

## **Circles of influence: How neighborhood demographics and charter school locations influence student enrollments \***

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### **Abstract**

This paper uses Geographic Information Systems (GIS) and dynamic mapping to examine student enrollments in New Jersey charter schools. Consistent with previous research, we find evidence of increased racial segregation. Greater percentages of African-Americans attend charter schools than reside in surrounding areas. We add to the existing charter school literature by examining student enrollments across three geographic scales: school districts, census tracts and block groups. We demonstrate that racial segregation is most severe within charter schools' immediate neighborhoods (i.e. block groups), suggesting that analyses comparing charter schools to larger school districts or nearby public schools may misrepresent student sorting. This finding results from the tendency of charter schools in New Jersey to locate just outside predominately African-American neighborhoods, encircling the residential locations of the students they are most likely to enroll.

**Keywords:** GIS, mapping, charter schools, segregation, student enrollments, school choice

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## **Introduction**

Charter school reform has been described as an effective solution for providing low-income and minority children with improved learning opportunities. New schooling options may increase competition among schools and create incentives to improve educational services and outcomes (Friedman, 1962; Chubb & Moe, 1990; Levin, 2002). In addition, reducing the importance of student attendance zones may encourage parents to enroll children in more diverse settings, integrating schools by race and socio-economic status. Integration has been shown to positively influence minority student achievement and increase access to higher education, future employment and important social networks (Rapp & Eckes, 2005).

Evidence drawn from controlled public choice programs suggests that providing parents with new schooling alternatives may increase integration.<sup>1</sup> Blank, Levine and Steel (1996) found that magnet schools advanced integration by increasing the number of white students in predominately minority school districts and vice-a-versa. Henig (1994) observed that controlled choice programs in Montclair, NJ and Cambridge, MA improved the racial balance in public schools. Betts, Rice, Zau, Tang and Koedel (2006) found that black students in San Diego were nearly twice as likely to enroll in the Voluntary Ethnic Enrollment Busing Program (VEEP) than white students, increasing racial integration for program participants by 10.9%.

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<sup>1</sup> Controlled choice programs carefully regulate student eligibility and school participation, allowing administrators to effectively manage student enrollments. They are frequently implemented to achieve specific policy goals, such as racial integration. In contrast, unrestricted school choice plans contain few regulations. Student enrollments are principally determined by the availability of schools and parents' schooling preferences. Charter schools are best understood as an unrestricted choice program (Gill, et al., 2001, p. 177-178).

However, researchers have suggested that charter school reform, where choice is largely unrestricted, bears little resemblance to other public choice programs (Gill, Timpane, Ross and Brewer, 2001, p. 177-178). In fact, charter schools may increase segregation among racial/ethnic subgroups for two reasons. First, differences in values and schooling preferences may lead families to voluntarily segregate themselves into more homogeneous school communities. Second, families with greater educational resources may avoid schools with large numbers of low-income, minority, and immigrant students that they associate with poor educational outcomes (Weiher & Tedin, 2002).

In this paper, we add to this discussion by examining student enrollments in New Jersey charter schools. Geographic Information Systems (GIS) and dynamic mapping are used to compare charter schools to the school districts, census tracts, and block groups in which they reside. New Jersey provides an appropriate place of study due to its long history of racial imbalances in schools caused by the state's housing patterns, population density,<sup>2</sup> school funding formula and diverse population. In short, analyzing student enrollment patterns in a state that is already heavily segregated provides a more easily interpretable assessment of charter school effects.

In the sections below, we present our analysis in four steps. First, we review the literature on charter schools and racial segregation. Second, we present a detailed description of our methodology. Third, we present our research findings, and fourth, we offer a brief discussion. We end with concluding remarks.

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<sup>2</sup> New Jersey is the eleventh-most populous state and the most densely populated at 1,174 residents per square mile.

## Charter Schools and Racial Segregation

Race is an important factor in families' enrollment decisions. For example, Schneider and Buckley (2002) demonstrated that racial composition was a primary determinant of families' decisions to enroll their children in traditional public schools or charter schools in Washington D.C.<sup>3</sup> More pointedly, white families appear to avoid schools with significant numbers of minority students (Lankford & Wycoff, 2005; Saporito & Lareau, 1999). Clotfelter (2001) found that a 0.10 increase in the exposure rate of white students to non-white students in a school district decreased the growth rate of white enrollment by 0.7% per year.<sup>4</sup> Further, a tipping point for "white flight" was observed. White enrollments increased in areas where the exposure rate remained at or below 0.25 and rapidly declined in areas where exposure to minority students rose above this threshold. Similarly, Renzulli and Evans (2005) reported that schools and school districts with black enrollments over 30% experienced a greater loss of white students than those below 30%. School choice appears to present families, especially white families, with additional opportunities to avoid or exit schools with greater numbers of minority students.

Previous research into charter schools reveals similar patterns of racial sorting at the national, state and local levels. Carnoy, Jacobsen, Mishel and Rothstein (2005) examined data from the National Assessment of Educational Progress (NAEP) and reported that black students accounted for 34% of charter school students, but only 17%

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<sup>3</sup> Schneider and Buckley (2002) examined parents' searches of school characteristics on the website *DCSchoolSearch.com*. Almost 30% of parents looked at student demographic information near the beginning of their search. This finding is markedly different than verbal responses to a previous survey administered by Schneider, Marschall, Teske and Roch (1998) where only 5% of parents identified race or economic background as an important factor in choosing a child's school.

<sup>4</sup> The exposure rate is a measure of interracial contact of white to non-white students. That is, the percentage of non-white students in the average white student's school relative to the percentage of non-white and white students in the larger school district.

of traditional public school students. Rapp and Eckes (2005) examined 32 states, each with more than 1,000 charter school students, and found that charter schools over-represented minority students in two-thirds of the states examined. Frankenberg and Lee (2003) studied charter school enrollments in 16 states and found that in 15 states minority students were over-represented in charter schools. In 5 states, black students comprised more than 50% of total charter school enrollments despite accounting for a far smaller percentage of the general student population. Finally, RPP International (2000) conducted a national assessment of the racial composition of charter schools at the district level. Increased racial segregation was observed in two directions. Seventeen percent of charter schools over-represented minority students when compared to their host school district and fourteen percent of charter schools under-represented minority students. Aggregate comparisons of charter schools to traditional public schools have consistently revealed increased levels of racial segregation.

