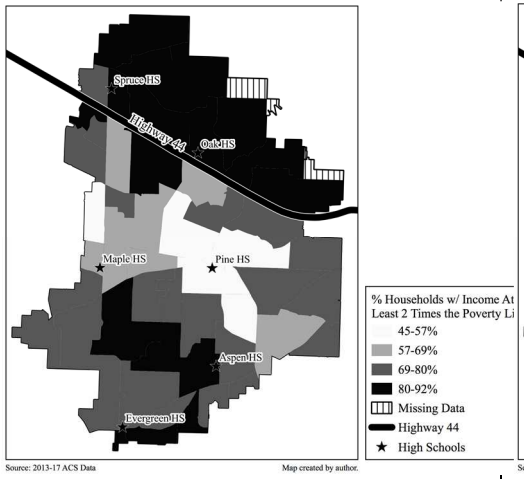
wealthy. These households have incomes at least twice the poverty rate. As described by the BAC members, the darkest places on the map are north of Highway 44 and in the southern third of the district. These areas also have the most area zoned for low-density single-family homes. The northern third and the southern third are the wealthiest areas in the district. The white area around Pine HS has the lowest percentage of families with an income at least two times the poverty line. Thus, this is the poorest area in the district.

In the map in Figure 21, the dark areas are reversed. This is because Figure 21 maps areas where families are below the poverty line. The dark regions now represent the poorer areas of the district. It is also where areas are zoned for industry and denser multi-family housing. Thus, the light areas are currently in the northern and southern regions of the district and represent the wealthier areas with less poverty. As described by the BAC, the core area in the district's center is where more households below the poverty line are located. Both representations of income in the district display the clustering of different socioeconomic statuses in different areas of the district. Both maps reinforce Highway 44 as a social marker of where families of varying income levels live in the district. Highway 44 becomes a stark dividing line between wealthier families in the north and poorer families in the central area of the district.

The third map in this series, Figure 22, is a hot spot map created by LCSD. (A filter has been applied to this map to keep the names of schools and streets anonymous.) This map was available to the BAC as they made their decisions about where to draw the new high school attendance boundaries. The darker purple areas on this map are the areas with the highest frequency of students qualifying for free and reduced lunch. The dark purple spots match the dark areas on the second map, Figure 21, where the district's

Figure 20

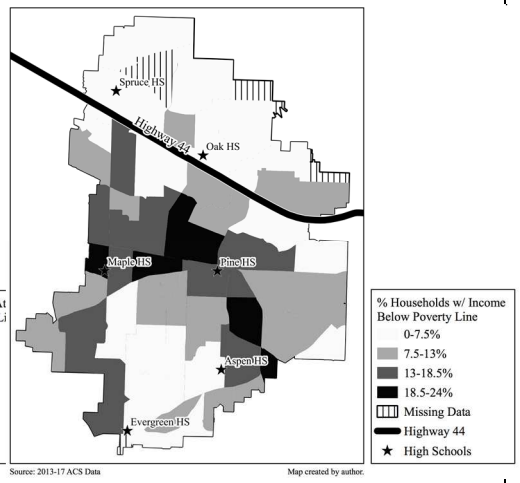
*Percentage of households with income well **ABOVE** the poverty line*



Note. Dark areas represent affluent areas in the district. In 2015, the poverty line for a family of 4 was $24,250. Areas of missing data are because the area is a small sliver in a different county or because the data was not reliable enough to report. I calculated the reliability of ACS data according to (Liévanos, 2019, p. 181). I represented non-reliable ACS data as missing data.

Figure 21

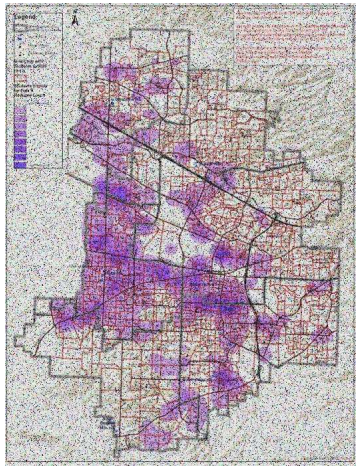
*Percentage of households with income **BELOW** the poverty line*



Note. Dark areas represent poor areas in the district. In 2015, the poverty line for a family of 4 was $24,250. Areas of missing data are because the area is a small sliver in a different county or because the data was not reliable enough to report. I calculated the reliability of ACS data according to (Liévanos, 2019, p. 181). I represented non-reliable ACS data as missing data.

Figure 22

Hot spot map of areas students who qualify for free and reduced lunch



Note. The darker the purple, the higher the frequency of free and reduced lunch. LCSD created this map. I applied a filter to keep the district, school, and street names anonymous.

lowest-income households are found. Again, this third map is another visualization of the "poverty sandwich" described by the committee members. There is relatively no purple area in the north or the south. If they are present, they are a much lighter shade of purple than found in the middle area of the district.

Highway 44 as the Boundary = Only "A Certain Type of Population" in Schools

Because of this reality of where different clusters of family income levels are located within the LCSD community, the committee considered this reality when making decisions about the new boundaries. A committee member from one of the high schools in the northern third of the district recalled,

> You could say highway [44], that's your cut off and everything north goes to [Spruce] and [Oak]. But of course, there's a problem with that. It's that just going to get a specific type of population to fill those schools. And so the committee, which I loved, was very passionate, about… No, we want to have culturally diverse schools—every single school. Or at least we will try to get to that point. And so trying to keep capacity in mind, but also that other piece in mind.

Here we see this committee member intra-acting with Highway 44. For him and the rest of the committee, it was outside the possibility to make Highway 44 a stark boundary line for the high schools north of the highway. He says that if they were to do that, they would "only get a certain type of population to fill those schools" and not have "culturally diverse schools." Through my intra-action with the actual interview, the spatial location of the high schools, the geography of the district, and boundaries enacted by the highway, his use of the concept, "culturally diverse schools" is the attempt by the committee to recommend new high school boundaries that produce schools that are both

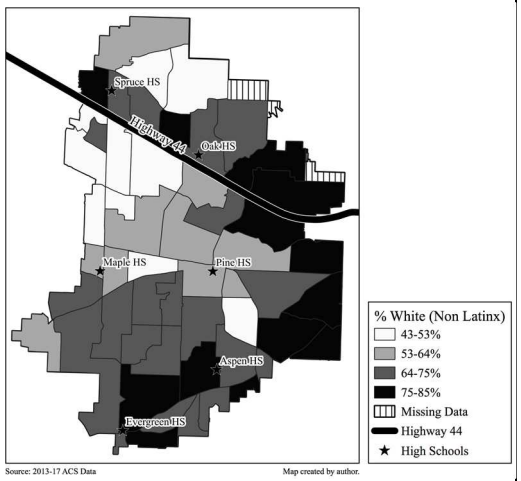
socioeconomically diverse and racially and ethnically diverse. The committee's concern of using Highway 44 as a stark boundary line would be that the high schools would be attended by a majority of students from more affluent families and schools of a majority white, non-Latinx, and Asian student body. If the BAC were to use Highway 44 as a stark boundary line, they would be communicating and configuring the district in a way that segregates the wealthy north from the poorer core area of the district. The committee was pushing back on the historical practices of the highway to divide the rich and poor areas of the district. The committee wanted to disrupt the discourse around wealthy northern schools and poorer central schools by not allowing the high school boundaries to follow the path of Highway 44.

Distribution of Racial/Ethnic Groups within LCSD and Relative to Highway 44. In addition to the highway dividing rich from poor within LCSD, the highway also partitions different racial and ethnic groups into distinct areas of the district, as shown in Figures 23, 24, & 25. In the same way that Highway 44 enacts boundaries between income levels, it also enacts boundaries between racial/ethnic groups that reside in LCSD.

In Figure 23, the largest populations of people who identify as white, non-Latinx are found north of Highway 44, in the eastern part of the district, and the southern region of the district. In the western half of the district and middle part of the district, there is less concentration of white, non-Latinx households. It is important to note that in every area of the school district, white households make up at least 43% of the population. Therefore, white families reside throughout all regions of the LCSD. These white, non-Latinx areas also overlap with the more affluent areas of the district and to the areas

Figure 23

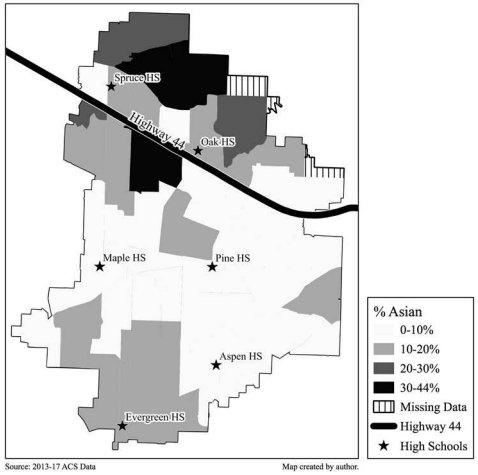
Percentage of Population Identifying as White, Non-Latinx



Note. Areas of missing data are because the area is a small sliver in a different county or because the data was not reliable enough to report.

Figure 24

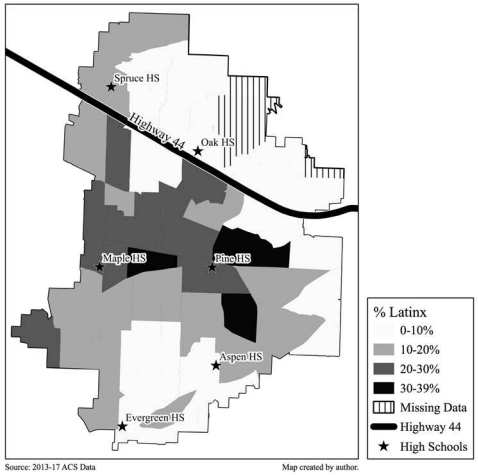
Percentage of Population Identifying as Asian



Note. Areas of missing data are because the area is a small sliver in a different county or because the data was not reliable enough to report.

Figure 25

Percentage of Population Identifying as Latinx (of all races)



Note. Areas of missing data are because the area is a small sliver in a different county or because the data was not reliable enough to report.

zoned for less-dense housing. They are also residing away from the more industrial areas of the district.

Figure 24 shows that the Asian community of LCSD lives in three distinct areas of the district. They reside north of Highway 44 or directly south of Highway 44 in the western part of the district. There is also a significant percentage of Asian households in the district's southern region near the newly built high school, Evergreen. The areas with high Asian populations reside in close proximity to the white, non-Latinx areas of the district. In addition, these areas also correspond to the more affluent areas of the district that are also less industrial and less dense housing.

Finally, Figure 25 shows that the Latinx population in LCSD is located mainly in the central area of the school district. This area corresponds to the poorer areas of the district, where the more dense housing is located along with more commercial and industrial spaces.

In comparing the three different maps, it is important to highlight that there is overlap in the areas in the district where both the white, non-Latinx, and Asian households are located and the overlap between white, non-Latinx, and Latinx households. However, there is little overlap in the neighborhood areas where a large percentage of Asian households and areas with a large percentage of Latinx households.

In addition, the reason the maps highlight these three racial/ethnic groups is because, over the last 30 years, LCSD has seen a significant rise in both the Asian and Latinx student populations within the school district (see Chapter 1). With the increase of the Asian and Latinx student populations, the proportion of white, non-Latinx students has declined. During these thirty years, the school district went from having a majority

white student body to now a majority students of color student body. The population of white, non-Latinx students is now below 50% of the student population in LCSD. With the large increase in Asian and Latinx students, the percentage of American Indian/Alaskan Native, Black, Pacific Islander/Native Hawaiian households in the district have remained relatively flat over this same period even as the white percentage of students decline. Thus these groups of students are not highlighted in the same way in these maps or in the conversations among the boundary advisory committee regarding changing the boundaries.

Because the growth of the Latinx and Asian student populations grew in distinct geographical locations within the school district, describing a family's housing location or which school they attend in relation to Highway 44 provides a greater depth of information beyond north or south. The description of residence can communicate assumptions about family income and race/ethnicity without having to name it explicitly. For example, stating that a family lives south of Highway 44 and attends Maple or Pine HS, people may assume that this family is less affluent and more likely to be Latinx than if a family said they lived north of Highway 44. Highway 44 is an active marker that communicates different ways in which the district is configured and how that matters to community members, and the decisions being made about new high school boundaries.

Looking at these three maps of the three most populous racial/ethnic groups in the area, it makes sense why the committee members opposed using Highway 44 as a boundary line. If the BAC used Highway 44 as a boundary line, there would not be a significant Latinx population at either Spruce or Oak High Schools. Therefore, to meet the committee member's goal of "culturally diverse schools," the boundary lines for both

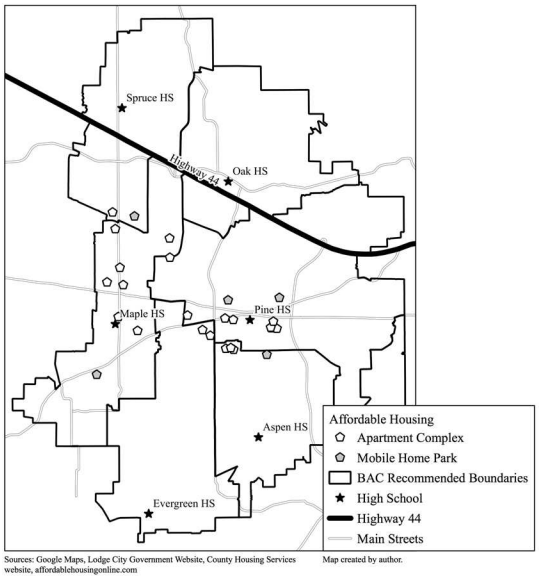
Spruce and Oak High School would need to extend south of Highway 44. In addition, for Maple and Pine High Schools to have a more diverse student body both racially/ethnically and in terms of social class, they would need to move their boundaries closer to or even north of Highway 44.

Types of Housing throughout LCSD and Relative to Highway 44. Another committee member supported this same idea of not using Highway 44 as a stark boundary line in the district. While pointing to the northern third of LCSD on a printed out map, he said, "On this side of highway [44] there's just not a lot of apartments and low-income housing. It's just not there" (see Figures 26 and 27). In addition to income being a marker for determining where students who are experiencing poverty are located in the district, Highway 44 is an even more tangible and visible marker for the committee to use was the location of different types of housing available in different areas of the district, which is directly connected to the zoning laws of the district. These zoning laws produce areas where you can and cannot find affordable housing. In addition, zoning laws also influence the price of homes in the area. Thus, real estate prices and rental prices produce patterns where different families can afford housing in LCSD.

In Figure 26, the affordable apartment complexes and mobile home parks are clustered in the core area of the district. The majority of the affordable housing is in the closest proximity to both Maple and Pine High Schools. On the three websites consulted to make the affordable housing map, none of the websites provided any options in the northern or southern parts of the school district. This reinforces what the committee members said about the lack of options for lower-priced housing in the northern part of the district. The areas with more affordable apartments and mobile homes

Figure 26

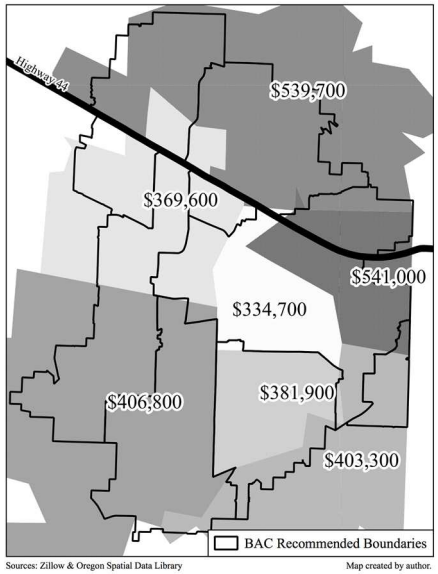
Location of Affordable Housing in LCSD



Note. The affordable housing depicted in this map is a selection of housing that appeared on three different websites, city and county housing pages and a nationwide affordable housing search platform. There may be more affordable housing units that are not depicted here.

Figure 27

Median Home Values by Zip Codes in the LCSD



Note. The differently shaded regions on the map represent different zip codes in LCSD. The median home value for each zip code was sourced from Zillow.com in August 2020.

coincide with the median housing prices by zip code, as represented in Figure 27. The three zip codes with the median housing prices under $400,000 are the same areas where most affordable housing is located. Together, these two maps provide another way to think about the socioeconomic spatial reality of LCSD.

The maps above, showing the location of affordable housing and median home values, reinforce the two-income maps (see Figures 20 and 21). The income maps depict areas where households are the wealthiest, and the affluent areas are concentrated in the northern and southern parts of the district. These wealthy northern and southern parts of the district are also where the median house prices are the most expensive, and a person is least likely to find affordable housing. In the map displaying the rates of households below the poverty line, the households in poverty are concentrated in the center of the district and correspond to the area of the district where more affordable housing is located.

In addition to the intersections with the zoning and income maps, the maps of where people can find affordable housing and where lower housing prices occur also intersect with where different racial/ethnic groups are located within LCSD. The areas with more affordable apartment complexes, mobile home parks, and lower housing prices are also the areas with the highest percentage of Latinx families. The areas with the highest percentage of white, non-Latinx families are the areas where no affordable apartment complexes or mobile home parks are found. Furthermore, the areas dominated by white, non-Latinx, and Asian American families are the areas where the home prices are the highest.

The availability of different housing options and levels of household income are mutually reinforcing. People live in areas that they can afford or in areas in which they can receive a loan. Racist lending practices often preclude people of color from living in specific neighborhoods because they are denied loans or offered higher-cost subprime loans that cause ownership problems in the future at higher rates than whites (Apgar & Calder, 2005). Additionally, houses occupied by white owners are appraised at higher values than houses occupied by people of color (Howell & Korver-Glenn, 2018). Differences in appraisals are also due to lingering effects of the historic redlining of the 1940s (Rutan & Glass, 2018). The racism embedded in appraisal practices reinforces the connection between racial segregation in housing. Thus the combination of racist loaning practices, lower appraisals, and the uneven distribution of housing options throughout the school district precludes families of different incomes from being evenly distributed throughout the district. In addition to the uneven distribution of income levels, there is also an uneven distribution of families of different racial/ethnic identities. Part of this is due to the intersection of race/ethnicity with income levels. It is common for Black and Latinx families to have lower average income levels. Therefore, a higher percentage of Black and Latinx families are found in the same areas of the district where one finds families with the lowest incomes. This pattern holds true for LCSD. Thus, this spatial reality of the uneven distribution of families of different income levels and racial/ethnic identities then influences the demographic make-up of all schools in a district when assigned to a high school based on residential location.