Of course, comparisons based on aggregate data may be misleading and, ultimately, misrepresent charter school enrollments. Charter schools that are located in densely populated urban areas may over-represent minority students when compared to state and school district demographics, but not when compared to the families living in immediate surrounding neighborhoods. Miron and Nelson (2002) demonstrated that the use of different comparison groups leads to different findings and conclusions. In a study in Michigan, the authors first compared all charter school students in a given school district to the local public school population. No substantial differences were observed between student groups. Next, student enrollments in individual charter schools were compared to the racial composition of their host district. Fourteen percent of charter

schools were found to substantially over-represent minority students (>20%) and 11% substantially under-represented minority students (<20%).

Researchers have used two strategies to improve analyses of charter school enrollments. First, they have endeavored to improve comparison groups. For example, Booker, Zimmer and Buddin (2005) tracked individual student movements in California and Texas over time and compared the racial make up of the charter school that each student attended to his or her previous school. They found that African-Americans in both states were likely to move to more segregated charter schools. Ladd and BiFulco (2007) examined student level data in North Carolina and found that a majority of African-American charter school students transferred into more racially segregated schools and that this decision led to negative academic outcomes. Cobb and Glass (1999) took a slightly different approach. Geographic information systems (GIS) and mapping were used to compare Arizona charter schools to adjacent public schools that charter school students would most likely otherwise attend, as opposed to the larger school district. Charter schools were found to over-represent white students by approximately 20% when compared to traditional public schools. The few charter schools that over-represented minority students tended to be vocational high schools and “second chance” schools.

Thus, more exacting studies of student enrollment decisions support findings of increased racial segregation, but the particular shape of student sorting appears to depend on the context of local learning environments. That is, in some settings charter schools may over-represent minority students and in other settings charter schools may under-represent minority students. Renzulli and Evans (2005) demonstrate that in racially

heterogeneous areas, white students are more likely to exit diverse public schools and enter charter schools. A 1% increase in school district integration is associated with a .73% increase in white enrollments in charter schools. In more segregated school districts, white families appear to place less value on attending charter schools. A 1% increase in the percentage of black students in a school district is associated with a .84% increase in black enrollments in charter schools (Renzulli, 2006). The racial composition of charter school enrollments appears to be influenced by pre-existing segregation patterns in school districts and schools.

A second approach to better understanding charter school enrollments has been to examine differences among charter schools. Initial findings suggest that charter school enrollments are influenced by state and local policies, mission-orientation and school organization. Renzulli (2006) examined charter schools in states without racial clauses designed to ensure the fair representation of racial and ethnic subgroups had smaller numbers of African-American students in charter schools. Lacireno-Paquet, Holyoke, Moser, and Henig (2002) compared charter schools run by education management companies (EMOs) and non-market oriented charter schools. For-profit status was associated with the under-representation of special education students and English Language Learners (ELL). However, EMOs in urban areas were also found to over-represent low-income, minority, and free and reduced lunch (FARL) eligible students. Huerta, Gonzalez, and d'Entremont (2006) examined home school and cyber charter schools and reported that non-classroom based charters enrolled high proportions of formerly home-schooled students. Home-schooled students are more likely to be white

and come from families with slightly higher incomes than traditional public school students (Stevens, 2001).

More recently, scholars have examined how supply-side factors influence locational decisions and subsequent student enrollments. Lubienski and Gulosino (2007) have focused on “literal positioning” – where charter schools located relative to particular student demographics – and observed that most charter schools locate in areas where they have a competitive advantage. As a result, charter schools tend to locate in lower-income areas where additional schooling options are needed, but avoid areas with the most costly demographic characteristics. Similarly, Henig and MacDonald (2002) demonstrated that charter schools in Washington D.C. were more likely to locate in areas with greater proportions of African-American and Hispanic families, but also in neighborhoods with middle incomes and higher home ownership rates than the poorest parts of the city.

Overall, charter schools appear to possess a high level of market acumen by locating in areas where they can maximize business opportunities while avoiding “undesirable” customers. While this finding is not incompatible with traditional notions of how education marketplaces function (see Friedman, 1962; Chubb & Moe, 1990), it is important to note that such “positioning” strategies may be more cost-effective solutions to attracting students than changing practices in order to raise student achievement outcomes (Lubienski & Gulosino, 2007). The fact that most charter schools are new and therefore uncommitted to a specific geographic location further emphasizes this point.

In this paper, we combine positive elements of both strategies described above to examine student enrollments in charter schools. We build on previous research by demonstrating how the supply of available schooling options, as well as the demographic

characteristics of surrounding areas impacts racial segregation. Our intention is to highlight complexities inherent in charter school research and develop a more systematic approach to understanding variations among charter schools. In the next section we describe our data and methodology.

## **Data and Methods**

Consistent with previous research into charter school reform, we assume that charter schools lead to greater student segregation. However, rather than compare charter school enrollments to the racial composition of the school districts in which they reside or nearby public schools, we stress the importance of examining minority and non-minority enrollments in charter schools against several benchmarks. More specifically, we use Geographic Information Systems (GIS) and dynamic mapping to simultaneously examine the location and racial composition of charter schools in New Jersey across three geographic scales: school districts, census tracts, and census block groups. As Lubienski and Gulosino (2007, p. 5) note, “using geo-spatial approaches offers an advantage in analyzing data, not only in that it sets data within context, but it allows researchers to both test hypotheses as well as to discern unanticipated patterns in the data that might not be apparent using traditional statistical approaches.”

Our spatial analysis began with constructing a data table of attributes for New Jersey charter schools that contains student enrollment data, as well as locational fields for street address and ZIP code. Student enrollment data for school districts and charter schools in New Jersey was gathered from the New Jersey Department of Education (NJDOE) and the National Center for Education Statistics (NCES) Common Core of

Data (CCD). Locational data was collected from the 2000 Census and includes neighborhood attributes (e.g. racial subgroups), as well as census outlines or polygons (e.g. tracts and block groups). The locational data was used to place each school on a map with x and y coordinates by the GIS process of geocoding,

Next, a small-area analysis was conducted using three different spatial scales: the school district, the census tract, and the census block group ordered from largest to smallest area.<sup>5</sup> The advantage of using these areas is that it is easy to get comparable demographic data over time relative to charter school demographics. Table 1 summarizes the ranges of population and area at the three scales.

**Table 1**

Area Scale	Population			Area (square miles)		
	Max	Min	Mean	Max	Min	Mean
School District	273,545	5,747	127,305	210.39	1.58	21.51
Census Tract	9,330	838	4,317	40.61	.06	1.69
Block Group	2,896	267	1,258	9.54	.03	.47

The population data for school districts, census tracts, and block groups that contain charter schools was added to the charter school attribute table by the geospatial process of a spatial join. The population data attributes for the polygon boundary features of the area the charter school point falls within are assigned to each charter school point feature. The result is a new charter school attribute table that contains additional fields or attributes describing the population of each charter school, as well as the population residing in the charter school’s school district, census tract and block group.

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<sup>5</sup> Census tracts are locally determined geographic units. Block groups are the smallest geographic areas for which the Bureau of the Census collects, tabulates, and publishes sample data.

From the charter school attributes table, three series of maps were produced. The first series of maps describes the percentage of African-American families residing in the school districts, census tracts and block groups where charter schools are located. We used these maps to test our assumption of increased racial segregation in charter schools before moving on to more sophisticated analyses. The second series of maps compares the racial composition of charter schools to three geographic areas: school districts, census tracts and block groups. We shift our attention from black students to minority students to better account for other racial/ethnic groups attending New Jersey public schools, although these groups are not the primary focus of our analysis. The maps organize charter schools, school districts, census tracts and block groups into three broad categories: *predominately minority*, *predominately white*, and *racially diverse*. We consider predominantly minority schools and areas to contain percentages of white students and families less than 20%. Predominately white schools and areas contain percentages of white students and families greater than 80%. Racially diverse schools and areas contain percentages of white students ranging between 20% and 80%.<sup>6</sup> By grouping charter schools in this manner, we account for the possibility that charter school enrollments vary by context and are influenced by pre-existing patterns of student segregation (Evans & Renzulli, 2005). The third series of maps builds on our comparisons of charter schools to their immediate surrounding areas to draw potential associations between the location of New Jersey charter schools and the percentage of

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<sup>6</sup> Defining racially diverse schools and areas as ranging from 20% to 80% white students may seem inappropriately large, but it is consistent with the limited body of literature on “white flight.” The departure of white families from school districts and neighborhoods appears to accelerate when the percentage of minority families rises to between 10% and 30% and only slows when the percentage of minority families rises above 80% (Clotfelter, 2001; Orfield, 2002; Renzulli & Evans, 2005). Our intention in defining racially diverse schools and areas as ranging from 20% to 80% white families is to capture this period of transition.

white, black and Hispanic students at the school district, census tract and block group levels.

All maps use conventional symbology and display the categorized charter school point features by unique colors and point sizes. Each category is a separate layer. The layers are overlaid to show which schools match one or more categories. Keys are provided for all maps featured below.

Finally, before presenting our findings, it is important to note that this study is exploratory in its nature and limited to examining the pure racial composition of New Jersey charter schools. We do not investigate other socio-economic conditions such as poverty, family income, crime, or low academic achievement that might be correlated with racial isolation. For a variety of reasons, we suspect that other disadvantages also increase with more racial concentration, and these would be additive to the racial features uncovered here. We also acknowledge that other factors play significant roles in shaping charter school enrollments and locational decisions including state and local policies (Henig & MacDonald, 2002; Renzulli, 2006), mission-orientation, (Lacireno-Paquet, Holyoke, Moser and Henig, 2002) and organizational structure (Huerta, Gonzalez and d'Entremont, 2006), as well as logistical or practical concerns, such as available space.

Nevertheless, the findings presented in this paper introduce important new ways of comparing charter schools to their surrounding areas and understanding how charter school enrollments may be responsive to immediate learning environments. The striking patterns revealed below suggest that the influence of race on charter schools' locational decisions is unlikely to be explained away by other decision-making factors.

## **Findings**

Map 1 shows African-Americans as a percent of the total population at the school district and block group levels. The school district boundaries enclose census block groups that contain at least one charter school. The map reveals an overarching trend where African-Americans account for a lower percentage of the total population in the census block group where charter schools are located than the corresponding school district, indicating that the areas closest to charter schools consistently have fewer black students. As a result, although charter schools may be found in school districts ranging from predominately white to racially diverse to predominately minority, within school districts charter schools appear to seek out enclaves with fewer black students.

### **Insert Map 1 here**

This finding indicates that the percentage of African-Americans within the population from which charter schools may draw students is expressed differently when examining school district and census block group level data. The former appears more likely to include a much greater percentage of African-American students than the latter. Further, the relatively small-sized census block groups are frequently heterogeneous in their expression of the percent of African-Americans in the same school district. Map 1 demonstrates the need to examine the racial/ethnic attributes of charter schools at a higher spatial resolution than the school district in order to better understand the phenomena of racial/ethnic representation comparisons. Due to this insight, the remaining

findings presented here focus on revealing differences between charter school analyses made at the school district and block group levels.<sup>7</sup>

**Insert Table 2 here**

*Predominantly White Charter Schools and Locations*

Table 2 compares the racial/ethnic attributes of charter schools to the racial mixes observed in three different geographic units – school district, census tract, and block group. Only six out of 52 charter schools (12%) are located in predominantly white neighborhoods. A lower mean percentage of white students (54.84%) attend charter schools than reside in block groups (90.08%), census tracts (87.58%), and school districts (77.03%) in these same areas. By contrast, a much higher mean percentage of black students (33.84%) attend charter schools than reside in predominantly white block groups (4.50%), census tracts (4.81%), and school districts (8.77%). A small share of Hispanic students (7.63%) attend charter schools in predominantly white charter school locations, but this figure is still higher than the percentage of Hispanics in surrounding block groups (5.45%) and census tracts (5.71%), but not school districts (10.02%).<sup>8</sup> This means that despite locating in whiter neighborhoods these charter schools, on average, over-represent minority students.

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<sup>7</sup> For the sake of clarity, the maps we present in this paper do not contain information on census tracts. Table 2 demonstrates that comparisons between charter school enrollments and census tracts support our overall findings, but are not as extreme as comparisons made at the block group level.

<sup>8</sup> Hispanics account for a small, but significant number of charter school students and to ignore their presence would potentially lead to erroneous findings. In a future analysis, we hope to further develop our analysis of Hispanic enrollments in charter schools.