Thinking with Barad, there are multiple apparatus intra-acting – location of affordable housing, zoning, lending practices, race, ethnicity, class, Highway 44 – that

through the ongoing intra-actions produce an uneven geography within LCSD. These layers and uneven geography in turn intra-act with the boundary advisory committee, the criteria discussed in the previous chapter, and the decision-making process to determine the new high school boundaries. This process and the decisions being made are entangled with and cannot be separated from the geographic reality of the district. These intra-actions shape the decisions made by the committee in particular ways and ultimately produce a particular set of BAC recommended boundaries.

BAC Recommends Boundaries that are not Defined by Highway 44

The uneven distribution of income levels, housing options, and racial and ethnic groups throughout the districts created a challenge for the BAC to meet their goal of having high schools with students from a wide range of socioeconomic backgrounds and from different racial and ethnic backgrounds as a part of each high school. Creating even more challenges to this problem is that one of the criteria addressed in Chapter 6 was that students were to be in close proximity to their school. The BAC was aware of this reality. One of the ways they attempted to push back against creating boundary lines with the harshest divisions between high and low socioeconomic groups and between different racial/ethnic communities was to not use Highway 44 as the boundary line between the northern high schools and the high schools in the middle of the district. If they had used Highway 44, the committee felt they communicated to the greater LCSD community that they were okay with cementing segregation based on both income and racial/ethnic lines into the new high school boundaries.

When the BAC conducted their work around not making Highway 44 a stark dividing line between the northern and central high schools and their attempt not to have

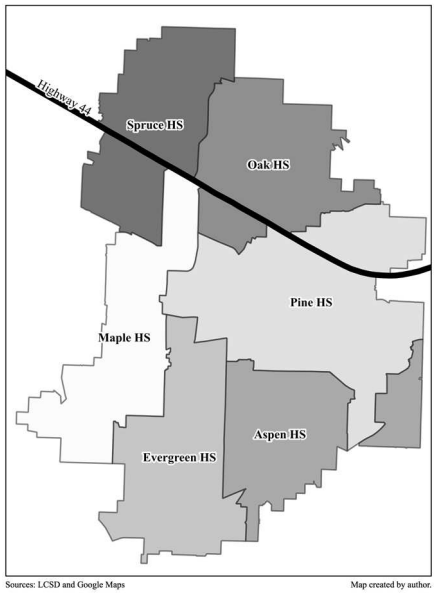
vastly different student body composition, they mostly talked in terms of free and reduced lunch rates at the various high schools. There was sometimes a direct mention of race or ethnicity, but most often, the conversation revolved around free and reduced lunch rates at the different high schools. In this way, often, the BAC conflated race/ethnicity and socioeconomic status. Also, due to court case rulings like *Parents Involved in Community Schools v. Seattle School District No. 1*[15], it is becoming more common to attempt to integrate schools through socioeconomic integration over specifically considering the composition of different racial and ethnic groups in schools. In this sense, for the committee and their boundary work, free and reduced lunch status operated as another apparatus that made cuts about who should or should not be included in certain boundaries. I address the specificity of some of these decisions based on free and reduced lunch later in the chapter. But for this section, I focus on how moving the high school boundaries both north and south of Highway 44 disrupts both the material divide of more and less affluent neighborhoods and the discourse that circulates in the community about which part of the community families do and do not want to be associated with. In the BAC's work to disrupt the stark boundary Highway 44 created, they made sure that they assigned some neighborhoods south of Highway 44 to the high schools located north of Highway 44. They also moved some neighborhoods north of Highway 44 to high schools south of 44. By doing so, the committee disrupted the stark segregatory line of Highway 44 (see Figure 28).

[15] In the Supreme Court ruling, *Parents Involved in Community Schools v. Seattle School District No. 1,* the court did confirm that integrated schools are a good goal but restrict school districts in how they were to achieve this goal. Thus, school districts began to not consider race/ethnicity at all when determining new boundaries and began using other measures as a proxy, such as socioeconomic status. (https://civilrightsproject.ucla.edu/legal-developments/court-decisions/resources-on-u.s.-supreme-court-voluntary-school-desegregation-rulings). The research on whether racial desegregation can be achieved via income-based school assignment policies finds that there is no guarantee that these policies will reduce racial segregation between schools (Reardon, Yun, & Kurlaender, 2006).

They were attending to what the material and discursive marker – Highway 44 – communicated through the boundary map. The spatial position of the HS boundary line relative to Highway 44 became important to the committee. If the boundary lines and Highway 44 were the same, the BAC felt they were adding to the circulating discourse that the north part of the district was separate from and not engaged with the district's

Figure 28

Final boundaries recommended by the LCSD Boundary Advisory Committee in March 2016



Note. This map depicts the final boundaries recommended to the superintendent by the BAC in March 2016. These boundaries were approved by the superintendent but not by the school board. Therefore, the boundaries went under further revisions by the district, and a different set of boundaries were approved in Fall 2016 and implemented in Fall 2017.

central area. By refusing to use Highway 44 as a divider, the high school boundaries required the physical movement of bodies north and south of Highway 44, thus producing the condition for a change in social relations and a disruption of notions of north/south separation.

Again, by refusing Highway 44 to be a boundary for the high schools, the committee was attempting to disrupt the circulating discourse in the community about how they don't drive south of Highway 44 or see the area south of Highway 44 as a part of their community. By assigning students that reside north of Highway 44 to schools south of 44, the highway can no longer be a physical barrier that families only cross on occasion. Instead, they now must drive south of Highway 44 five days a week during the school year. The new boundaries proposed by the BAC would require physical movement of bodies that disrupted the historical exclusionary nature of seeing areas south of Highway 44 as not part of their community or an area to avoid.

Furthermore, the BAC also recommended the boundary area for Maple High School run vertically north and south. By elongating the boundary from north to south, it prevented Maple HS from having an attendance area only in the middle part of the district where income levels are the lowest. By moving the boundary north towards Highway 44 and south towards the southern edge of the district, they were encapsulating a wider range of household incomes into their attendance area and therefore attempting to lower the overall free and reduced lunch rate of the high school.

Similarly, the committee prevented the attendance area for the new high school, Evergreen, to only be located in the southern part of the district. By extending the boundary areas for Evergreen north, to the core area of the district, the BAC tried to

prevent this high school from only having students from one of the wealthier areas of the district. In the next section, I will provide more detail from committee interviews about the specifics of these types of decisions.

Ultimately, the BAC recommended boundaries and presented them to the superintendent and school board in March 2016, which did not allow Highway 44 to be a stark boundary and social marker. This is because the BAC did not align the new southern attendance boundaries of Spruce HS and Oak HS with Highway 44. The attendance boundary for both Spruce HS and Oak HS extended to include neighborhoods south of Highway 44. Additionally, the Sycamore neighborhood, located north of Highway 44, was assigned to Pine HS south of Highway 44. Through their refusal to reinforce or use the highway as a stark boundary, the BAC attempted to disrupt the physical barrier that divided lower and upper-income families from each other within LCSD high schools. The committee knew that Highway 44 was not a benign marker within the LCSD community but instead communicated particular social boundaries within LSCD. It communicated which high schools were traditionally the most desirable and which neighborhoods people didn't want to be associated with. But even though it is a lofty goal to challenge the long-held notions of a desirable, affluent north versus a poorer, undesirable core, the committee opened the possibility of disrupting these notions by requiring the movement of bodies across Highway 44 to attend different schools and become members of new school communities. Like Highway 44 as an attendance boundary, apparatuses are not fixed or deterministic but "open-ended practices" (Barad, 2007, p. 170). Through their intra-actions with the world, and in this specific case, the intra-action of Highway 44 with new attendance boundaries and the new movement of

bodies, it opens the district to new possible discourses and new possible relations that have the potential to disrupt the negative notions of Maple and Pine High Schools and the neighborhoods and people in the core area of the district.

Because the BAC was aware of the divisive discourse the highway produced within the community, the committee was very strategic and not private about the decisions they made to move or keep certain neighborhoods associated with northern schools and move other neighborhoods from the north to central schools. In this next section, I provide four examples of these specific moves that opened up the possibility of disrupting the exclusive communities north of Highway 44 and the negative discourse about central LCSD.

Specific Neighborhood Location and Composition = Different High School Assignments. In constructing the new high school boundaries, the committee has very specific conversations about certain neighborhoods located north and south of Highway 44. Their relative location to the highway and their economic and racial/ethnic composition created particular reasons about which high school the committee wished to assign the neighborhood to. Again, through these conversations, it is apparent that the committee knew that both the location of the highway and the inclusive and exclusive messages it communicated were a part of and not separate from their boundary decisions.

They also were aware that the different boundaries they put in place would reconfigure the district in significant ways and depended on how the highway and new boundaries were positioned in relation to each other. Were the highway and the boundaries reinforcing each other and amplifying the separation of the north from the core? Or were the highway and boundaries canceling each other out in particular ways

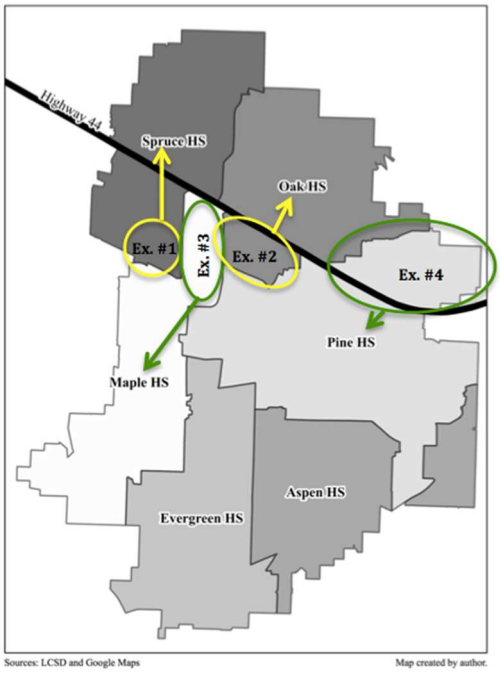
that diminished and blurred the borders between the north and the core? The committee knew they were in a constant intra-action with the material and discursive forces of both the highway and the geography. These intra-actions shaped their decisions and conversations, and they were trying to determine the new boundaries and think through what the new boundaries communicated about their ethics as a committee and different geographic spaces within LCSD. The highway and the spatial geography were "not mere observing instruments," but active players in determining the BAC recommended boundary lines (Barad, 2007, p. 140). Following are four specific conversations about particular neighborhoods within LCSD that are all close to Highway 44 and where the committee determined they should be assigned based on their ability to disrupt the stark border of Highway 44 to create a more balanced and diverse composition of students in each school (See Figure 29 for the spatial location of the four different examples provided in the following paragraphs.)

Example 1: Low Income Housing to Spruce HS. In this first example, a committee member describes a decision made by the BAC about an area of homes south of Highway 44 and how they explicitly considered the socioeconomics of the neighborhood when deciding which high school to assign the students. The committee member uses the free and reduced lunch numbers as an agential cut to determine where students should be zoned for high school. He discusses an area, or chunk, as he refers to it, that is south of Spruce HS, south of Highway 44, and directly west of the Elm neighborhood. He recalled,

> This chunk, there's a chunk right in here…that stayed at [Spruce], and we left it at [Spruce] specifically because it's low-income housing…There's a couple of

Figure 29

Location of neighborhoods used as examples in the following pages



> neighborhoods in there…[and there] is a mobile home park. It's some of the poorest students in the district. And we specifically left those.

(As he was talking, he was pointing to a printed map of the school district during the conversation.) Another committee member talked about this same area and how he advocated for it to remain at Spruce as well. His argument and cut were based on ethnicity instead of income. He stated,

> I fought for certain neighborhoods. Like I wanted, [HP], which you know had a lot of our Latinx students. Just meant so much to us as a school. So I fought hard for that group. And was able to get them.

Here we can see that the BAC purposefully assigned this poorer area south of Spruce HS to remain at Spruce HS. They did not move this area to Maple HS, which has the highest poverty rate of all high schools in the district. This area also had a larger Latinx population, which significantly increased the percentage of Latinx students at the school.

The area referred to in both of these quotes was geographically south of Highway 44. If the BAC had used Highway 44 as the southern boundary line for Spruce, this area would have been moved to Maple HS. Again, the committee was aware of the discursive and material function of Highway 44 dividing poor and rich neighborhoods and did not want to further cement this segregation via district boundary lines. By moving the Spruce HS boundary line south, it decreased the gap between the percentage of students who received free and reduced lunch at Maple verse Spruce high school. Also, moving the boundary south of Highway 44 decreased the stark division between white, Asian American, and Latinx families between Maple and Spruce HS.

Example 2: Low Income Housing to Oak HS. The committee's intra-action with Highway 44 and the material and discursive boundaries it draws produced similar reasoning to the neighborhood the committee kept at Spruce HS for why the committee kept the neighborhood directly south of both Highway 44 and Oak HS at Oak HS. In this second example, a committee member recalled why they kept that neighborhood at Oak instead of moving them to either Maple or Pine HS.

> So this whole area even here, south of [Oak]. They stayed at [Oak] because this is low-income housing. There's low-income housing and apartments in here. There's virtually nothing up here. In terms of low-income housing and apartments. There just isn't there. It's the way it was built up.

He again talks about how there is not low-income housing north of Highway 44 when he stated, "There's virtually nothing up here." The "up here" are all of the neighborhoods north of Highway 44, where most single-family homes are built and little high-density housing exits. Therefore, the committee kept this particular neighborhood south of Oak HS at Oak high school. It provided some economic diversity to Oak High School, prevented the free and reduced lunch percentage from growing even higher at Maple and Pine HS, and also prevented all students attending Oak High School from residing north of Highway 44. Again, the committee decided to disrupt the divisive nature of Highway 44 by assigning the neighborhood directly south of Highway 44 to Oak High School.

Example 3: More Expensive Housing to Maple HS. A third example of a specific neighborhood decision was that the committee considered the socioeconomic level of the Elm neighborhood in their assignment of the neighborhood to Maple HS. Unlike the [HP] housing area directly to the west of the Elm neighborhood that was assigned to Spruce, the Elm neighborhood is more expensive housing and, therefore, more affluent parents and students. A committee member stated about the Elm neighborhood, "Which is what we did here because this is high income housing. This is the [Elm] neighborhood. It's half a million dollar or better homes." Thus, the Elm neighborhood was moved from Spruce to Maple to decrease the overcapacity at Spruce and keep the percentage of students on free and reduced lunch at Maple at the same level as before the boundary changes occurred. They again used the neighborhood's spatial location and socioeconomics as agential cuts to decide which direction, north or south of Highway 44, they were going to move a particular group of students. In addition to higher-income homes, this area also has a large Asian community. This did not come up

in the conversation with the BAC member, but based on the spatial mapping of racial/ethnic groups in LCSD, moving the Elm neighborhood to Maple HS would have increased the number of Asian students that attended the high school.

Example 4: Overcrowding & More Expensive Housing to Pine HS. The other contentious neighborhood, Sycamore, is located north of Highway 44. The committee moved this neighborhood from Oak High School to Pine High School. They made this move because Oak High School was overcapacity, and students from Oak High School needed to be moved to another high school to have its student population below capacity. The Sycamore neighborhood was a chosen neighborhood to move because it was one self-contained elementary school community. Also, the Sycamore neighborhood is a more affluent community and would diversify the socioeconomics of Pine High School, which has the second-highest rate of students who receive free and reduced lunch among district high schools. This move by the committee was not popular. One district administrator recalled,

> I would say primarily our most unsatisfied constituents are from the [Sycamore] attendance area. They've had their entire lifetime that they've known, [Sycamore] has attended [Oak] High School. And they were moved to [Pine] High School. So they were the most, I would say, they would tell you the most affected. I wouldn't say that that's the case. Because we had you know, [Juniper] Elementary who has also attended [Oak] High School for years was also moved over [to Pine HS]. The only difference is they're south of the highway, of Highway [44] versus being north of the highway.

This administrator again brings in Highway 44 and how it shaped the different neighborhoods' reactions to the change in high school assignment. Both Juniper and Sycamore elementary schools had been in the Oak High School attendance area since the high school opened. But the requirement to cross over Highway 44 led to a larger protest of the community north of the highway verse the community to the south.

One committee member recalled hearing and reading comments from parents in the Sycamore neighborhood claiming they "can't go past…don't go past… don't go south of there… I live my whole life up here" in reference to how they don't go south of Highway 44 daily. The BAC held their ground throughout the boundary process and did not change their decision even when they heard daily commentary from the Sycamore community protesting the change from Oak High School to Pine High School and from the Elm community for moving from Spruce to Maple High School. As emphasized in the last section, the BAC held firm to their conviction of not making Highway 44 a stark dividing line between the northern third of the district and the southern two-thirds. They also attempted to remain firm in their conviction to consider the socioeconomic and racial/ethnic make-up of the school and consider the composition of distinct neighborhoods on the border of boundaries to determine where they should be included.