Maps 2 through 5 provided spatial comparisons between charter schools and their surrounding areas and document the lack of charter schools in predominately white school districts and block groups in New Jersey. Maps 2 and 4 show that only 2 charter schools (4%) are located in predominately white school districts and none are located in predominately white school districts near the major urban centers of Newark, Camden or Trenton. Maps 3 and 5 show that four additional charter schools are located in predominately white block groups within racially diverse school districts. In all four cases these charter schools enroll racially diverse student bodies and therefore over-represent minority students when compared to their immediate neighborhood.

**Insert Maps 2 through 5 here**

*Predominantly Minority Charter Schools and Locations*

A total of 11 charter schools (21%) are located in predominantly minority neighborhoods (see Table 2). The proportion of whites to the total population is small in predominantly minority neighborhood areas – 10.76% at the block group level, 12.78% at the census tract level, and 9.27% at the district level. This is not surprising given the much lower mean percentage of white students (4.97%) attending predominantly minority charter schools. Black students (81.34%) are over-represented in charter schools when compared to the make-up of the general population at the corresponding block group (73.79%), census tract (74.24%), and school district (55.95%) levels. Interestingly, a smaller mean percentage of students who are Hispanic (12.85%) attend charter schools in predominantly minority neighborhoods when compared to their presence in the

population of block groups (19.80%) and school districts (30.64%). These findings suggests that charter schools in predominately minority areas are likely to over-represent black students.

Maps 2 and 4 show that a majority of charter schools are located in predominately minority school districts (e.g. Newark, Camden, Atlantic City, Pleasantville, etc.). Further, with one exception shown in an inset map for Atlantic City, charter schools in predominately minority school districts have student enrollments that are predominately minority. Charter schools in predominately minority block groups also have predominately minority enrollments. However, Maps 3 and 5 show that the number of charter schools in predominately minority block groups is less substantial. Four out of the 5 charter schools in Camden are located outside predominately minority block groups. In the greater Newark area, 11 charter schools are located in predominately minority school districts, but only 5 are located in predominately minority block groups.

#### *Racially-Mixed Charter Schools and Locations*

The majority of charter schools in New Jersey, 35 out of 52 charter schools (67%), are located in racially diverse neighborhoods (see Table 2).<sup>9</sup> However, while white families account for 41.17% of the population within block groups and 38.30% within census tracts in these areas, white students account for far lower percentages in both charter schools and school districts (10.28% and 9.52%, respectively). In contrast, a significant proportion of black students (65.25%) attend charter schools in racially mixed

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<sup>9</sup> To clarify, a majority of charter schools are located within predominately minority school districts, as well as within racially diverse block groups. A major reason for this seemingly contradictory finding is that charter schools tend to locate in neighborhoods with lower percentages of African-American families within predominately minority school districts (see Map 1).

neighborhoods when compared to surrounding block groups (32.04%), census tracts (37.44%) and school districts (45.76%). Finally, 21.24% of Hispanic students attend racially diverse charter schools, a lower percentage of Hispanics compared to the proportion of Hispanics in surrounding block groups (31.43%), census tracts (26.55%), and school districts (38.36%). It is important to note that Hispanic students are over-represented in charter schools in predominately white neighborhoods and under-represented in charter schools in neighborhoods with greater percentages of African-American families, although these numbers are not conclusive.

Maps 2 and 4 show a strong presence of charter schools in racially diverse school districts in New Jersey. In school districts, such as Trenton, Jersey City and, to some extent, Hoboken, charter schools serve predominately minority students. Even in racially diverse school districts further removed from densely populated minority areas (see insets featuring New Brunswick, Somerset and West Belmar) charter schools appear to over-represent minority students. Maps 3 and 5 show a similar trend at the block group level. Nearly all charter schools located in racially diverse block groups enroll predominately minority students.

Our analysis suggests that despite a tendency for charter schools to locate in neighborhoods with fewer minority or, perhaps, African-American students, there is little difference in charter school enrollments in predominately minority and racially diverse block groups. To explore this potential outcome further, Maps 6 and 7 describe charter schools locations in relation to the proportion of white, African-American and Hispanic families within block groups. A remarkable pattern is revealed. Charter schools are clearly shown to circle block groups with dense concentrations of African-American

students. This pattern is consistent in both larger urban areas (e.g. Camden, Jersey City, Newark and Trenton) and smaller inner ring suburbs (e.g. Asbury Park, Atlantic City, Englewood, New Brunswick and Planfield). This finding suggests that charter schools are just as heavily influenced, if not more so, by the characteristics of nearby neighborhoods as the one in which they reside. We explore this important finding further in the following section.

**Inserts Maps 6 and 7 here**

## **Discussion**

Racial sorting in charter schools appears to be most severe at the block group level. This finding provides some evidence that charter school enrollments are influenced by neighborhood demographics. For example, consider Map 1. Charter schools appear more likely to locate in block groups that under-represent African-Americans in school districts where the percent of African-Americans is 40% or below than in school districts where the percent of African-Americans is greater than 40%. This effect is partially a function of differences in the racial composition of school districts, but also documents a particularly dramatic pattern of student sorting when observed across the neighboring school districts of Hoboken, Jersey City, Newark and East Orange. Hoboken, a predominately white school district, has charter schools clustered in predominately white block groups. In the slightly more diverse school district of Jersey City, charter schools continue to be located in block groups with greater percentages of white families, potentially offering an exit from more heterogeneous public schools. In Newark, where

roughly half the population is African-American, a majority of charter schools are located in block groups with higher percentages of black students than the district average. Finally, in East Orange, a predominately African-American school district, the district's one charter school is located in a predominately African-American block group. This finding suggests that in more racially balanced school districts (e.g. Jersey City) charter schools may locate in whiter neighborhoods and therefore potentially serve fewer black students. As African-Americans begin to account for a greater percentage of students in a school district (e.g. Newark), charter schools appear more likely to locate in neighborhoods with higher percentages of black students.

A similar trend is observed within school districts. More specifically, block groups located at the center of school districts appear to have greater percentages of African-Americans than the district average, but block groups located near the edges of school districts appear to have smaller percentages of African-Americans. Again, this finding may be indicative of the typical distribution of racial groups within school districts, but also may have an important affect on student enrollments given the large number of charter schools that are located close to school districts' boundaries. It appears that charter schools in school districts with greater percentages of African-Americans (e.g. Asbury Park, Atlantic City, Camden, Newark, Pleasantville, and Trenton) may position themselves along district lines to minimize enrollments by students in their host district and maximize enrollments by students in adjacent school districts who may be deemed more desirable.

However, while the location of charter schools in New Jersey suggests increased student sorting, families' enrollment decisions defy typical explanations for increased

segregation based on white flight. Maps 2 through 5 demonstrate that in predominately white and predominately minority school districts and block groups where students are already heavily segregated, charter schools appear to over-represent minority students as expected. But surprisingly, in racially diverse school districts and block groups where white families might have incentives to exit traditional public schools, charter schools continue to over-represent black students. This outcome results from the limited participation of white and Hispanic students in charter schools in racially diverse areas.

To be clear, we do not believe that our findings refute established arguments explaining how school choice may increase student segregation. A number of factors may explain the absence of white students in New Jersey charter schools including the small size and close proximity of school districts and the widespread availability of private schooling options. Rather, our analysis simply suggests that charter schools in New Jersey are not creating competition among different racial groups. Instead, charter schools primarily serve as an additional schooling option for African-American families, which may or may not result in greater in-group competition.

As a result, the role of charter schools in New Jersey may be less influenced by families' decisions and more heavily influenced by the "positioning strategies" of charter schools themselves. Maps 6 and 7 illustrate that most charter schools, regardless of school racial composition, are located close to predominately African-American neighborhoods, but not in them. With remarkable consistency, charter schools appear to circle or "ring" African-American families. The reason for this outcome may be twofold. First, charter schools may locate in areas where student sorting is imperfect and demand for choice is high. Second, charter schools may locate in areas adjacent to enthusiastic

consumers (i.e. African-American families) where they can maximize business opportunities, but avoid “undesirable” customers. Ultimately, this finding suggests that charter schools may most effectively engage educational markets not by improving educational practices, but by locating in areas with preferred student enrollments.

A potential criticism of this analysis is that charter schools rarely receive funding for facilities and therefore may not deliberately located outside African-American neighborhoods, but rather in areas where space is both affordable and useable. Yet, given the high correlations between race, income and local property values, Maps 2 through 5 demonstrate that charter schools are clearly not locating in the most affordable neighborhoods in New Jersey where many traditional public schools are found. Perhaps institutional norms regarding what constitutes a safe and effective learning environment prompt charter school operators to look for affordable spaces within set guidelines, influencing current charter schools locations. This alternative explanation questions the market savvy of charter school operators, and, once again, raises the importance of neighborhood demographics in charter schools’ locational decisions, but does not undermine evidence that charter schools are deliberately circling African-American neighborhoods.

This research has two immediate implications for future studies of charter school enrollments. First, the tendency of charter schools to circle African-American neighborhoods exemplifies how the important influence of local context is often lost in broad comparisons of charter schools to traditional public school settings. In our own analysis, the Camden and Newark school districts were labeled as predominately minority and the Jersey City and Trenton school districts as racially diverse, despite our

later realization that the impact of charter schools was fundamentally the same in all four areas. Second, charter schools are clearly responsive to not only their own neighborhood setting, but also the character of adjacent communities. Studies of charter school enrollments need to become more expansive and consider not only the students that attend charter schools, but also the larger population from which charter schools draw.

## **Conclusion**

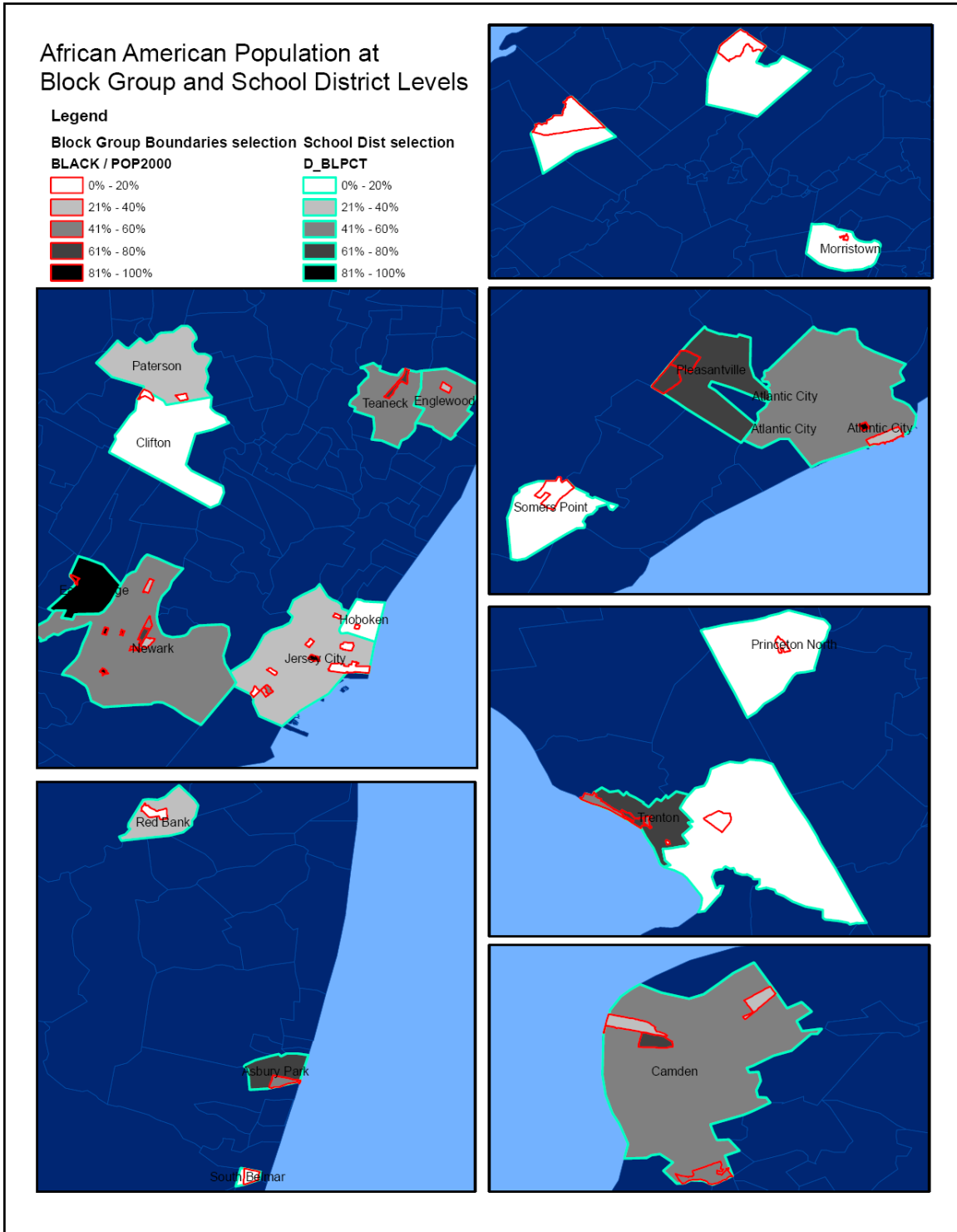
In this paper, we present evidence consistent with previous research that charter schools increase racial segregation. We add to the existing literature on charter schools and racial segregation in three ways. First, using GIS and dynamic mapping we address the limitations of past studies that examine student enrollments at only the state and school district level by comparing charter schools to their immediate neighborhood contexts. Second, we demonstrate that racial segregation in charter schools is most severe within block groups, the area immediately surrounding charter schools. Third, charter schools in New Jersey appear to increase racial segregation because they locate in racial diverse areas slightly outside low-income areas that are densely populated with African-American students. Our findings are most suggestive of “positioning strategies” that indicate a high level of market acumen among charter schools. Charter schools appear to “ring” areas where they can maximize business opportunities and avoid undesirable customers. Future research will benefit from further understanding this dynamic.