These specific decisions come back to the idea of apparatus, and the boundaries apparatuses create. According to Barad (2007), within a larger phenomenon, like the boundary determination process, "apparatus are the conditions of possibility for determinate boundaries and properties of objects…within the phenomenon" (p. 143). This means that it is the apparatus that creates bounds around what is possible and what is not possible in a specific situation. Apparatuses help define objects in a particular and

specific way. One way an apparatus, like Highway 44 or the new high school boundary lines, enacts boundaries and provides definition is that an apparatus determines who is interior and who is exterior to a particular space. In terms of schools, these in and out-groups construct the social reality of the district. The BAC did not want to contribute to the perception that the high schools north of Highway 44 were only for the more affluent families of the district or that those in the middle were the school for lower-income families. Therefore, they looked at specific neighborhood composition and its position relative to Highway 44 when they determined the new high school boundaries. They knew the new boundaries they were drawing mattered. And they knew that the boundaries communicated much more than where physical bodies were being assigned. In fact, the boundaries and the highway communicated much about the perceived desirability and excellence of the different district high schools, as will be explored in the next section.

North = Desirable, Central = Undesirable

Another effect of the Highway 44 apparatus is that the highway enacted both a material and a discursive boundary between desirable and undesirable high schools for many residents of the two contentious neighborhoods, Sycamore and Elm. As a reminder (see Figure 17), Highway 44 forms the southern boundary of the Sycamore neighborhood and the northern boundary of the Elm neighborhood. Both neighborhoods wanted to be associated with and desired for their children to attend the high schools located north of Highway 44, Oak and Spruce. The communities found the two high schools south of Highway 44, Maple and Pine, undesirable and not the schools for their children. The reason they publically stated was that these schools were further away, required traveling

on busier roads, broke up historic high school and community association north of Highway 44, and the schools were lower ranked in Oregon high school ranking. Additionally, both Maple and Pine have higher free and reduced lunch rates than the high schools north of Highway 44 and have student bodies with the highest percentages of Latinx students in the district. While the Elm and Sycamore parents did not often explicitly state these as reasons to avoid Maple and Pine, they could be inferred through the circulating discourse of how parents discussed their association with areas north verse south of the highway when mapped on top of the demographics of these two different areas. In the following example, the parent elaborates how she does not consider the core area of the district as part of her community and uses the fact her neighborhood is not an incorporated part of Lodge City, but instead has a Portland address. It is important to note that her neighborhood has been a part of the Lodge City School District since its consolidation in the 1960s despite the city that is on her address. She wrote,

> The neighborhoods north of [44] have Portland addresses and identify with Portland as a town we live in and call home. We want our children to go to school in the safe, outskirt area that we bought homes in rather than be bussed to the neighboring town for school…PLEASE CLARIFY THE LOGIC you used in coming to the conclusion that taking kids from much farther away, from another town and have them go to [Pine] High School and then zone the several neighborhoods south of [44] that are part of [Lodge City] and send them to [Oak] High School in Portland. It makes absolutely no sense to me…Hwy [44] is a natural dividing line for drawing school boundaries.

In addition to the distinction between cities on housing and school addresses, she also uses the language of "safe" and "outskirt," which implicates that central Lodge City where her kids will be bussed is not as safe. In addition, she uses bussing in a negative light, which connects back to when districts used bussing to desegregate schools racially. This example demonstrates the multiple ways that the circulating discourse in the northern communities views the core area of the district in a negative light without explicitly naming race/ethnicity or income demographics. Finally, her naming of Highway 44 as a natural dividing line does explicitly demonstrate how Highway 44 served as a spatial marker and physical boundary between these four high schools and divided the district into desirable and undesirable schools and social communities, according to the Sycamore and Elm communities.

As noted earlier in the chapter, Highway 44 is also a spatial and material marker between wealthier and poor neighborhoods and Latinx and non-Latinx communities. Attending schools north of Highway 44 also served as a social status mark for the two communities. Being inside the attendance boundaries of the two schools perceived as best in the district also meant they perceived themselves as providing the best for their children and setting their children up for a successful future.

One committee member recalled how the Sycamore neighborhood wanted Highway 44 to be the boundary line to keep them at Oak High School. He said in the interview while pointing to different areas on a map,

> They [Sycamore area] wanted a clean, what looked perfect on the map was [moving finger up and down Hwy 26]. Was that [Spruce] HS and [Oak] HS's boundary ought to be the freeway. And you keep [Oak] here (the northeast section

> of the district, north of Highway 44), and you would keep [Spruce] here (the northeast section of the district, north of Highway 44)…That all looks great, but it doesn't [work]… but the other factors all became crowded in… mixed with communities that did not want to move.

Here is an argument by the Sycamore community to keep their neighborhood assigned to Oak HS north of Highway 44. They continually argued for a different set of boundaries than the BAC outlined in its meetings. Part of this argument by Sycamore to remain north of Highway 44 was because Highway 44 was a spatial marker that separated the two most desirable high schools, Spruce and Oak, from the high schools that were not desirable, Maple and Pine. This desirability revolved around student composition of the high schools and test scores, neighborhood poverty rates, property values, and perceived academic rigor. Highway 44 produced a boundary line that was most intelligible to this community and a boundary line that they felt was the most common sense. Other options that did not use Highway 44 as the southern boundary to the attendance area should be excluded as reasonable possibilities.

The committee members often spoke to this perceived desirability of some high schools over others by the Elm and Sycamore neighborhoods. One committee member representing one of the northern schools explicitly stated that there is a "perception that [Spruce] and [Oak] are the better schools." Because of this perception, the committee heard frequent comments from the Sycamore and Elm communities about which high schools were better than other high schools. Another committee member from a school in the middle third of the district echoed this same statement,

> I'll be real direct. These two schools in the north have a perception of being high-caliber schools. The ones directly to the south of them are the two high schools of poverty. Although both excellent schools, as when you build this school in the south, the only place the schools above the area you build for the new school have to grab is up into the north. And these areas resisted. This one, in particular, the [Elm neighborhood], being drawn into what if you read some of those comments that were in that are in the comments on the webpage, I don't want my kids to go to those schools. Well, we should have said, tough. These are overcrowded. You've been screaming about how overcrowded these are. The only way to do that is to dra…is to move kids south. Period. Regardless of what high school it is. And we weren't able to sustain that energy towards getting that done.

Here the committee member states directly about the difference in some communities' opinions of Spruce and Oak High Schools versus Pine and Maple High Schools. People perceive Spruce and Oak as "high caliber schools." She refutes an opinion of the parents protesting to move of the association that because the schools in the middle have more students of poverty, they are not good schools. This is a regular association made by parents who did not have students previously enrolled in the schools. This committee member confirms that the schools have the highest poverty rates in the district but also establishes that they are still good schools.

Another contradictory aspect this committee member highlights is that this same group of parents complained for years about how Spruce and Oak are overcrowded. This complaint and reality were the reasons why the district built the new high school. But when their children would have to move to a high school south of Highway 44 to solve

the overcrowding problem, parents changed their minds and wanted their children to remain at the overcrowded northern schools. Parents want to stay a part of the community of the desirable high schools despite the drawback of the schools being overcrowded. They did not want their inclusion into the desirable school communities to be disrupted. This meant they needed to remain associated with the schools north of Highway 44.

Another committee member echoed these same sentiments about how parents wanted to make sure their students remained at the high schools to the north of the highway. He recalled some parents sharing at one of the community meetings the following:

> [The Elm neighborhood] also had a couple people talk about how terrible [Maple] High School is and how much better [Spruce] is. How much better their test scores are. How much better um, how much better, and all these different things. And you actually had the student body president of [Maple] High School stand up and talk about what a great school it is. And how he was sorry to hear that were so many people who thought it was such a terrible school.

Here again, we have parents passing judgments on one of the LCSD high schools from outside data metrics. They do not have insider knowledge of the school and judge it based on publicly available information like test scores and free and reduced lunch rates. It is well known in educational research that tests scores most highly correlate with family income levels above everything else, and the gap between higher and lower-income students is impacted by the growing income inequality in our country (Reardon, 2013). It would make sense then that Maple HS would have lower test scores than Spruce HS since it serves more low-income families than Spruce. This fact does not mean that it is

inherently a terrible school. Among the parents, the definition of a desirable school has been narrowed to easily measurable data points like tests scores and property values that ignores other factors that make a school great like community climate, creative teaching and curriculum, teacher support, connections to families, and extracurricular programs students can engage in.

The insider knowledge from a current Maple student refutes the judgment of the outsider parents. Hearing student testimony is not enough evidence for these parents to stop pushing back against the proposed committee moves. Parents in the two contentious communities trust test scores and housing prices more than students experience when determining what high school they want their children to attend.

Other committee members recalled these same experiences at the community meeting held during the boundary determination process. One BAC member recalled,

> I think that was a really difficult part of the process. Was that we had, you know, we had some community members just making statements about certain schools that were just not accurate, or we just didn't, you know, it just didn't…it just wasn't good to hear people say that publically. Because if you were a student from one school and you see another, hear another person kind of bashing your school, and this is why I don't want to have my kids go. I mean that that's can be hurtful, right?

One of the false statements that parents perpetuated was that Pine HS was a failing school because it had many students in poverty. This is not true. Here is a committee member recalling what they heard at one of the community sessions in the fall of 2016 as the final boundaries were being approved,

> Someone said something akin to… because [Pine] High School will have a higher number of students of poverty that students won't do as well. Um…and that it will be it will be or continue to be or become a failing school. And so I looked, I was sitting next to [a district employee] and said I believe he just said that [Pine] school was a failing school. Did I hear him correctly? And the [district employee] said, yes, you did. And I said, well, I think I've heard about enough. And I just couldn't stay any longer. That was just awful. I think we underestimated the venom of the families.

This committee member couldn't stand to listen to lies and mean statements communicated by parents because they were upset that they had to move from a school north of Highway 44 to a school south of Highway 44. This sentiment of worrying about being with poor students and that would decrease their student's success was prevalent.

"Those Kids." Some parents communicated this by using the offensive phrase – "*those* kids." One committee member discussed how parents expressed that they didn't want their kids going to schools with *those* kids.

> I mean, like I say, I had a couple different people tell me in different ways they don't want their kids going to [Maple]. They don't want their kids associating with *those* kids. Um, you know, they don't…they, they are better than that. They are entitled. They don't feel like they should have to go to school with *those* kids.

And a couple of district administrators (DA) expressed these same statements.

> DA #1: There were people who would say things, quite honestly, I couldn't even look at them because of how offensive they were. Um, and it's a simple word, my children will not go to school with *those* kids.

DA #2: They may not come out and say that, but what… the meaning was…

DA #1: Intonated. It was pretty clear what they were talking about.

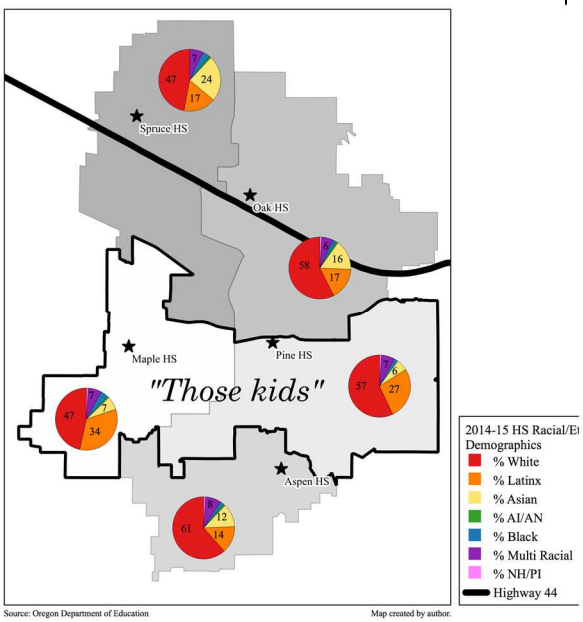
These statements about the students that parents did not want their kids to go to school with were not based on personal relationships, but instead, they were based on geography and the spatial location where students resided in the district and which high school they attended. Parents associated different geographic areas of LSCD with varying levels of income, different test scores, and different racial/ethnic demographics, and this influence where they wanted to send their children to school.

Again, Highway 44 served as a social and spatial marker enacting boundaries between desirable and undesirable areas. Discursively, parents could talk about being a part of the community north of the highway or not needing to go south of the highway for any particular reasons as a way to communicate where they felt they belong without having to mention a specific fact or note difference between who resided north and south of Highway 44. Highway 44 inscribed a boundary and communicated which students were interior to a parent's community and whom they wanted to be associated with, and those students were exterior to this community and therefore were not part of the desired social relations. Before the district changed the boundaries, if students attended Maple or Pine high schools, *those* were the student the families from Elm and Sycamore neighborhoods did not want to be associated with and whom they wished to remain exterior to their social relations.

Those students (see Figures 30 & 31) attended the high schools in the districts with the highest free and reduced lunch rates and the highest percentage of students classified as Latinx. Therefore, parents made the association that poor students and

Figure 30

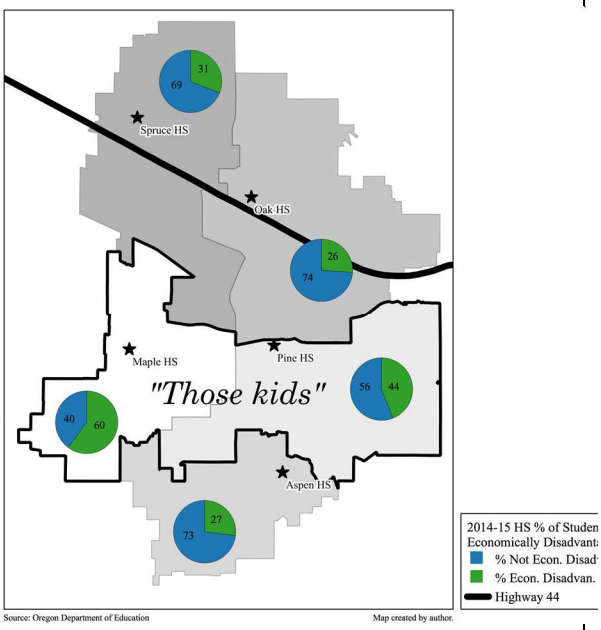
Racial/Ethnic Demographics of LCSD high schools in 2014-15



Note. This data is from the 2014-15 Oregon Department of Education School Report Cards. The rate of Black, American Indian/Alaskan Native (AI/AN), and Native Hawaiian/Pacific Islander (NH/PI) remain relatively consistent across all schools in the district. The percentage of Black students ranges from 2-4%, the percentage of AI/AN students ranges from 0-1%, and the percentage of NH/PI students ranges from 0-1% at the high schools.

Figure 31

Percentage of Economically vs. Not Economically Disadvantaged Students in LCSD high schools in 2014-15



Note. This data is from the 2014-15 Oregon Department of Education (ODE) School Report Cards. On the report cards in 2014-15, ODE used the term economically disadvantaged, which is based on the percentage of students with access to free/reduced priced lunch.

Latinx students were students they did not want their kids to be associated with or go to school with. These classist and racist statements were communicated to the BAC and district administrators, and all those interviewed took offense to the way the community talked about the students of these two schools, Maple and Pine.

It is important to note that the association of desirable schools with a high percentage of white students is more complicated in LCSD than this simple correlation. According to the map in Figure 30 and Table 7, the percentage of white, non-Latinx students in Maple HS and Spruce HS is 47% in 2014-15. The percentage of white, non-Latinx students in Oak HS and Pine HS is also fairly equivalent at 58% and 57% in 2014-15. Therefore, it is not fair to say that parents wanted to stay at Spruce and Oak High School because there were more white, non-Latinx students. But instead, the relationship between other racial/ethnic demographics of the schools, the social class make of the schools, location of the school relative to Highway 44, standardized test scores, and school rankings all factor into why parents view Oak and Spruce as more desirable.

In both Spruce HS and Oak HS, there is a much larger percentage of Asian students within the school (Spruce = 24% Asian & Oak = 16% Asian), whereas, at Maple and Pine High Schools, the percentage is much smaller (Maple = 7% Asian & Pine = 6% Asian). Conversely, Maple and Pine have a larger percentage of Latinx students (Maple = 34% Latinx & Pine = 27% Latinx), whereas Spruce and Oak HS both have a student population that is 17% Latinx. In addition, Spruce and Oak HS have much lower percentages of economically disadvantaged students (Spruce = 31% & Oak = 26%) than Maple and Pine HS (Maple = 60% & Pine = 44%) (see Table 8).

Table 7

Racial/Ethnic Demographics of LCSD high schools in 2014-15

High School	% White	% Latinx	% Asian	% AI/AN	% Black	% Multi-Racial	% NH/PI
Aspen	61	14	12	1	2	8	1
Maple	47	34	7	1	4	7	1
Spruce	47	17	24	1	4	7	0
Oak	58	17	16	1	2	6	1
Pine	57	27	6	0	2	7	1

Note. This data and language are from the 2014-15 Oregon Department of Education School Report Cards. Evergreen HS is not present in the chart because it did not exist in 2014-15. The area highlighted in grey is the data focused on in the analysis of this section.

Therefore, when a certain school is more desirable, it matters both about which racial/ethnic groups make up the largest percentage of students and what the socioeconomic composition is of the school. It is about the "right" racial/ethnic group or particular "nonwhite" bodies being present in schools. Desirability is also about which schools have a lower number of economically disadvantaged students. Within LCSD, the desirable schools have a student body that is majority white, Asian, and wealthier, whereas the undesirable schools are majority white, Latinx, and poorer.

Table 8

Percentage of Economically vs. Not Economically Disadvantaged Students in LCSD high schools in 2014-15

High School	% Economically Disadvantaged	% Not Economically Disadvantaged
Aspen	27	73
Maple	60	40
Spruce	31	69
Oak	26	74
Pine	44	56

Note. This data and language are from the 2014-15 Oregon Department of Education School Report Cards. Evergreen HS is not present in the chart because it did not exist in 2014-15. The area highlighted in grey is the data focused on in the analysis of this section.

Racialization of Asian American vs. Latinx Students and Connection to Desirable vs. Undesirable Schools. This desirability or the "right" racial and economic group, which makes a school desirable, is a typical pattern across U.S. public schools. Within the U.S. context, much has been written about the Asian American community, and Asian American students have been racialized as the model minority. "The model minority stereotype suggests that Asian Americans are 'outwhiting whites' and have overcome discrimination to be more successful than whites" (Lee, 1996, p. 5). Asian

American students and families are seen as communities that care about school, do well academically, do well on standardized tests, and strive to go to college and do well economically. Research conducted by Stacey J. Lee in the nineties articulated these specifics about the Asian American community and how they are positioned as the "good race." Lee (1996) writes, "within the model minority discourse, Asian Americans represent the 'good' race…Asian Americans represent the hope and possibility of the American dream" (p. 5). This model minority stereotype can be seen playing itself out in LCSD as it aligns with high schools with a larger Asian American student population as more desirable and more academically challenging.