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## Maps and Tables



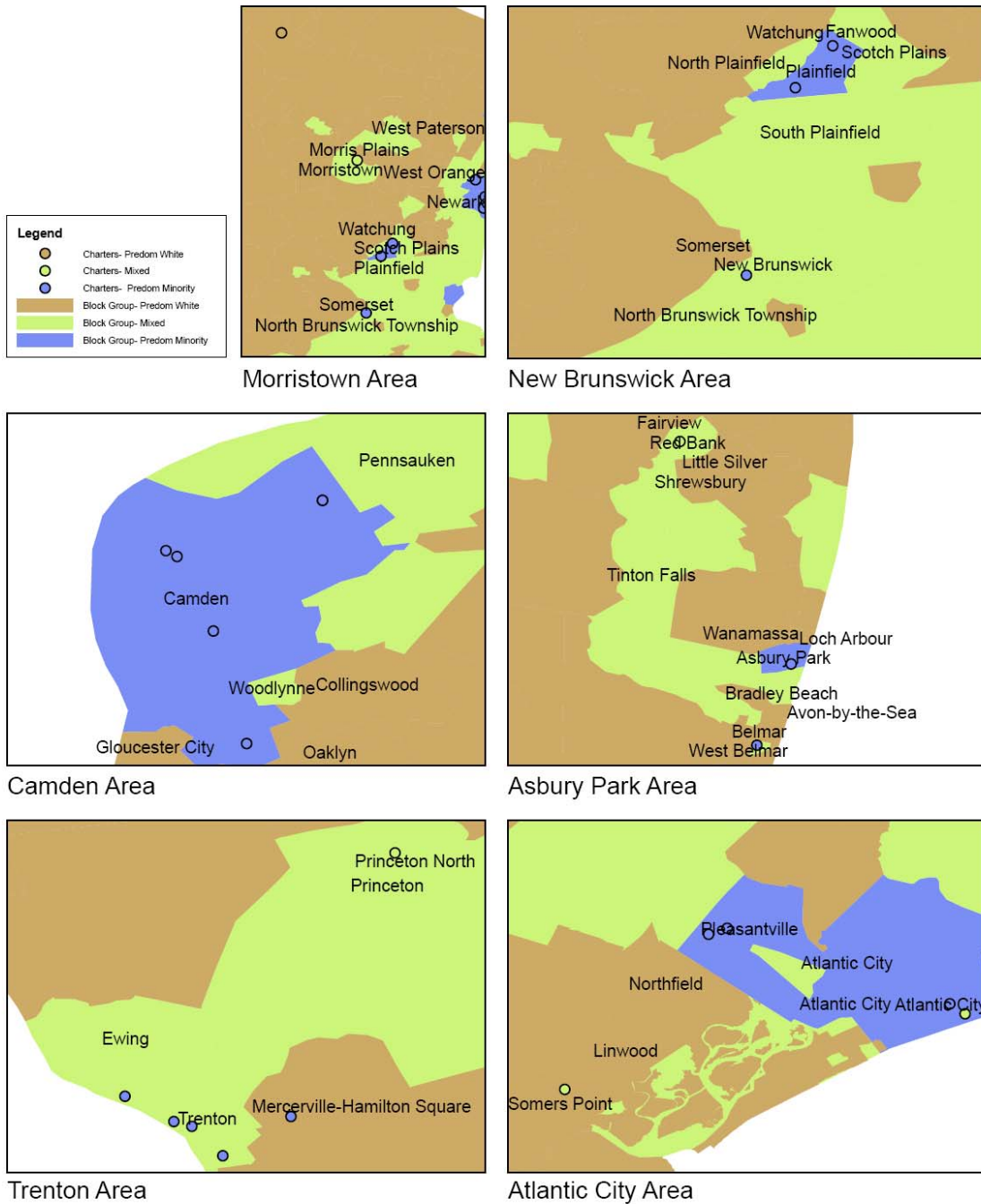
**Map 1**

**Table 2: Racial and Ethnic Attributes of Charter Schools and Locations\***

		Block Groups			Census Tracts			School Districts			Charter Schools		
Charter Schools by Block Group Attribute	No.	White	Black	Hisp.	White	Black	Hisp.	White	Black	Hisp.	White	Black	Hisp.
Predominately Minority (White < 20%)	11	10.76%	73.79%	19.80%	12.78%	74.24%	12.92%	9.27%	55.95%	30.64%	4.97%	81.34%	12.85%
Racially Mixed (20%=< White =<80%)	35	41.17%	32.04%	31.43%	38.30%	37.44%	26.55%	9.52%	45.76%	38.36%	10.28%	65.25%	21.24%
Predominately White (White > 80%)	6	90.08%	4.50%	5.45%	87.58%	4.81%	5.71%	77.03%	8.77%	10.02%	54.84%	33.84%	7.63%
All Schools	52	40.38%	37.69%	25.97%	38.59%	41.46%	21.26%	17.26%	43.65%	33.46%	14.30%	65.03%	17.89%