It is also reinforced by the public ranking of schools based only on standardized test scores. Within LCSD, Oak and Spruce HS, who have the highest percentage of Asian American students in the district, also have the highest ranking, according to a popular school ranking website.[16]. In 2014-15, Oak was ranked #12, Spruce #34, Pine #137, and Maple #250 compared to other high schools in Oregon. These rankings only reinforce the model minority stereotype and increase the desirability of these two high schools for parents. This stereotype and the intra-action with the spatial geography of where most Asian families reside in LCSD (north or near Highway 44) produced the two northern high schools as the high schools where parents want their children to attend.

Conversely, the Latinx communities have been racialized in ways that see this group as students who don't do well in school, have families that don't care as much about education, don't score well on standardized tests, and are often poor. There is also current media and political rhetoric that reinforces negative images of the Latinx

[16] According to the schooldigger.com website, schools are ranked based only on the publically published test scores in English, math, and science by the Oregon Department of Education.

community, as well as an assumption that undocumented immigrants comprise a much larger share of the population than they do (Enriquez, 2019, pp. 257-8). This overgeneralization and the host of negative images portrayed on media unfairly negatively stereotype Latinx students.

These contrasting stereotypes of the Asian and Latinx communities are further heightened when the spatial relationship between the Asian and Latinx communities is explored. Within LCSD, both the Asian and Latinx communities are the two of the three racial/ethnic groups that have increased the most in student population in the district. As shown in the introductory chapter, over the past 20 years, the Latinx population in LCSD has increased from 9% of the student body to 25%, while the Asian population has increased from 12% to 17% of the student body. (The other group to have seen a large increase is students who identify as multiracial. This population has increased from 0% to 8%.) The Asian and Latinx communities have a distinct spatial relationship inside the LCSD community. The Asian and Latinx communities are less likely to live in the same neighborhoods but instead are often found in adjacent neighborhoods. Since these two communities don't often occupy the same geographic space within the district, they tend to be assigned to and attend different high schools. Because they occupy different geographic spaces, the LCSD community then compares and contrasts the two different racial/ethnic groups via racial/ethnic and socioeconomic statistics of high schools, as well as test scores and school rankings. They also conflate the two different racial/ethnic groups and the stereotypes associated with the two groups with different high schools within the school district. When this public information is all that is used, and Spruce and Oak High School are publicly higher ranked on metrics like test scores, then this serves to

reinforce the stereotypes of these two groups. When these stereotypes are reinforced, it then influences community opinions about which high schools are more desirable than others.

Also, intra-acting with the way certain groups of students are racialized is the economic makeup of the different areas of the school district. As discussed in a previous section, the middle area of the district has more affordable housing and higher rates of poverty than the areas north of Highway 44. Also, there is a much larger Asian population north of Highway 44 than south and a much larger Latinx population south of Highway 44. Thus, due to the spatial location of these different income groups and ethnic/racial groups, the Asian community is viewed as a wealthier community since many live north of the highway, whereas the Latinx community is assumed to be poorer since they live south of Highway 44. Since school assignment in LCSD is based on geography, the high schools to the north tend to have both a larger Asian student population and a wealthier student population, and the schools in the core area of the district tend to have a larger Latinx population and lower-income student population.

The combination of race/ethnicity and class produces high schools that are more desirable than those that are less desirable based on assumptions and stereotypes people make about wealthier schools being better schools and schools with fewer Latinx and Black students being better schools (Holme, 2002). Thus, within LCSD, schools that are wealthier and composed of primarily white and Asian students are seen as desirable (Spruce HS & Oak HS). Schools that are poor and are made of a majority of white and Latinx students are seen as less desirable (Maple HS & Pine HS). This division is why Highway 44 serves as the spatial marker of whether or not you get included in the

desirable high school community or not regardless of where a person's house is located. As long as the family is assigned to attend high school north of Highway 44, it is okay that they live south of Highway 44. And if they already live north of Highway 44, they do not want to cross south of the Highway and be associated with the undesirable high school community. In a later section, I provide evidence from the parents' written comments to reemphasize this point.

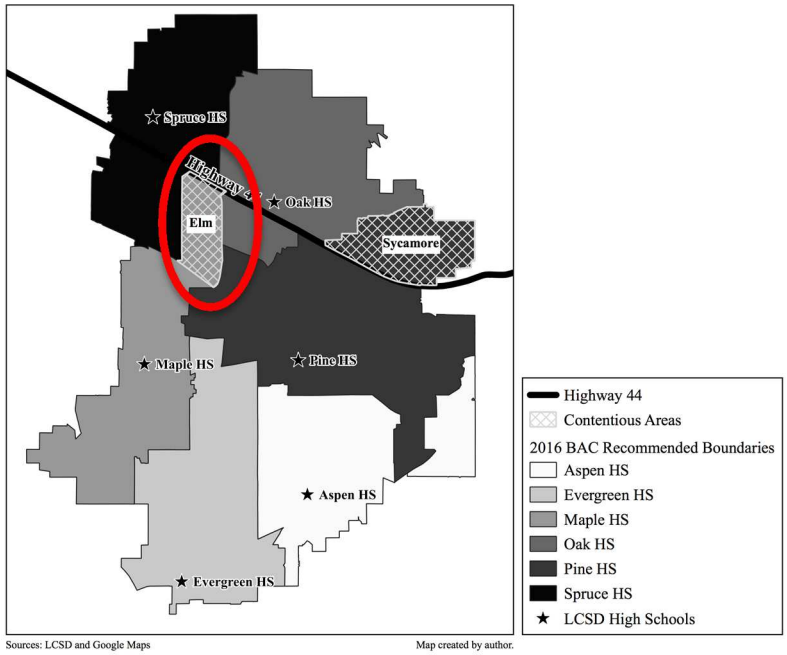
Board Overturns BAC Boundary Recommendation

The BAC refused to play into the same predictable beliefs about desirable and undesirable schools held by the families in the wealthier Elm and Sycamore neighborhoods. In the BAC recommended map (see Figure 32), both the Elm and Sycamore neighborhoods are assigned to the attendance areas of the high schools the residents were protesting against. All of Elm was assigned to Maple High School, and all of Sycamore was assigned to Pine High School.

As discussed in a previous section, while the committee was able to keep Highway 44 from being a stark dividing line, they were ultimately unable to move as many students from the northern schools to the schools in the middle as they had wanted. The school board did not approve the BAC recommended map. Instead, portions of the BAC recommended boundary map were reanalyzed and redrawn. The final school board approved the HS boundary map (see Figure 33) moved the northern half of the Elm neighborhood back to Spruce HS. This is what the committee member referred to when she said, "we weren't able to sustain that energy towards getting that done." This meant they could not move the entire Elm neighborhood to Maple HS and further decrease the overcrowding at Spruce HS. Ultimately, as discussed in the previous chapter, the

Figure 32

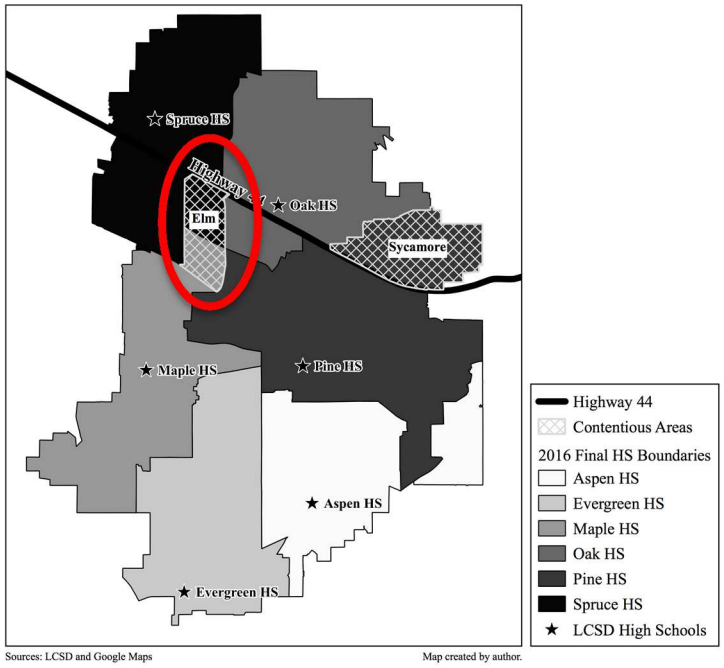
2016 BAC Recommended HS Boundaries & Contentious Neighborhoods



Note. This map represents the final work of the BAC. They submitted this set of boundaries to the superintendent and school board in March 2016.

Figure 33

2016 Final HS Boundaries & Contentious Neighborhoods



Note. This final set of HS boundaries was approved in Fall 2016. Notice that the Elm neighborhood is now split in half. Half attending Spruce HS, and half attending Maple HS.

committee did not end up moving as many students out of the northern high schools as they would have liked. Part of the lack of ability to move enough students was influenced by the perceived perception of some communities around which schools were more or less desirable.

When the school board approved the final boundaries to move the northern part of the Elm neighborhood back to Spruce High School, even though this made Spruce overcapacity, it reinforced the notion that Spruce was a more desirable high school. The school board's decision reinforced the idea that Spruce was a better high school by appeasing the Elm community and giving in to their demand of remaining at Spruce High School. Thus the final high school boundaries did not disrupt the desirable/undesirable divide as much as the BAC had pushed for. The BAC pushed back on the two communities, Elm and Sycamore, that were the most adamant about staying at the high schools in the northern third of the district. The BAC ultimately felt undermined by the school board and disappointed that the school board did not uphold their recommended boundaries.

Summary of BAC and the Highway 44 Apparatus

The Highway 44 apparatus continually configures and reconfigures the material and discursive understanding of the LCSD school district. Through the intra-actions of the Highway 44 apparatus with the BAC and the spatial geography of the district, it enacted boundaries between high and low socioeconomic groups and different racial/ethnic student groups within the community. The highway also served to communicate which high schools were more and less desirable based on the high school's location relative to Highway 44. The intra-action of the BAC and the Highway and their

decision-making power given to them through new boundary recommendations could have either further cemented these boundaries and discursive narratives about desirable and undesirable high schools by using the Highway to reinforce divisions between communities. Instead- the committee attempted to disrupt these long-held notions by requiring movement north and south of the highway by communities that resided near Highway 44. Unfortunately, as mentioned in the last section, the BAC's decision to assign all of the Elm neighborhood to Maple HS was overturned by the school board in the final high school boundary assignment.

LCSD Parents and Highway 44

In addition to evidence from the committee interviews used in the first two-thirds of this chapter, the LCSD parents also provided evidence about how Highway 44 continually configures and reconfigures LCSD in ways that come to matter. The parents, students, and community members of the Sycamore and Elm neighborhoods continually intra-act with Highway 44, and this intra-action shapes both their physical movement within the district boundaries and the pervasive discourse about where they want to attend high school. In the following sections, I focus on three effects that the intra-action of the neighborhoods, Highway 44, and the boundary process produced. The first is that both contentious communities, Elm and Sycamore, had a strong desire to stay at either high school north of Highway 44, Spruce, or Oak. Second, the reassignment of the neighborhoods to schools south of the highway, Maple and Pine, produced similar arguments by both communities about why they didn't want to attend these two high schools in the central part of the district. And third, a specific and different type of argument emerged from the Elm neighborhood about how they were an asset to Oak

High School due to the economic and racial/ethnic diversity within the neighborhood and thus should be included in the Oak High School attendance area. The intra-action with Highway 44 produces all three of these arguments. The intra-action with Highway 44, though, is a physical marker of separation of north and central LCSD, and the physical separation of income levels and racial/ethnic groups produces the discourse among parents that Spruce and Oak are the more desirable high schools. This desirability undergirds all three arguments that the parents make about why they want to remain assigned to either Spruce or Oak High School even though both high schools are overcrowded.

Sycamore and Elm desire to Remain Assigned to High Schools North of Highway 44

As was discussed earlier in the chapter, based on evidence from maps and BAC interviews, Highway 44 enacted a boundary between which high schools were desirable (Spruce & Oak) and which high schools were considered undesirable (Pine & Map). This is a boundary the BAC attempted to disrupt by creating the new high school attendance boundaries. From all of the submitted parent comments, it was evident to the BAC that the communities of Sycamore and Elm wanted to remain a part of the desirable high school communities of Spruce HS and Oak HS. For historical context, before the district changed the boundaries, the Sycamore neighborhood attended Oak HS, and the Elm neighborhood attended Spruce HS. When the district released the first draft of a new boundary map in October 2015, known as the Springboard Map, Sycamore had been reassigned to Pine HS and the Elm neighborhood reassigned to Oak HS. Throughout the process, Sycamore remained assigned to Pine HS. The Elm neighborhood fluctuated between Spruce, Oak, and Maple HS in different versions of the boundary maps. But

based on parent comments, the desire and fight to remain assigned to either high school north of Highway 44 never wavered.

Subject Lines and Petition Headings. One indication of the fight to remain at either Spruce or Oak High School was in the subject headings of parent comment emails. These subject lines give a sense of what parents thought about the potential new high school boundaries. Here a sampling of email subjects sent to the BAC:

"Don't want to move to [Maple]"

"Happy to move to [Oak]"

"Communities north of _____ Road should not feed [Maple] HS"

"Strongly Oppose Current Springboard Boundary Proposal"

"[Sycamore] to [Oak] High School"

"KEEP [SYCAMORE] AT [OAK]"

These short and simple subject lines concisely communicate the parents' desires to remain associated and assigned to schools north of Highway 44. They don't want to be moved to Maple High School, and by writing that they want to stay at Oak, they are communicating that they don't like the reassignment that has occurred to move Sycamore to Pine. It was a rarity to get any email from either the Sycamore or Elm community stating they were okay with being reassigned to Pine or Maple High School.

As discussed earlier in the chapter, this is because these two high schools, Pine and Maple, were seen as less than and less desirable than Oak or Spruce. The messages from the subject lines were clear, "Keep us North of Highway 44." Highway 44 served as the marker for what was acceptable in terms of the geographic location of their high school assignment. The highway was the outward symbol for the parents to mark that

they were apart and a member of the desired and highly regarded school communities of Oak and Spruce. This association of attending schools north of Highway 44 communicated that they cared about their child's school and academics and wanted them to attend the best schools in the area, and they argued and advocated for nothing less.

In addition to a plethora of weekly emails from these two communities, the Sycamore community also created a petition and sent it into the BAC. The title of the petition was, “Keep Homes North of Highway [44] in the [Oak] High School Boundary." Seven hundred twenty-six different people (though some were from the same household) signed the petition. Here we see the direct articulation of the desire for Highway 44 to be a boundary line for the Oak High School attendance area. The Sycamore community advocates for Highway 44 and the Oak attendance zone boundary to be one and the same. Doing so amplifies the separation of the northern third of the district from the southern two-thirds of the district. It would configure the district in such a way that beyond travel to attend extracurricular competitions at other district high schools, the communities north of Highway 44 would not have a reason to travel or connect with the LCSD community south of Highway 44. The Highway 44 apparatus would create and cement in a stark division between both neighborhoods and school communities in the district if the Sycamore community's wish had been honored.

Again, these subject headings and the petition clarify which high schools the vocal members of these two communities wanted their children to attend. They clearly wanted to remain at the two high schools in the northern third of the district. They wanted their neighborhoods included in the exclusive and desirable area of the district north of Highway 44. They did not want to be excluded from the northern third of the district

through the determination of the new high school boundary lines.

Frequency of Commentary from the Sycamore Community. The frequency of the comments written in by these two neighborhoods also contributes to the evidence of their desire to be thought of as a part of the northern school communities of LCSD. If, during the boundary drawing process, Sycamore or Elm were assigned to a high school south of Highway 44, the volume of comments was significantly higher. The assignment south of Highway 44 produced a desire for community members to speak out about their disagreement with the boundaries. If they were assigned north of Highway 44, the communities were much quieter, or a few members would write in about their approval of the current boundaries.

The Sycamore community consistently wrote to the BAC in a high volume throughout the open public comment period from October 2015 to March 2016. This is because, in every version of the published map in the BAC meeting minutes, Sycamore was assigned to Pine High School, south of Highway 44, instead of their preferred assignment to Oak HS. They wrote in multiple times and repeated comments in an attempt to make their point their point that they did not think it made sense for this neighborhood to be assigned to Pine High School. There were several different form letters that parents used, as well as the petition mentioned above.

The Sycamore community also formed a Facebook group to coordinate their efforts and reiterate why they should remain at Oak HS. In addition, a parent from this community created an online mapping program, referenced in the previous chapter, where parents could create their own maps and submit them along with their written comments to the BAC. The Sycamore community was relentless throughout the process

with making their ideas heard and were sorely disappointed at the end when all of their activism did not change their high school attendance area to Oak HS. Through all of this action, their message was clear, keep us at Oak High School, or we will not be happy.

Unfortunately for them, the BAC did not waiver and assigned Sycamore to Pine High School from the beginning of the process through the end. According to the final high school boundaries, the Sycamore community was now a part of a high school south of Highway 44. They were displeased that this broke up the historical association, but more importantly, having to be a part of the community south of Highway 44 communicated for them that their child would not receive as good of an education, be less challenged, and have been associated with other students that did not want to be in community with. The new boundaries had reconfigured their social relations, and they were not pleased. They felt the change in the school assignment would only produce adverse outcomes, and they were not happy with the district for forcing them into this change. They did not always have to name their displeasure directly but instead referred to the spatial location of the school relative to the highway as a discursive narrative and physical marker of what they disliked and were hesitant of joining.