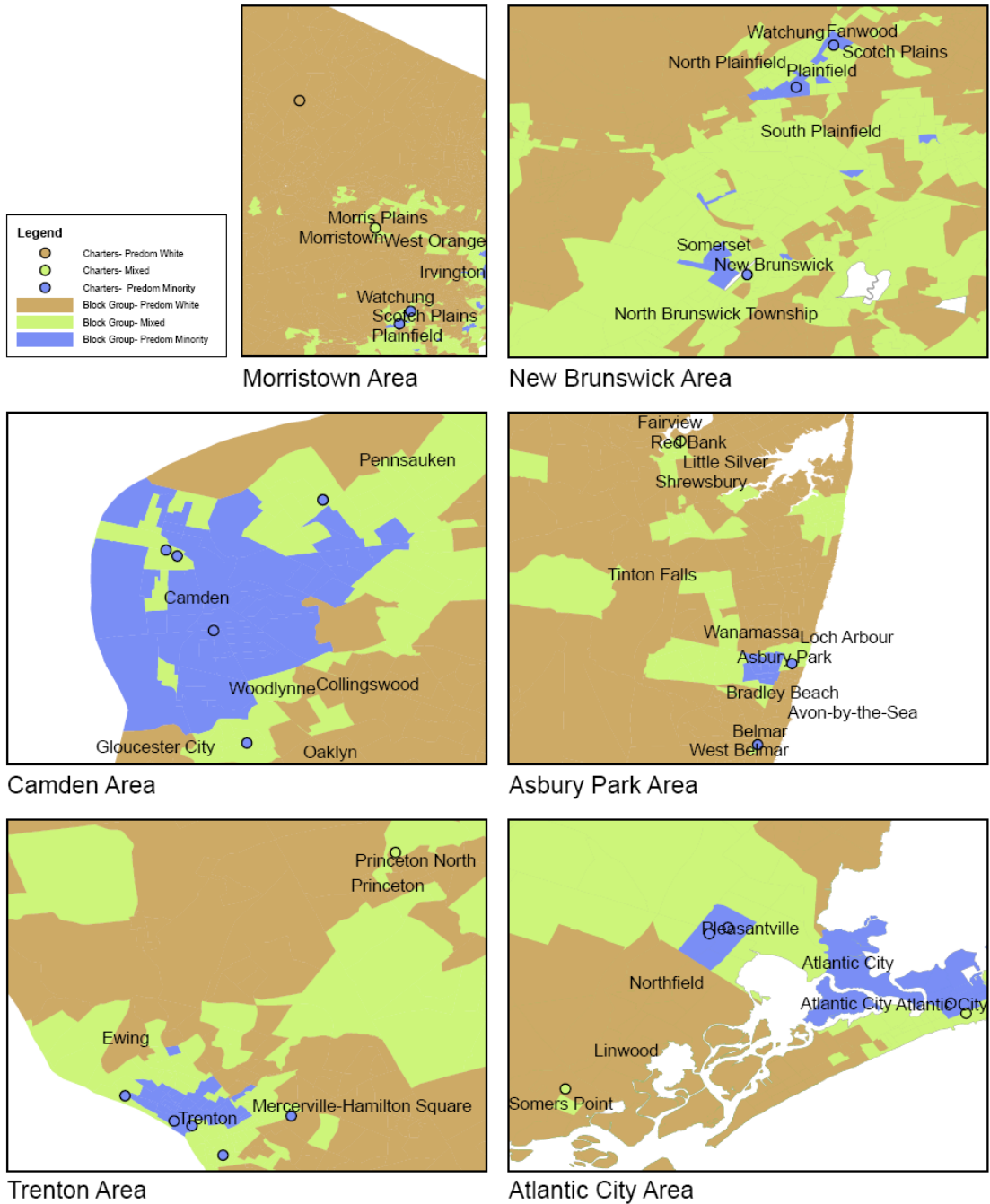
\*All percents included in this table are the mean percent of the racial/ethnic subgroup in the geographic area listed in the above column heading