Frequency of Commentary from the Elm Community. The frequency of commentary from the Elm neighborhood was more varied than in the Sycamore neighborhood. Throughout the boundary process, the Elm neighborhood changed which high school they were assigned. Based on the assignment, the number of submitted comments varied. If Elm was assigned to either Spruce or Oak HS, the high schools north of Highway 44, there were fewer comments from parents in this neighborhood, and the comments supported the decision of the BAC. If part or all of Elm was assigned to Maple

HS, the high school south of Highway 44, there were more comments from the Elm parents, and the comments opposed the decision of the BAC.

For example, when the Elm neighborhood was assigned to Oak High School on the Springboard map (October 2015- early December 2016), parents were okay with the change from Spruce to Oak. The few comments submitted were positive and in support of the change. They wrote comments as follows:

> **Example 1:** When the springboard proposal showed the possibility of attending [Oak], we put our discussions on hold, as we felt that this was an acceptable alternative. The school is suitably close, has a good reputation, and offers the sorts of challenging programs we feel our children need.
>
> **Example 2:** We support the logic and reasoning to have our boundaries changed to [Oak] High School.
>
> **Example 3:** We are aware of the springboard proposal that was put forth and are happy that this proposal has our neighborhood within the [Oak] High School Boundary.

In these example comments, parents don't mind that their children have to switch high schools from one northern high school to the other northern high school. Spruce was the most overcrowded high school before the boundary changes, so parents were okay that their neighborhood might change. They were okay with Oak HS because it was not a further drive and was seen as the other high school with high test scores and good academics, or as the parent in example one put it –"a good reputation" and "challenging programs we feel our children need." The switch from Spruce to Oak still allowed the Elm neighborhood, located south of Highway 44, to be associated with the desirable

schools north of Highway 44. Therefore, since they were satisfied in the desire to be associated in a school community north of Highway 44, there was much less of a reason to comment on the boundary determination process.

Then, in December 2015 and January 2016, the BAC published two drafts or learning maps within the meeting minutes. These maps documented changes the BAC was considering from the original springboard map. In these two maps, the Elm neighborhood was divided into a northern and southern half and assigned to two different high schools. The northern half was assigned back to Spruce HS, and the southern half was assigned to Maple HS. Parent comments sent to the BAC during these two months were more frequent and much less positive. For example, one parent wrote:

> I'd love to remain within the [Spuce] HS district (My oldest son graduated [SHS] last year, and I'm currently on the [Spruce] Youth Baseball Board of Directors) ...but even the initial [Oak] proposal made more "sense" than the current proposal. I hope you will consider my feedback.

Even though the parents' first preference was to remain at Spruce, they would still be fine if their student was assigned to Oak. For them, it made "sense." The boundary of Highway 44 produced the two northern schools as the sensible options and any high school to the south as unthinkable possibilities and not a common-sense decision made by the BAC. The highway not only communicated what was desirable or undesirable to them, but the highway produced a cut about which decisions were common sense and which decisions did not make sense to parents.

One of the Elm parents' main arguments made during these two months was that their neighborhood should remain united. This connects back to Chapter 6, where parents

use the criteria apparatus to make their points. Neighborhood unity was one of the criteria, and we see it used here in conjunction with the spatial location of the high schools north of Highway 44 to make arguments for why they should be assigned to Spruce or Oak. The examples below show how parents argued for their neighborhood not to be split and assigned to two different high schools but should be united and assigned to either Spruce HS or Oak HS.

> **Example 1:** It does not make sense to split [Elm's] current school boundary…I do not see how moving a third of the [Elm] school boundary into the [Maple] HS boundary would work for the remaining two thirds that would be left in the [Spruce] HS boundary…If one of the goals of the BAC is to keep elementary boundaries whole, we fully support keeping the current [Elm] school boundary as one unit.
>
> **Example 2:** [Elm] Elementary students will now be split between [Maple] and [Spruce] High Schools. Socially, this is not good for our students nor our community as a whole. Please also consider how this will fracture the extracurricular sports programs at [Elm]. Kids who go to school together, will no longer be able to play together on the same teams. Please keep [Elm] united!

In both comments, parents argue for the greater Elm community to remain together as a whole, relying again on the criteria apparatus to make their argument. They also have a preference to have the whole community assigned to either Oak or Spruce HS. Furthermore, they want their community to remain associated with the desired high schools north of Highway 44. They also position the highway and the criteria as apparatuses that help to communicate common sense. They don't want a boundary line to

exclude them from the two high schools they see as the best two high schools in the district.

During this same period, parents from the Elm neighborhood began forwarding an argument about how their community was both socioeconomically and racially and ethnically diverse and, thus, should be included in the Oak HS boundary. This is because Oak HS had the lowest free and reduced lunch rate in the district. This argument was an interesting plea for being included in a school north of Highway 44, and I will address it in more specific detail in a later section in this chapter.

The BAC listened to the Elm community's call for unity. In the map published for the public preview meeting that took place on January 16, 2016, the majority of the Elm community was reunited and assigned to Maple HS. There was a small western portion that remained at Spruce HS. This change by the BAC did not please anyone. The Elm community did not buy the BAC reasoning that they made this change to unite them since it was not the entire elementary boundary area. They also did not like that they were more united but assigned to Maple HS and instead of Spruce or Oak. Even with all the pushback from Elm, assigning the Elm neighborhood to Maple HS did not change and was the recommendation on the final map the BAC submitted to the superintendent and the school board in March 2016. As of January, the high school assignment of the Elm neighborhood did not change with other versions of the map. The Elm neighborhood was assigned to a high school south of Highway 44, and it would remain that way through the BAC recommendation. Therefore, the Elm neighborhood wrote infrequently to the BAC about their displeasure with their assignment to Maple HS. It was over these last two months that the BAC met (mid-January – mid-March 2016) that the Elm neighborhood

submitted most of their commentary to the BAC. The frequency of commentary increased when the BAC assigned their neighborhood to the high school south of Highway 44. The change in association with a school south of the highway produced more significant amounts of pushback. In the next section, I address both communities' similar arguments about why they should not be assigned to the high schools in the middle third of the district.

Sycamore and Elm's Arguments against going to Maple High School or Pine High School. In the articulation of why the Elm and Sycamore neighborhoods did not want to attend Maple or Pine High Schools, the high schools in the middle of the district, both neighborhoods voiced very similar reasons. In the commentary, neither community addressed or acknowledged any specific positive reason why it would benefit their students to be moved to one of the central high schools. Instead, they only expressed why they did not want their children to attend either of these high schools. The reasons to not attend either Maple or Pine High Schools were as follows:

1) safety and distance of commute (further distance, more traffic, less safe roads),

2) division of communities defined by elementary school attendance boundaries,

3) the neighborhoods historical and current association with the high schools and community organizations, and business north of Highway 44,

4) the fear their property values would decline if switched to the central high schools,

5) the lower academic ranking of the central high schools, and

6) the perception that the central high schools are less academically rigorous than the two northern high schools.

In addition to these complaints, they also threatened the district if the neighborhoods

were assigned to the central high schools. They threatened that they would not vote in favor of the next bond measure or that they would remove their students from the district altogether and send their children to private schools. These types of threats are not unique to LCSD parents but are similar threats that parents make throughout the country when it comes to boundary decisions (Siegal-Hawley, 2013; Wiley et al., 2012; Sohoni & Saporito, 2009).

All six of these arguments can be traced back to the intra-action with the spatial reality of the school district. The arguments are constructed around an awareness of the spatial difference in the northern third of the district and the middle third of the district, and the boundary created by Highway 44. One parent wrote, "Highway [44] creates a very real boundary in terms of neighborhood unity as well as safety and transportation issues." Another parent repeated the following phrase four times in their letter, "Hwy [44] is a natural dividing line for drawing school boundaries." The parent repeated this phrase as they detailed the safety and transportation issue they saw by changing their child's school assignment from Oak to Pine. Parents clearly articulated in their letters how they viewed and intra-acted with Highway 44 as a physical and social marker that communicated and configured what was interior and exterior to their community and also where it was safe and unsafe to travel.

The first reason parents did not want their children attending the central schools was about distance, safety, and traffic. Parents were concerned about their children having to cross over the busy Highway 44 or railroad tracks to get to the central high schools. Both Highway 44 and the railroad tracks served as physical markers of where these families did not want their students to cross (i.e., the "wrong" side of the tracks).

They enacted a boundary of what was external to their physical and social reality. Interestingly enough, Highway 44 was only an issue for the parents who have to cross Highway 44 from the north to the south. Only the Sycamore neighborhood complained about the dangers of Highway 44, while the Elm neighborhood made no mention of their issue with crossing Highway 44 from the south to the north. Traffic and safety were only an issue when assigned to a high school they did not currently attend.

Instead of Highway 44 being problematic for the Elm neighborhood, their problem was the railroad track that ran through the middle of the district. These railroad tracks were the safety hazard instead. As has been seen throughout history, in many towns, one can name a proverbial "railroad track" that divides the desirable from the undesirable parts of town, and this is not an exception within LCSD. Within LCSD, the proverbial "railroad track" seems to move and morph based on which high school the neighborhood does or does not want to be assigned. Highway 44 or the actual railroad in Lodge City serve to configure and mark the desirable areas of town and the areas in which particular communicates like Sycamore and Elm want to stay away from and avoid crossing into.

Beyond safety and commuting complaints, Sycamore and Elm both complained that they did not want their communities broken up. Both the Sycamore and Elm neighborhoods defined their community by the elementary school boundaries, and for both neighborhoods, part of the elementary boundary was Highway 44. They argued that their elementary area needed to stay together. For Sycamore, this remained true throughout the process, but for Elm, the area was continually divided and reunited and then finally divided again. When Elm was the most united was when it was assigned to

Maple High School. However, this assignment did not please the neighborhood because the unification resulted in an assignment to the school in the south. Both Sycamore and Elm wanted their neighborhood to remain united, but as argued throughout this section, they wanted to be united and stay north of Highway 44.

One of their reasons for remaining north of Highway 44 had nothing to do with the actual schools, but instead with all the other amenities north of Highway 44. One parent wrote, "A sense of community…will be lost for neighborhoods north of _____ Road who feel much more connected to the areas surround Highway [44]." These two neighborhoods often discussed churches, recreational sports leagues, restaurants, and businesses north of Highway 44, in other words, sameness. Parents wrote that they did not drive south of Highway 44 regularly, and their children's assignment to a high school south of Highway 44 would disrupt their entire way of life. Again, the families and Highway 44 intra-act to produce daily boundaries about where they do and do not go. Highway 44 served as both the physical marker and the social marker of what they deemed to be interior to their community, and they were fighting and constantly advocating for that not to be changed or reconfigured with the new high school boundaries. They also used their long-standing historical association with the high schools and that many of the neighborhoods are not incorporated into the city of Lodge City as further justification to remain assigned to schools north of Highway 44. They didn't want history or the neighborhood social relations to be redefined and changed through the new boundary determinations.

Another reason that Sycamore and Elm did not want to be reassigned to Maple or Pine High School is that they were afraid their property values would drop. Property

values in the United States are very dependent on their location. One of the things that influence whether or not homes have higher property values is if they are seen to be located in a desirable area and a desirable school district or near a desirable school (Dougherty, 2012). Therefore, parents were nervous that their housing values would drop if the BAC moved the boundary so that their neighborhood would attend one of the less desired schools south of Highway 44, even though they are not moving into a different school district. As shown in the map in Figure 27, property values are higher north of Highway 44. Therefore, even if families resided south of Highway 44, they felt that the association with the schools north of Highway 44 where higher property values were would help their home values.

One parent wrote to the BAC expressing her concern about home values. She wrote, “Many Homeowners have made significant financial investments in their homes and community and with the ‘potential worsening school boundary change’ being discussed, home values could already be affected.” Another parent wrote, “We strongly agree with [Elm] parents who are asking, what plans does the school district have to compensate homeowners for their loss in property value as a result of this boundary change?" Here we can see that both parents think their housing values will decrease by changing their high school assignment from a school in the north to a school in the central part of the district. They feel that this change is to a worse school and think the district should compensate them for their potential financial loss. Again, these parents want their students to remain at one of the two high schools in the north. By remaining associated and assigned to the high schools north of Highway 44, parents perceived this association as financially beneficial to their home values.

Connected to the concern about housing values were parents' concerns about school rankings. School rankings are most often based only on standardized test scores. These school rankings are usually published by real estate agents and used as selling points for specific neighborhoods. The central schools, Maple and Pine, have a lower ranking than the two northern schools, Spruce and Oak. Therefore, parents didn't want their children to be assigned to the schools with lower-ranking because they thought it would lower their property values and be less of a challenging school for their children. Here is an example comment from a parent about their concern for both the quality of education and property values. They wrote, "This proposed change could have serious negative implications to the caliber of the education our students will receive and to the property values. We will continue to watch the process closely." Again, this move of high schools from the north to the core brought on serious concern for families. Many parents expressed this idea of a lower caliber of education. It echoes what BAC members state that there was a perception in the district of Spruce and Oak being the best schools.

In addition to the published lower rankings of Maple and Pine, some of the LCSD community perceived these two schools as less academically challenging. Parents felt their students would not receive as good of an education if their students moved from the northern high schools to the central high schools. This is despite the fact that both Maple and Pine High Schools both have robust Advanced Placement programs. Both Maple and Pine offer at least the same number of AP classes as provided by Spruce High School. Students would have access to the same high-level coursework at all three high schools. Oak High School is different because they offer the International Baccalaureate (IB) program instead of AP classes to have a chance to receive college credit in high school.

But all four high schools in the central and northern areas of the district have robust advanced academic programs. Within the comments submitted by parents, it seemed that parents based their opinions and desire not to go to the central schools on the externally published test scores and the perception that these schools are less than. This is connected to their spatial location within Lodge City. And as discussed throughout this chapter, the central area of Lodge City is less white and less wealthy and, therefore, undesirable for many families to attend these schools.

Throughout the parents' arguments, Highway 44 and the parents' spatial relation to the highway in terms of residential location, social relations, community associations, and demographics undergirded their arguments. The arguments relied on either the physical or discursive boundaries produced by Highway 44. This was a boundary line they did not want to be reconfigured through the assignment of new high school attendance zones. The parents produced reasons –safety, academics, community – that cemented the current configuration of their community and why the BAC should not disrupt their community. None of these reasons that provided were ultimately ones that would do significant damage to their students future (i.e., not be physically safe, not have access to advanced course work, not access to extracurricular activities, preventing them from graduating from high school, preventing them from attending particular colleges, etc.). But the moving of the boundary lines and the disrupting of the Highway 44 boundary significantly disrupts the future they had planned for and imagine for their student. By this, I mean parents bought particular homes imaging their student would graduate from a specific high school or play with a particular group of kids on a sports team. Another way a change in school assignment would disrupt their imagined future

would be because they have their child in an International Baccalaureate (IB) program at the elementary or middle school level and imagined their child would continue this at the high school level but are now are assigned to a high school with Advanced Placement classes instead of an IB program. It also disrupts their planned future of attending the "desirable" and "good" high school over the "undesirable" and "not good" high school. Throughout the commentary, it is evident that they will attempt to do whatever it takes to preserve this imagined future and use these six different arguments to try to convince the BAC to do the same. For them to be satisfied, it would mean that the newly constructed boundaries would include both the Elm and Sycamore neighborhoods in the schools north of Highway 44.

Elm Parents Argue for Elm Elementary School to be assigned to Oak High School. One additional argument the Elm community made to attempt to be included in the Oak High School boundary was to appeal to the difference in demographics north and south of Highway 44. As was the committee, the parent's in the Elm neighborhood were also attuned to the difference in socioeconomics of neighborhoods north and south of Highway 44. They acknowledged that the neighborhoods north of the highway were wealthier than many neighborhoods in the district's core. The parents in the Elm neighborhood whose children attended Elm Elementary knew their elementary school qualified for Title 1 federal resources. This neighborhood was also aware that the committee was paying attention to the differences in free and reduced lunch between the different high schools. Thus, parents from this neighborhood constructed an argument for why their neighborhood should be assigned to Oak High School. This assignment would change their high school from Spruce HS (before the boundary changes), but the parents

would be satisfied with a reassignment to Oak HS as articulated in an earlier section. Being assigned to Oak includes them in the desirable association of attending school north of Highway 44. Elm parents feel Oak HS is an acceptable alternative to Spruce HS.

The argument that parents constructed is that the BAC should include the entire Elm Elementary School attendance area in the Oak HS boundary because it would increase the percentage of students who receive free and reduced lunch at Oak HS. It would also provide Oak HS with increased racial/ethnic diversity. Here are some of the quotes from parents articulating this argument:

> **Parent Example 1:** As a Title 1 elementary school, [Elm] will help to bring [Oak's] proposed free and reduced lunch numbers to a more reasonable range. In addition, [Elm] students would enhance [Oak] with a rich cultural diversity that is not currently reflected in [Oak's] projected numbers. Finally, as a Primary Years Programme school, [Elm] is a perfect fit. Students would have the opportunity to complete their PYP education at a high-quality IB high school."
>
> **Parent Example 2:** Put all of [Elm] in [Oak] per the Springboard Proposal and raise [Oak's] FRL numbers to 19%.
>
> **Parent Example 3:** [Elm] can argue all those points, and is also a title one school that will significantly bring up the very low FRL rate at [Oak], even if [mobile home park] is kept at [Spruce]."

As illustrated in these three parent examples, the parents are articulating a reason for being included in the Oak HS boundaries that are inclusive of the spatial geography of the area. They know that some lower-income neighborhoods attend their elementary school and would contribute to a different demographic makeup of Oak HS. This

argument aligns with much of the talk that had occurred in meetings with the BAC. As shown in Figure 34, a large area of the Elm ES boundary does not have a large percentage of students below the poverty except for in the very southeast corner and southwestern part of the ES boundary. These two areas are highlighting that would contribute to the affluent area of Oak HS. The first parent comment also makes a nod to rich cultural diversity – here, race, socioeconomics, and culture are often conflated, but we do see in the maps in Figures 35 and 36 that Elm ES has pockets of a high percentage of both Asian and Latinx students than does the greater Oak HS area.

Figure 34

Focus on Elm Elementary School: Percentage of Households Below the Poverty Line

Note. This map focuses on the Elm Elementary School attendance area compared to the northern third of the district. This map highlights that Elm ES has higher poverty areas than anywhere in the northern third of the district.

Figure 35

Focus on Elm Elementary School: Percentage of Households Identifying as Latinx (all races)

Note. This map focuses on the Elm Elementary School attendance area compared to the northern third of the district. This map highlights that Elm ES has areas with a larger percentage of Latinx families than anywhere in the northern third of the district.

Figure 36

Focus on Elm Elementary School: Percentage of Households Identifying as Asian

Note. This map focuses on the Elm Elementary School attendance area compared to the northern third of the district. This map highlights that Elm ES is another area with a large percentage of Asian American families like in the northern third of the district.

A teacher who is also a district parent articulates this same argument in their letter to the BAC. She writes:

> First of all, my sincere thanks for the countless hours you are putting into this work. I attended the most recent public meeting at [the] Middle School and spoke with several committee members. I was impressed by your sincerity and genuine desire to create the best boundary map possible.
>
> I am writing to you today as both a veteran classroom teacher as well as the mother of two young children. I am very concerned that the boundary revisions as outlined on the Preliminary Proposal map violates one of our district's key pillars: equity.
>
> I understand that based on Board Policy, you have four primary criteria to consider: availability of space, proximity to school, safety, and neighborhood unity. I also understand that student body composition should also be considered in the decision making process.
>
> By making certain critical adjustments to the Preliminary Proposal, you can not only respect the four primary criteria, but also bring much needed balance with respect to economic and cultural diversity.
>
> The area of the map that troubles me most involves the large gap in free and reduced lunch numbers between students in the proposed [Oak] area (11%) and students in the proposed [Maple] area (61%). I am a reasonable person and as such I understand that we cannot get all schools to perfectly reflect our district average of 39%, however, I do believe we can do better. Let's keep working on

this issue.

I would like to propose one solution to help restore some balance to [Oak] High School's demographics. As part of the Springboard Proposal, [Oak's] boundaries reached across Highway [44]. This was both bold and visionary. Although some groups may not like to hear it, this has to happen in order to change school demographics, since the wealthiest zip codes are north of the highway.

In order to provide balance and diversity, both economically and culturally, [Oak] High School needs to include students living south of the highway. Possible feeder schools include: [Patterson], [Cherry], [Elm], and [Pecan]. Due to its proximity to [Pine] High School, [Patterson] is a natural fit. Also, students from [Cherry] Elementary, with its exemplary two-way immersion program, will benefit from being able to continue their dual immersion education through grade 12 at [PHS]. [Pecan] would be a potential area to consider, however, [Pecan] students are from the western edge of the district, making proximity an issue.

Fortunately, there is one elementary community that can help to restore balance to Sunset's numbers: [Elm].

Within her letter, the teacher-parent is directly acknowledging Highway 44 and how it splits the district into a wealthier northern third and cuts off the middle third from direct inclusion into the desired north. She recognizes that extending Oak's boundary is not a popular decision but applauds the committee for making this commitment. She argues that they could do an even better job if they include more elementary schools from south of the highway into Oak's boundaries. She reasons through four different elementary

schools and finally lands on Elm Elementary School as the best school to include into Oak's boundaries to further decrease the gap in free and reduced lunch between Maple and Oak High Schools. Here, she uses free and reduced lunch numbers as an agential cut to argue why the BAC should include this elementary school in a school north of Highway 44. She also uses other reasons – proximity and two-way immersion programs – as reasons why the BAC should rule out other elementary schools and remain assigned elsewhere. Her letter is a thoughtful letter that intra-acts with both the highway and the differences in free and reduced lunch to argue why the BAC should include this elementary school in the Oak boundaries.

This argument put forth by parents to gain inclusion into a high school north of the highway is reasonable. It aligns with much of the thinking by the committee. It moves students out of Spruce HS, which is overcrowded, and lower-income students out of Maple, which has the highest free and reduced lunch numbers in the district. The only problem is that it includes these students in a school that is also overcrowded. To make this move reasonable, there would have been a need to shift another group of students from Oak High School not to end up overcrowded.

Ultimately, parents use the spatial positioning of different economic and racial/ethnic groups within the district to make an argument for inclusion in a northern school. The parents capitalize on the district and committee's desire for diverse high schools regarding race/ethnicity and socioeconomics to have their students assigned to their preferred high school. They know that both the district and the BAC find it problematic that Oak has such a low free and reduced lunch rate, so they use the reality of the range of income levels in their elementary community to attempt to be considered for

Oak. In many ways, this argument shows how race/ethnicity and class can be used as a bargaining chip and as interest convergence for others in the community to get what they want but a supposed "desire for diversity" as the means to do so.

Conclusion of LCSD Parents and Highway 44

The parents in these two contested spaces, Sycamore and Elm, help to highlight how the highway marks the desirable and undesirable high schools within LCSD. The majority of parents in these two communities are adamant about keeping their children in schools in the northern third of the district. They attempt to appeal to common sense by saying that Highway 44 is a natural dividing line. They appeal to the criteria through complaints of safety, traffic, academics, and community unity. They also appeal to the committee's desire for diverse high schools by arguing to include a more diverse elementary school community into Oak High School. All these arguments and desires highlight that Highway 44 serves as both a physical and social boundary marker within LCSD. It continually configures and reconfigures the discourse about the different high schools and where people want to be included, and which areas they seek to avoid. The highway is an intra-active apparatus that helps to illustrate the stratified nature of LCSD. It divides particular families, income levels, school communities that produce negative discourses about the core area of Lodge City. Again, the BAC continually pushed back on the desires of Sycamore and Elm by not assigning them to their preferred high school. But these arguments and the genuine contempt of being associated with a particular area of the district brought to light a more significant problem for the LCSD beyond the boundary determination process.

Summary of the Effect of the Highway 44 Apparatus

Focusing on the highway apparatus and its intra-actions with both the boundary advisory committee data and the parent comment data provided the opportunity to trace the complex social relations within LCSD. The focus on the highway was an agential cut I made that foregrounded the ways that race/ethnicity and class are a play within the boundary decisions. The BAC did not use the highway as a formal high school boundary line in order to disrupt the exclusionary boundary the highway cements between the north and central area of the district. To create this disruption, the BAC made strategic decisions about where to assign the neighborhoods bordering the highway based on racial/ethnic makeup and social class. These bordering neighborhoods were the contested spaces that helped to illustrate how the spatial positioning of different racial/ethnic and social class groups throughout the district produce desirable and undesirable schools within the district. The highway apparatus serves as both the physical and discursive marker of these desired and undesired high school communities for the Elm and Sycamore neighborhoods. Ultimately, tracing the effects of the highway apparatus brings to light how racism and classism are at play within the school district and permeates the boundary decisions, and is an underlying dimension of all aspects of the Lodge City School District.

CHAPTER VIII

FINDINGS, IMPLICATIONS, AND FUTURE RESEARCH

Introduction

Since college, I have been interested in the spatial and geographical dynamics of school districts. As a teacher in Houston, I began to notice how particular physical markers, like highways, provided a powerful influence on the perceptions of specific geographic regions of and schools within a school district. Attendance boundary lines enforced through school district policy also influence perceptions. These interests and noticing came together in my study of the LCSD boundary determination process. It resulted in a yearlong data gathering process, including collecting and reading public comments, interviewing members of the boundary advisory committee and technical team, and gathering a swath of demographic data. The purpose of the demographic data was to gain a better understanding of the school district. I also read a history of the district written by a retired district superintendent to add to my knowledge of this community. After collecting the data, I spent another year transcribing, reading, analyzing, writing and creating maps to make sense of what I was learning about the LSCD process and community. My data collection and analysis of the processes and practices in LCSD to change the high school boundaries were to answer three overarching research questions emerging from my reading of the data with Barad's philosophy of agential realism. My research questions were:

- What are the boundary-making practices in a demographically changing suburban school district, and what do they produce?
- How do boundary-making practices matter?

- Do boundary-making practices cement long-standing inequities in school systems, or do boundary-making practices serve as a place to disrupt inequity?

This final chapter provides my findings to these questions based on what I learned by tracing the object/criteria apparatus and the Highway 44 apparatus. In addition to summarizing my findings for these research questions, I articulate the implications this research has on theory, methods, school boundary determination practices, and boundary policy. Finally, I end with lingering questions and future lines of research I plan to pursue.

Summary of Significant Findings

Studying the boundary determination process by tracing two specific apparatuses, the objective/criteria apparatus and the Highway 44 apparatus, allowed me to name specific practices within the process and follow what these practices produced. Although many practices were a part of the LCSD process: the determining of the committee, the involvement of community feedback, the need for superintendent and school board approval, etc., I narrowed my focus specifically on the practice of defining and using objectives and criteria, and the practice of considering the uneven geography of the district via the physical marker of Highway 44. I am conscious of the fact that I made a deliberate cut in focusing on these two specific practices. Therefore, the findings emerge from and are entangled with this cut. If I had prioritized different practices within the LCSD process, the results would be different. Therefore, these findings are only partial, and there is more to learn from LSCD's high school boundary determination process. In the following two sections, I summarize the significant findings regarding my research

questions for each of the two apparatuses by answering the overarching research questions.

Significant Findings from Analysis via Objective/Criteria Apparatus

In the following four sections, I attend to the analysis's significant findings via the objective/criteria apparatus. I answer the central research questions by articulating what the boundary practice was, what it produced, how it matters, and if the practice cemented or disrupted inequities within LCSD.

What was the practice? The use of objectives and criteria was an essential and impactful practice the LCSD school district engaged in to guide the school boundary determination processes. The school board and superintendent set these objectives and criteria before selecting the committee and starting the work to move the high school boundaries to accommodate the newly built high school. The boundary advisory committee agreed that it was important for the superintendent and school board to create these guidelines to provide parameters for the process and guide the committee in their decision-making practices. The committee felt that it was good to have objectives and criteria as a reference point throughout the process. As one participant said, the criteria were a "good lens to look through what we are doing." The practice of defining objectives and criteria was seen as an overall benefit even though they produced tension, conflict, and frustration throughout the boundary process.

What did the practice produce? The inherent function of an apparatus and the objectives and criteria is to constrain and define what is to be considered interior to the decision-making process and what is to be considered exterior. In LCSD, the objectives and criteria did this to an extent, but there were far too many criteria listed, and they were

too broad in scope. The number and broadly based definitions of the objectives and criteria ultimately lead to neither the objectives nor the criteria being completely satisfied. For example, only four out of the six high schools were at or below 90% capacity when implementing the new boundaries. Also, the boundaries were significantly different from before; many students experienced a significant transition when enacting the new boundaries.

Part of the inability to meet the objectives or nine criteria was that the apparatus's pieces were often in direct conflict. For example, in LCSD, there are more students close to Oak and Spruce High Schools compared to Pine High School. Therefore, when attempting to meet the proximity to school criteria, it left Oak and Spruce High Schools over the 90% capacity goal and Pine High School well under capacity at 72% capacity. In addition to producing conflicts between the parts of the apparatus, the criteria were not well defined. This lack of definition produced conflicts among the committee and the community about what specific criteria meant.

The constraining nature of the objective/criteria apparatus was helpful by defining what the BAC did not have to consider during the process. In Chapter 6, I mentioned that the LCSD community wished the BAC would consider extracurricular activities, sports, church and scout groups, and IB programs' continuity. The objective/criteria apparatus rendered these concerns exterior to the decision-making process. Therefore, the committee could communicate to the community that they were not attending to these concerns because they were not a part of the apparatus. If the BAC attended to the IB program's continuity between the elementary, middle, and high schools, the recommended boundaries would have been vastly different. The practice of articulating

objectives and criteria is as important in defining what should be considered in the decisions and what should not be considered.

Using objectives and criteria also produced different intra-actions between the committee and the greater LCSD community. District employees and boundary advisory committee members took a whole district-minded approach to the criteria and the boundary process. This district-wide approach conflicted with most district parents, who were much more concerned with decisions that directly impacted them. Thus, the parent and community comments were much more individualistic and applied the criteria to their family or small group of friends. This different emphasis creates conflict and tension between a school district and parents. Because of parents' individual interests, it reinforced the need to name the criteria included in the decision-making process and name the criteria that were outside of and would not be included in the decision-making process to provide clarity to the community.

Finally, the practices of defining objectives and criteria produced intra-actions with the geography and demographics of the school district in both explicit and implicit ways. One of the explicit intra-actions with the geography of LCSD is that the committee knew from the beginning they were going to have to shift students south because the overcrowded schools were in the northern third of the district, and the district built the new high school in the southern third of the district. A second example is when considering the criterion of proximity to a school. This criterion produced considerations amongst the BAC and commentary from the community about how far and long it would take to travel from particular neighborhoods to different high schools.

Some of the ways that the objectives and criteria intra-acted with the geography and demographics in less explicit ways were through the nebulous criterion of student body composition. This criterion brought to the surface the uneven geography of LCSD and how some areas of the district have more concentrated wealth and other regions have more concentrated poverty. It produced debates among both the committee and the public about whether or not to use the boundaries to prevent significant differences in free and reduced lunch percentages at the different high schools. The racial/ethnic demographics are also distributed unevenly throughout the district, which became a discussion point in finalizing boundaries. But because the criterion of student body composition was articulated in a race-neutral way, as is common in education policy (McDermott et al., 2015), the racial/ethnic demographics did not factor into the decision making process as much as they should have. It was acknowledged, but for the most part, the committee resigned to the fact that the boundaries would not likely change the stratification of racial/ethnic groups or difference in social class composition at the LCSD High Schools. The intra-action of the objectives/criteria apparatus and the LCSD geography was the impetus for the analysis via the second apparatus, Highway 44, and is addressed later in the chapter.

How does the practice matter? The objectives and criteria set forth by the LCSD school board served as an apparatus throughout the boundary determination process. As an apparatus, it enacted agential cuts. Agential cuts by nature are exclusive, which means that the cuts produced by a particular apparatus include certain possibilities and, at the same time, exclude other possibilities from becoming reality. Therefore, the objectives and criteria matter because they only allow for specific boundary

configurations to be possible and to materialize. As Barad (2007) writes, "Spatiality is always an exclusionary process, and those exclusions are of agential significance" (p. 245). In terms of school boundaries, the division of a school district's spatial reality into different portions has a significant impact on the social and material reality for all families who live in the area. Therefore, it is crucial to determine if the potential solutions available via these particular objectives and criteria align with the school district's ethics. If not, the resulting boundaries may be contrary to the answers the district seeks.

In the case of LCSD, the resulting boundaries that emerged from the intra-action with the objective/criteria apparatus and all things entangled within the boundary determination process produced two overcrowded high schools (see Table 6 in Chapter 6). It did produce a sizeable student body for the new high school but did not fully relieve the overcrowding at the two northern high schools, as was the stated desired outcome from the beginning and the main reason the district built the new school. Additionally, the new boundaries produced a set of high schools stratified in terms of socioeconomic and racial/ethnic composition (see Table 9). Two high schools (Maple and Pine) have a significantly higher percentage of students that qualify for free and reduced lunch than the district average. In terms of demographics, the new high school has the highest proportion of white students. It is 15 percentage points higher than that of the district average. The Asian student population at Oak and Spruce High School is higher than the district average, while the Asian student population is lower than the district portion at Maple and Pine.

Conversely, Maple and Pine have the two highest percentages of Latinx students in the district. In the next section on the significant findings produced by the Highway 44

apparatus, I summarize why these differences are important and how they affected the discourse circulating in LCSD. The criteria matter because they determine which bodies move into which schools. Additionally, the difference of student composition in the form of those bodies in the different schools affects the circulating discourse regarding these schools' desirability. In other words, the criteria produce different matterings—fewer black and brown bodies or fewer students qualifying for free and reduced lunch produces a discourse of desirability.

Table 9

Percentage of Students Qualifying for Free and Reduced Lunch and Racial/Ethnic Student Body Composition of LCSD and the High School in 2017-2018

District or High School	% Free & Reduce Lunch	% White	% Latinx	% Asian	% AI/AN	% Black	% Multi-Racial	% NH/PI
LCSD	35	48	25	16	<1	3	8	1
Aspen	34	56	22	10	1	3	8	1
Evergreen	22	63	14	12	<1	3	8	1
Maple	59	41	39	6	<1	6	6	1
Oak	19	57	14	20	<1	2	6	1
Pine	47	47	35	6	<1	4	6	1
Spruce	25	44	19	26	<1	4	7	1

Note. 2017-2018 is when the new boundaries went into effect and the first year Evergreen high school was open.

Did the practice cement or disrupt inequities? In the end, the particular criteria LCSD used further cemented demographic inequities between the high schools because the criteria were not explicit about race/ethnicity, poverty, or distribution of resources. For example, the areas of poverty are not distributed evenly throughout LCSD. Therefore, in the end, there are two schools with significantly higher percentages of students who qualify for free and reduced lunch than the overall district average. The boundary advisory committee was conscientious through the process about the uneven distribution of wealth and poverty in the high schools. Still, the objective/criteria pushed back on their attempts to reduce the inequities. The criteria of proximity to schools and neighborhood unity thwarted the BAC's ability to make the family income levels at all the high schools more similar. Ultimately, for the possibilities of demographic inequities to be disrupted through changes in school boundaries, the mandate to do so must be explicitly stated in the objectives and criteria before the process begins. If the role of disrupting inequities is left up to the goodwill and critical consciousness of the committee, the power of objectives and criteria written into boundary policy will overcome this goodwill, and so will the historical racial and economic segregation baked into the housing and zoning policy of the city. Therefore, it is imperative that if a district does not want to perpetuate schools segregated by race/ethnicity and/or income, it must be one of the named goals from the beginning.

Unfortunately, I can only address the inequities from a bird's eye view. I did not collect data that allowed me to determine how these inequities played out in the specific high schools and what other specifics might have further cemented or disrupted the

uneven racial/ethnic and socioeconomic distribution of students throughout the five high schools. This would be an area for further research.

Significant Finding from Analysis via the Highway 44 Apparatus

Next, I attend to the significant findings from the analysis via the Highway 44 apparatus in the following four sections. I answer the central research questions by articulating what the boundary practice was, what it produced, how it mattered, and if the practice cemented or disrupted inequities within LCSD.

What was the practice? The second practice was the consideration of the geography of the school district. The consideration of geography was not an explicit practice articulated by the school board, superintendent, or boundary advisory committee from the process's outset. Still, it was a practice that occurred regularly at the boundary determination meetings and their decision-making process. In addition, the district technical team regularly provided the BAC with maps that showed where the clusters of students who qualified for free and reduced lunch were in the district. They also calculated the racial/ethnic demographics of the high schools for each potential boundary solution. The BAC also understood the different perceptions of the high schools throughout the community connected to the high schools' demographic composition. The district's geography was regularly mentioned in the public comments submitted to the boundary advisory committee via email.

What did the practice produce? One of the main effects that the geography of LCSD produced was the notion of desirable and undesirable areas and schools within the district. I alluded to this in the findings of the objective/criteria apparatus but expanded more here. Highway 44 is the fundamental physical and social maker that divides and

stratifies the district into thirds – the desirable northern third, the undesirable middle core, and the desirable southern third. The two schools north of Highway 44, Spruce and Oak, were seen as the district's two most desirable schools. Many families in the district characterized the high schools south of Highway 44 in the core of the district, Pine and Maple, as undesirable. It is also important to note that there were not many parent comments about the other two high schools, Aspen and Evergreen. No one opposed attending the new high school Evergreen and parents also did not seem to have strong opinions in either direction about Aspen. Thus, the LCSD school district is divided into thirds, with the two northern and two southern schools seen as desirable areas. The two schools in the middle as undesirable or, as a committee member described it, LCSD is a "poverty sandwich."

Because of the circulating discourse about the desirable and undesirable schools, the boundary advisory committee was adamant about not using Highway 44 as a high school boundary line for Spruce and Oak. The BAC felt that using Highway 44 as a boundary line would further cement the divisions between the district's wealthier and poorer areas. Also, they would contribute to greater racial/ethnic segregation in the district since most of the Latinx community lives south of Highway 44. Through the BAC's practice to considering the geography of LCSD, they made specific decisions about the neighborhoods directly north and south of the highway to determine which high school to assign the neighborhood students to. In Chapter 7, I documented these specific decisions. The committee wanted to disrupt the separate social relations of the district by increasing movement north and south of Highway 44. With these particular decisions, they did prevent Highway 44 from becoming a stark boundary line. But, they could not

balance the schools in terms of free and reduced lunch percentage or racial/ethnic composition (see Table 9) as many of the committee members desired.

Additionally, the BAC's attention to the free and reduced lunch numbers and the racial/ethnic composition of the high schools produced a lot of tension within the community. This tension connected the role of geography to the objectives and criteria. Because the objectives and criteria did not specifically name anything about race/ethnicity or free and reduced lunch composition for the schools, the parents pushed back on the committee using the demographic geography as a consideration for the boundary lines. The community comments kept pointing the committee back to very geometric geographic concerns like the exact distance from the house to specific high schools and wanting the committee to assign all students to the closest high school possible. Because of the uneven geography, sending all students to the high school closest to their house would result in a very uneven distribution of students among the high schools. Some high schools will thus be very overcrowded, and others would be under-enrolled. The stratification between racial groups and class status would be even more stratified as well. Since LCSD did not significantly name demographics in their criteria but did name proximity to schools and neighborhood unity, the district remained more stratified than it potentially needed to be in the final set of high school boundaries.

This played out explicitly when the school board did not accept the recommended boundaries by the BAC. The school board moved part of the Elm neighborhood back to Spruce High School. The reasoning was because Spruce High School was much closer to the Elm neighborhood than Maple High School. This move did three things: 1) it made Spruce High School over 90% capacity, 2) it increased the economic stratification

between the two high schools, and 3) it further increased the Asian population at Spruce High School. In addition, it cemented the notion that Spruce High School is the more desirable high school. The Elm neighborhood complained throughout the process that they did not think Maple High School was a good enough high school for their students. This move by the school district confirmed their opinions and gave them what they wanted. Their children were assigned back to Spruce High School. Ultimately, because the demographic reality of LCSD was not made explicit, other criteria like proximity won out, and the uneven demographics of the high schools mirrored the uneven geography of LCSD.

How does the practice matter? The consideration of geography matters because it impacts the decision-making whether it is explicitly acknowledged or not. The current spatial reality of a school district and the history of the spatial reality intra-act and produce the effects of social relations between people and schools' material reality. For example, the geography of the school district produces the notions of desirable and undesirable schools. The notions of desirability are tied up in the perception of what makes a good school, which are tied to notions of whiteness, white supremacy, and how different groups are racialized in relation to each other. As discussed in Chapter 7, the two schools that some people in the community characterized as undesirable have the highest percentage of Latinx students and the highest percentage of students qualifying for free and reduced lunch.

On the other hand, the two schools viewed as desirable, Spruce and Oak, have the highest percentage of Asian students in the district and two of the three lowest percentages of students qualifying for free and reduced lunch. Therefore, notions of

desirability are wrapped in racialized notions of who is good at school and what makes a good school. The relationships and connections between schools further reinforce these racialized notions of "good student" and "good school." It matters that the district attends to this geography and the characterizations of schools the boundaries produce. It matters because the consequence is that not only do certain schools get characterized as undesirable but so do students. By not attending to the geography, a district can reinforce this dangerous characterization and inaccurate racialization of schools and students with real material impacts.

Did the practice cement or disrupt inequities? The practice of considering the geography of the school district did both. It disrupted some of the inequities but cemented others. How the inequities were further cemented was addressed in the previous section on the objectives and criteria. Demographic inequities were further cemented because the district high schools remain stratified by socioeconomics and race and ethnicity. Unfortunately, when considering the geography of the school district from a very geometric perspective of size, distance, shape, proximity, inequities are often cemented into the school boundary process. This is because, like Saporito (2017) notes in his studies, historic and current residential segregation plays a prominent role in school segregation. The more compact school attendance zones are in a district, the more likely it is for the schools to be more homogenous. Since many of the high school attendance zones in the LCSD are relatively compact, the school demographics closely mirror the racial/ethnic and class demographics closest to each high school.

Conversely, there was some movement towards disrupting the inequities and perhaps disrupted the notion that Pine is an undesirable high school. This disruption

happened because the BAC refused Highway 44 to be a stark boundary line for making high school assignments. The BAC did promote the movement of communities both north and south of the high. The most significant impact was the Sycamore neighborhood's (located north of Highway 44) movement to Pine High School, south of Highway 44 in the district's central third. Throughout the boundary process, the Sycamore neighborhood was one of the most vocal areas during the boundary determination process. They were upset that their children were being assigned to Pine High School instead of remaining at Oak. These parents wrote letters, signed petitions, created a grassroots community group, made their own boundary maps, and spoke out at all community meetings. The committee did not budge and assigned the Sycamore neighborhood to Pine High School despite the advocacy and protest.

Based on a couple of comments in my committee interviews, some of the parents' opinions shifted, and once their child began attending Pine High School, they learned it was a great school despite the perception. One committee member said about the Sycamore families,

> A lot of them are happier at [Pine]…[the principal] created a really strong [Pine] High School. They have a really strong alumni going association. They are very strong in building the community of that school. And a lot of the parents, not all of them, but a lot of them up in these areas [points to the Sycamore neighborhood] have found they…wow there's things here we didn't have at [Oak], and we like them better. And so, generally, I think, once everybody's settled down, the vast majority of the folks that were upset …found out their fears were overblown.

Another person from the district technical team said about the movement of Sycamore from Oak High School to Pine High School that "families who did not have any experience at [Oak], and who their first experience of a high school is at [Pine] – They are going, An amazing high school. Amazing administration. Love everything about [Pine]."

Thus, by the BAC sticking to their reasoning for moving the Sycamore neighborhood to Pine High School, they began to disrupt the notion that it is an undesirable high school. Hopefully, these new understandings of Pine High School will permeate the district and combat the negative classed and racialized notions of the school. This is an example of the changing of boundaries having a very positive outcome for one district high school.

In addition to the findings specific to LCSD, studying the boundary changes in LCSD also produced implications for practice and policy in other school districts. In addition, my theoretical approach and methods also have implications for practice by other researchers. I address these implications in the next section.

Implications for Theory, Methods, Practice, and Policy

In the following three subsections, I articulate my research implications for theory, methods, boundary determination practices, and school boundary policy. I begin with the theoretical implications of using Barad's agential realism, critical geography, and spatial analysis within the field of boundary research. I then discuss the implications for my use of GIS in conjunction with interview and public comment data. Next, I discuss specific practice recommendations for other districts experiencing boundary changes.

Finally, I address school boards and guidance for policies about school boundary changes and school assignment policies.

Implication for Theory and Methods

I describe the implication for theory and methods learned from my LCSD boundary determination process study in the following two sections. First, I suggest that more school boundary research should use the philosophical and theoretical framing of Barad's agential realism and critical geography. In the second section, I state why people should use GIS in conjunction with data produced by qualitative research methods such as interview data and public comment data.

Agential Realism, Critical Geography, and Spatial Analysis. As articulated in the summary of the literature review and the theoretical framework, there is a need in school boundary and school assignment research to move away from only geometric concerns like size and shape of boundaries and distance between neighborhoods and schools. Instead, the research should focus on more topological, relational, and practice-oriented concerns. To make this shift, a change in theoretical frameworks is required as well. School boundary research is an entanglement of spatial, temporal, and material relations. Thus, my recommendation is that more researchers apply a combination of Barad's agential realism and critical geography to their work. This philosophical grounding and theoretical approach allow one to focus on the practices that matter and attend to the differences that affect new boundaries in critical ways. Additionally, placing Barad's framework in deeper relationships with critical geography and the space and the place where the boundary changes occur helps the geography remain central to the

analysis and conclusions. Space and place become agents within the research instead of backdrops.

Additionally, spatial analysis methods from critical geography and GIS are more complex and nuanced from a relational framework. The spatial analysis highlights structural patterns that may have otherwise gone unnoticed in work. Together, agential realism, critical geography, and spatial analysis offer the possibilities of new findings and different solutions to the complex reality of school boundaries and school assignment policies in disrupting long-standing inequities in our public schools.

The Need for Transdisciplinary Methods in Suburban School and School Boundary Research: Interview data, public comment data, and GIS. In education research and spatial analysis, especially when mapping via GIS software, it is rare to find a study that uses qualitative data methods like interviews and written public comment data in tandem with big quantitative data sets like zoning, census data, and school enrollment data. This is a shortcoming in the field of education research that uses spatial analysis. Bell's (2009) study on the role of geography and parental school choice is one example that uses GIS mapping and interview data together. This study is an additional example of how using interview and public comment data with visualization of spatial data through GIS increases the complexity and nuance of the analysis. Within school boundary research, all of these various data forms intra-act together and produce different conclusions than if I had conducted the boundary study with only interview data or only via big data sets and GIS.

Using GIS in conjunction with interview and public comment data is also a way of continually weaving the importance of place and space throughout the analysis. In

qualitative research, the place and space in which the study occurs is often described in the introduction but is not considered when conducting the analysis and forming conclusions. But the use of GIS and spatial analysis prevents this from occurring, and space and place become more present through the study's analysis and conclusion. Conversely, when using large data sets like U.S. Census data or zoning data, the research loses the nuance and insight from talking to people who live and work in these areas. For example, my understanding of how the fixed physical boundary, Highway 44, "socially differentiat[ed] and stratif[ied] [the] residential settlement" of LCSD was only possible because of the interviews with the BAC and the emails written for public comment by the larger community (Liévanos, 2019, p. 229). Geography plays such an essential role in our school systems. It is time to include and emphasize it in our educational research, especially in research on changing suburban schools and changing school boundaries. Therefore, as education scholars, we need to continue to use transdisciplinary methods to provide complex and critical analysis of the spaces in which our school systems are always already entangled.

My theoretical framework and choice of methods and data analysis directly inform my recommendations to other districts engaging in the changing attendance boundaries or school assignment policies of their local schools. I address these recommendations in the next section.

Implication for School Boundary and School Assignment Practices

Many school districts across this country will need to engage in redrawing school boundaries. The reason for engaging in the process may be because of growth or new school construction, as occurred in LCSD, or it may be because the student population

has decreased in a particular part of the district and a school needs to be closed, or the student population needs to be redistributed to relieve overcrowding in one school and increase the population at another school.

My first recommendation concerns a focus on the *relational* and *topological practices* of the boundary determination process first. By this, I mean, districts should spend time thinking about temporal, spatial, and material relationships within a school district. In terms of *temporal concerns*, districts need to remember that the district's history and future sit within the present decisions. They need to spend time interrogating the history of the school boundaries and school assignment policies alongside the housing history, zoning practices, and population shifts within the district. What has this history produced in relation to the current boundaries? Is this a history the district would like to perpetuate or disrupt? What type of future is imagined for the district? Do the practices in place for the boundary decision align with this imagined future?

The second recommendation relates to *spatial concerns*. District personnel considering such redrawing of boundaries should spend time thinking about how different areas and parts of the district are characterized. Are there areas of the district that are viewed a more desirable than other parts? Why is this the case? How do the different classifications and descriptions of the parts of the district intersect with the district's racial/ethnic and class demographics? An additional consideration is to think through the spatial distribution of schools throughout the district. How does the location of the schools complicate or simplify the determination of new boundaries? How do the school locations intersect and intra-act with the district's racial/ethnic and class demographics?

Thirdly is that of *material concerns*. How does the temporal and spatial reality of the district impact the materiality of the district? For example, do the schools that are seen as less desirable than others exist in older buildings? Are there more extracurricular activities and a broader range of academic classes offered at the more desirable high schools? Is the perception of desirable or undesirable school tied to the race/ethnicity and social class of the bodies in the schools and the perception of the homes, business, and safety of the neighborhood? Thinking the spatial, temporal, and material concerns together, or as Barad (2007) names it, "*spacetimemattering,"* will lead to a relational and complex understanding of the particular school district. This understanding can then serve as the basis for the practices and decision-making moving forward as districts implement new boundaries.

Similar to the practice in LCSD, I would recommend that districts create objectives and criteria to guide the process. These should emerge from findings by studying the spatial, temporal, and material reality of the school district. The district should take time and care when crafting the objectives and criteria because the will be a significant apparatus functioning within the process. The objectives and criteria will play one of the most prominent roles in your final boundaries and school assignment policies' outcomes. They determine what boundaries are possible and which set of boundaries are impossible. Another lesson learned from LCSD is that the more specific and fewer criteria there are, the more likely it will be to meet your desired goals.

The objectives and criteria put into motion a course and pathway towards a final boundary solution.

In addition, when determining the objectives and criteria, take care to ensure that objectives and criteria are achievable. The LCSD objective to minimize transitions was not feasible. They built the new high school in the district's southern corner, but the overcrowded high schools were in the north. Therefore, based on this spatial reality of LCSD, major transitions occurred for many students. Instead of promising to minimize the transitions, the district would have been better to state that transitions for many students and families were inevitable with the boundary changes. With the expectation that many students would experience transitions, they could have placed their efforts into creating district structures to support students and families navigating the changes and making sure students made connections in their new schools as quickly as possible. Thus, my recommendation to other school districts is not to set objectives and criteria that promise something to families that the district cannot meet based on the school district's spatial reality.

As indicated by my suggestion to focus on the district's spatial concerns, it is important to foreground a school district's geographic and demographic reality considering such transition. Districts need to make it an explicit part of the process to analyze the school district's history and how it informs the current distribution patterns of students in a district's schools. Districts need to analyze the spatial patterns of race, ethnicity, and class within the district. This information should inform all boundary decisions. Remember, race and class will surface in the process no matter what, so it is better to create a race and class conscious plan and render these factors an explicit part of the process from the beginning.

Also, as the physical marker of Highway 44 played a significant role in how different people perceived LCSD, it is crucial that other districts think about what physical markers (i.e., highways, rail lines, industrial areas, landmarks, hills, or rivers) are present in their school district and how these physical markers potentially divide the district into desirable and undesirable areas. It is essential to include in the boundary-making practices how the district will attend to the physical markers within the boundary process. For example, in LCSD, the committee decided it would not allow Highway 44 to be a stark attendance boundary to avoid reinforcing the north/south division in the district. In other districts, it also essential to think through whether the boundaries created reinforce the divisions present in the school district or did the new boundaries disrupt the divisions and become a catalyst for new narratives about different regions? Because of these concerns, all boundary determination processes should center on geography.

Finally, parents and community members should be a part of the process from the beginning. The district's goal should be to help solicit feedback from parents that helps them see themselves and their children in relationships with all other students in the district. Districts should create a plan to invite the larger community to provide input that centers on the district's greater good and not about making individual family's wishes come true. Building community movement toward collective good is hard work but will ultimately be more beneficial to a boundary committee than hundreds of comments about individual family situations.

Implication for Education Policy

District school boards are the most common entity to write district boundary and school assignment policy. The trend nationally is to employ race-neutral criteria and

solutions to school boundary changes and school assignment policies (McDermott et al., 2015). This is a mistake. I understand the hesitation to engage in race-conscious decisions due to court cases such as *Parents Involved in Community Schools v. Seattle School District No. 1* (2007), which ruled against using individual students' race when making decisions around school assignment and school choice. *Parents Involved* did not rule out the use of the overall racial composition of a neighborhood. Thus, I advocate for school boards and others making school boundary and school assignment policies to render the geographic reality of the racial/ethnic and social class composition of a school district explicit in their policies. I advocate for this because, in my research of LCSD, the racial/ethnic and social class composition of the district was a factor and a part of the decision-making, whether made explicit or not. Any attempt at a race-neutral policy or a policy that only names social class over race and ethnicity is a fallacy. Race and ethnicity are always entangled in the greater boundary change phenomenon and will impact both the decisions and the effects of the decisions whether they are named or not. By rending race/ethnicity and social class explicit in a district process, the district will take more responsibility for the impact of the decisions and be more attentive if their decision-making practices and effects align with the district's ethics.

Because of both the spatial and material nature of school boundaries, along with the entangled reality of race/ethnicity and social class within the school boundary phenomenon, I advocate for Barad's agential realism and other new materialist philosophies to provide frameworks for education policy work. Using new frameworks and philosophies within education policy opens the doors to new possibilities and solutions. Two examples outside of school boundary research that use a new materialist

framing to their policy work are Kristidel McGregor's (2021) work on school bathrooms and Hillevi Lenz Taguchi and Anna Palmer's (2013) work on student wellness. Both studies use a new materialist framing that invoke different types of research questions than more positivistic research frames and thus provide unique and different solutions to issues of school bathrooms and student well-being within schools. They take into account the productive nature of the material. For example, McGregor (2021) considers the role of the physical bathroom space and how it intra-acts with students' subjectivity. Lenz Taguchi and Palmer (2013) consider how the pressure to pass a math class to get into university manifest itself in fast heart rates and stomach aches. Considering these material conditions within schools is vital to policy creation. I advocate that researchers and policymakers follow their lead in centering the active and relational notion of the material and the discursive when writing new policies.

Further Questions and Future Research

As is congruent with agential realism and diffractive methodology, the conclusion I came to in my study presents a partial understanding of the school boundary phenomenon. I chose to focus on the objective/criteria apparatus and the Highway 44 apparatus, but there were many other apparatuses I could have chosen to focus on. I could have also chosen a different philosophical framework to research from and highlighted a different set of conclusions.

Free and Reduced Lunch as an Apparatus

One concept and apparatus that I hope to interrogate more in the future is free and reduced lunch in school policy work. School districts use free and reduced lunch as a proxy for poverty. It is also often used to avoid naming race and how race is operating in

the school district. Thinking with the concept of free and reduced lunch in school boundary change research and research concerning demographically changing suburbs is an area of further exploration.

Boundary Research from the Perspective of Administrators, Teachers, and Students

Also, my study of the boundary changes in LCSD was from the perspective of the committee members and the public, who wrote in comments to the committee. I would be interested in adding to the knowledge base of school boundary research by changing the participants in my study to be the administrators, teachers, and students that go through the school reassignments. I would want to interview the three groups of people before, during, and after a boundary change occurs. I am interested in this perspective to think more about how the material-discursive relations construct schools within districts as desirable and undesirable. In LCSD, some parents vehemently opposed having their students attend Maple or Pine High Schools. In the interview with both the district administrators and one of the school principals, once parents and students moved to the school that thought they didn't want to attend, they enjoyed the new school. What can we learn from administrators, teachers, and parents about upending dangerous and often counterproductive narratives about desirable verse undesirable schools?

Continue Exploring Physical Markers as Apparatuses in School Districts

My favorite and most significant aspect of the research study was my work with Highway 44 as an apparatus. I want to continue to pursue this line of research in other school districts. For example, I could return to the district where I taught in Houston, Texas, and form a research study around Interstate 10 as an apparatus and trace its productive doings in that school district. In Eugene, the Willamette River or the South

Hills come to mind as fixed social markers that operate productively within the school systems. This line of research would also further my theorization of Barad's concept of the apparatus with critical geography and spatial analysis.

Ethico-ontoepistemology

Finally, I would like to explore Barad's (2007) concept of the ethico-ontoepistemology. Her research calls for an ethical imperative and accountability. Our practices matter, and we are accountable to the "marks on bodies" (Barad, 2007, p. 232). Two questions that come to mind in light of my work on school boundary policies are:

1. How do our educational or boundary policies line up with our ethics?
2. To whom are our educational policies responsive to and to whom, and what are they responsible for?

Conclusion

It is not a secret that public schools in the U.S. are unequal and inequitable. The boundaries we enact to assign students to schools *matter*. They are one pressure point available to us as educators to serve as places of possible disruption. Through my study of LCSD, I am convinced that to use school boundaries as a place to disrupt inequities found in districts, we must use different philosophical framings, foreground the geographic and spatial reality of a district, and make explicit race and class in all practices and processes we enact. We must also approach any school boundary research from a relational framework to enact changes that will benefit students and create more just and equitable public schools.

APPENDIX A

BOUNDARY ADVISORY COMMITTEE INTERVIEW GUIDE

General Information

1. What is your name?
2. What is role within the Lodge City School District?
3. How did you become a part of the boundary committee?
4. What did you see as your role on this boundary committee?
5. What did you enjoy most about being on the committee? The least?
6. What was the biggest challenge of being on this committee?

General Process and Criteria Questions

7. What was the process the committee decided upon to go about beginning to constructing the new boundaries due to the new high school? Who helped to lead and guide the process? How did the process change over time?
8. On June 1, 2015 the Board and Superintendent communicated the following objectives when creating the new boundaries: "Relieve current and projected future overcrowding (five years out) targeting capacity rates of 90%" and "Minimize transitions for students." Which of these two objectives do you think took precedents as you were working on establishing the new boundaries?
9. The district also has a school attendance are policy, which I am sure you are aware of, with both primary and secondary criteria. The primary criteria being: "availability of space, proximity to school, safety, and neighborhood unity" and the additional criteria as: "transportation costs, student body composition, staffing patterns, feeder school alignment, and the efficient and economical utilization of

the buildings." Were any of these criteria considered when making the boundary lines? Do you think any should have been considered more? Less?

10. Do you think the boundaries would have been different if different criteria were prioritized? If yes, how so?
11. According to the minutes from a meeting on March 17, 2016 you discussed how the different criteria were in conflict. Reflecting back, wow did the different criteria conflict during the process? How were these conflicts resolved during the decision making process?
12. Based on your experience, if you were to be a part of the process over again, what would you recommend to the school board and superintendent to be the primary criteria? Why?
13. On several of the iterations of maps created, pie charts about free and reduced lunch numbers and the racial/ethnic makeup of the schools were included. How much did these numbers factor into your decisions about the attendance boundaries?
14. How much did former/historic attendance boundaries and school feeder patterns factor into your decisions about the new boundaries?

Communication and Involvement with the Community

15. The district appears to have communicated well with the public about the boundary changes and the process. The website created was very thorough, you held multiple meetings at the different high schools, and solicited input from the parents in various means. Why was it important to the committee to be transparent

and open with the school community? What were the benefits? Were there any drawbacks?

16. What was some of the most common feedback you received from parents? Did any of their feedback surprise you?
17. Which parents were the most vocal? Why do you think that is?
18. Were there any groups in the community you wish you had heard from more? Why?
19. What were the different things the committee did to demonstrate to parents that they were listening and considering their feedback? Do you think you could have done anything else?
20. In what ways did attachments to the past or concerns about the future surface in the feedback you received from parents?

Interview with Maps

21. I am going to hand you the boundaries before they were redrawn and the boundaries after they were redrawn. I want you to make any annotations on the maps about areas that were controversial or had a lot of push back from parents or areas that the committee had the most disagreements with.
22. Why do you think these areas were controversial?
23. How did you handle the controversy and manage fears and expectations during the process?

Final Questions

Thank you for your time, is there anything else you would like to share with me about your experience on the boundary committee that would help me research into the process of how new boundaries are created within school districts?

APPENDIX B

TECHNICAL TEAM INTERVIEW GUIDE

General Information

1. What is your name?
2. What is role within the Lodge City School District?
3. How did you become a part of the technical team supporting the boundary committee?
4. What did you see as your role on technial team?
5. What did you enjoy most about being on the technical team? The least?
6. What was the biggest challenge of being on the technical team?

General Process and Criteria Questions

7. What was your role or the districts process of forming the committee?
8. The district elected to bring a 3rd party facilitator. What was the reason behind this descion? Do you think it helped or hindered the overall process?
9. On June 1, 2015 the Board and Superintendent communicated the following objectives when creating the new boundaries: "Relieve current and projected future overcrowding (five years out) targeting capacity rates of 90%" and "Minimize transitions for students." How did your work support these goals?
10. Before the committee began, a springboard map was created. What was the role of the technical team in creating this orgingal spring board map and what did that process look like?
11. What was your role during the BAC meetings?
12. What was your role inbetween BAC meetings?

13. There was a public preview meeting and a public comment meeting. What was your role at these meetings?
14. When the boundary committee recommended the boundaries in March 2016 and the superintendent at the time confirmed them to the board in April 2016, the school board confirmed the transistion plan but not the boundaries. They asked for more research in terms of proximity and transportation cost. What was your role as the technical team to provide this information?
15. How did the transition to a new superintendent at the same time impact the final boundary decisions?
16. What was your role in confirming the new boundaries the following fall?

Communication and Involvement with the Community

17. From my research thus far, it appears to me the district prioritized communicating with the public throughout the boundary change process. The website created was thorough, all meetings were open to the public, there were public feedback meetings, community could email or write in comments, and final meetings were held at all high schools. What was the districts orginal communication plan for the boundary change process? Why was it important for the district to be transparent and open with the school community? What were the benefits? Were there any drawbacks?
18. As I read through the public posted parent comments on the boundary website, parents wrote in and said they were frustrated and felt as though the district wasn't communicationg well with parents. What do you think lead to this

critique? How did the district respond to this critique? Was there any change to the districts communication after receiving critiques from parents?

19. Which parents groups were the most vocal during the boundary change process? Why do you think that is?
20. Were there any groups in the community you or the district wish you/they had heard from more? Why?
21. One of the main concerns I heard from parents was the AP vs. IB debate. Can you tell me how you communicated about this from a techincal team standpoint?

Comparison

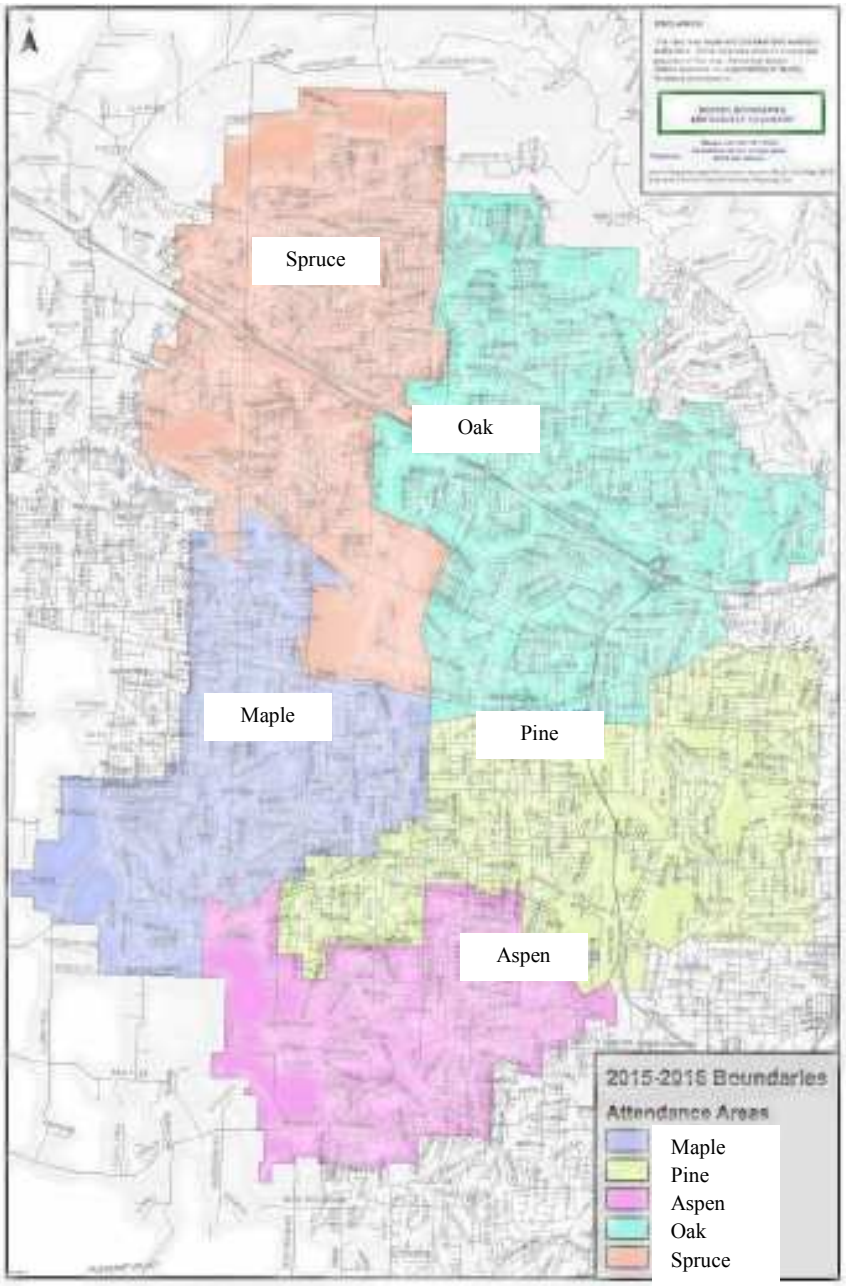
22. How was this process similar or different than other times the district has had to redraw boundaries?
23. What did you learn from it? What would you do similarly in the future? What would you change?

APPENDIX C

INTERVIEW MAPS

Figure C1

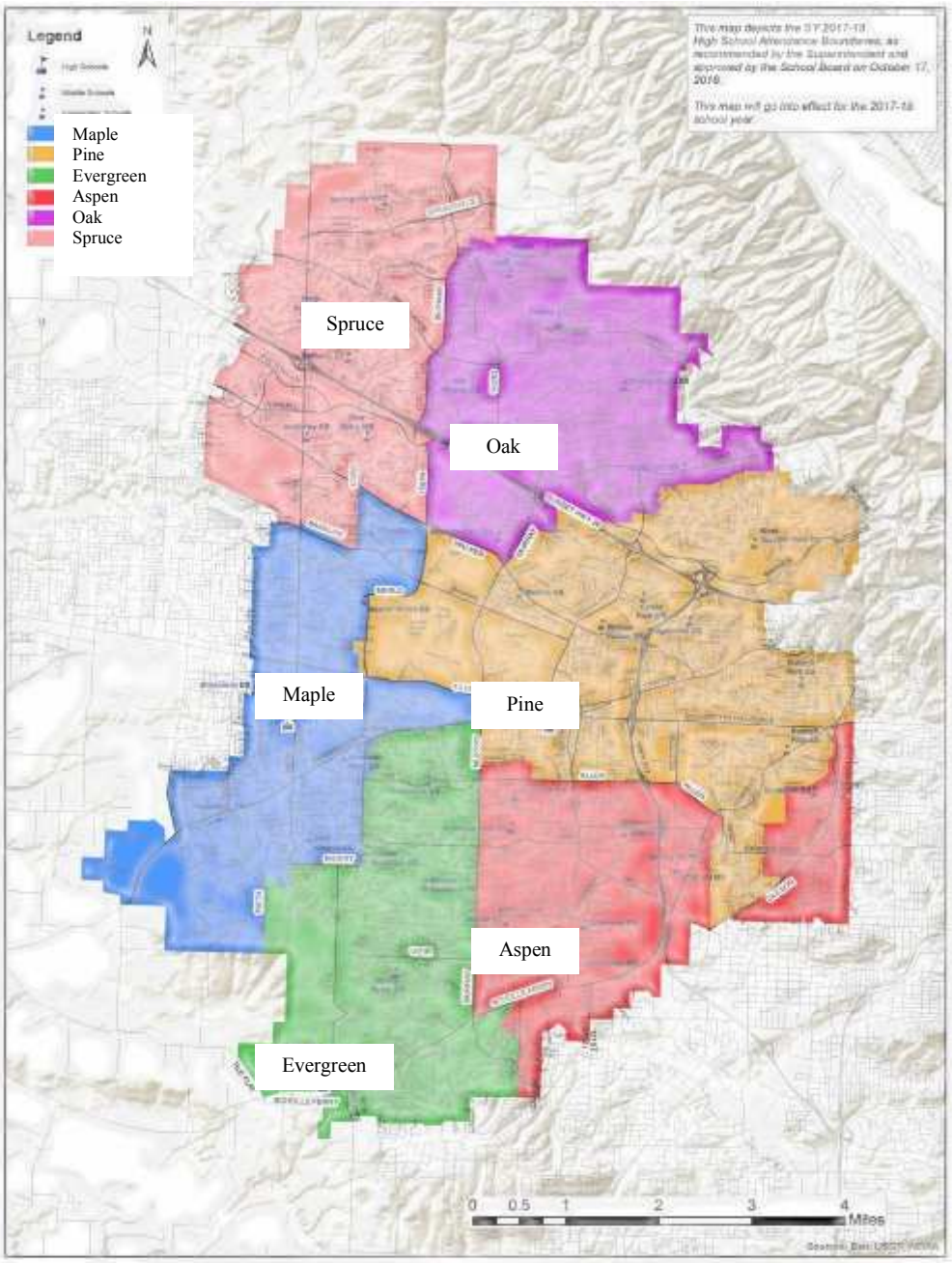
Old High School Boundary Boundaries (2015-2016)



Note. LCSD technical team created the maps used in interviews. For the purpose of this appendix, I applied a filter to the map and changed labels to preserve anonymity.

Figure C2

New High School Boundaries (2017-2018)



Note. LCSD technical team created the maps used in interviews. For the purpose of this appendix, I applied a filter to the map and changed labels to preserve anonymity.

APPENDIX D

HIGH SCHOOL TRANSITION PLAN

High School Boundary Adjustment Advisory Committee

Transition Recommendations to the Superintendent

The Committee's student transition recommendations include:

- Juniors and seniors will be grandfathered into their current high school.
- Students who enter high school as freshmen in September 2017 will attend their neighborhood school, as defined by the new boundaries.
- Students who enter high school by the fall of 2019 who have an older sibling currently attending a high school may choose to attend the same high school for their entire high school career.
- The Committee deliberated on options for sophomores in the fall of 2017, but in the absence of information on the implications for schools, staffing and other issues, they elected to forward the issue to the Superintendent for further study and consideration.

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