# Racial/Ethnic Characteristics- NJ Charter Schools and School Districts



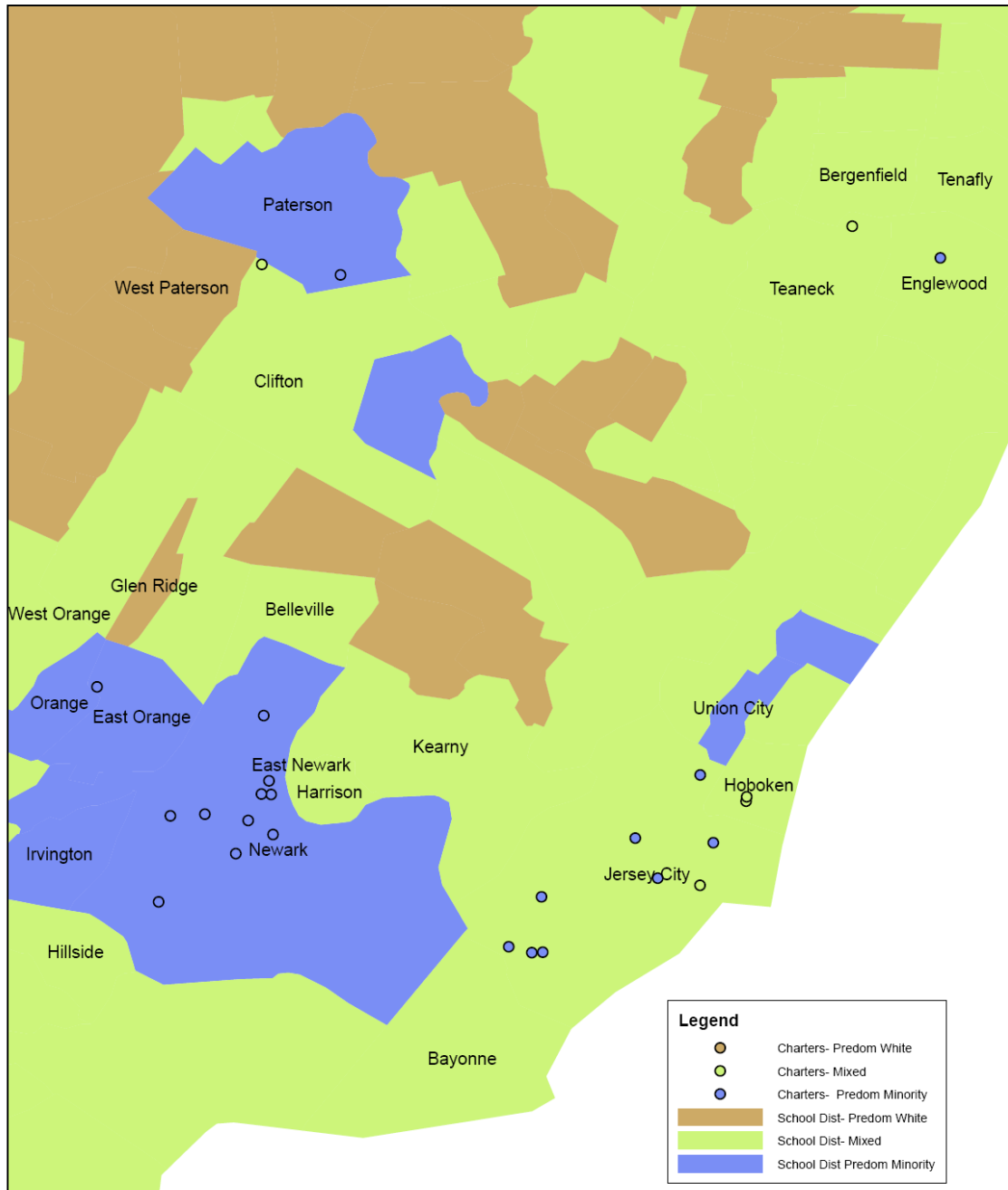
Map 2

# Racial/Ethnic Characteristics- NJ Charter Schools and Block Groups



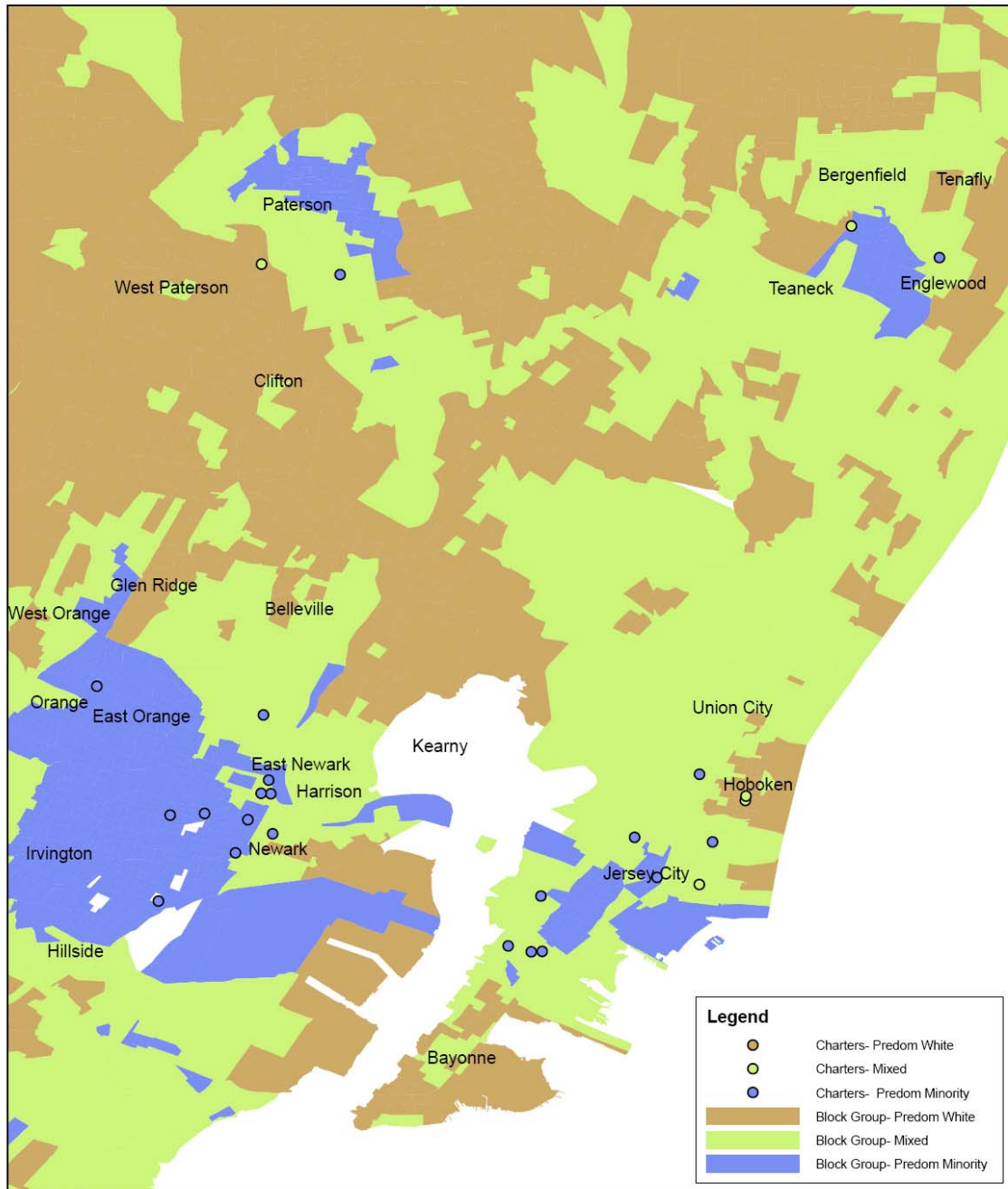
**Map 3**

# Racial/Ethnic Characteristics- Newark Area Charter Schools and School Districts



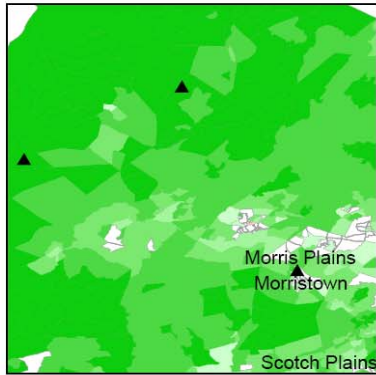
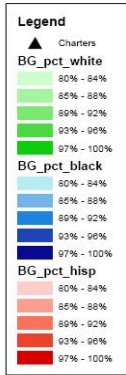
**Map 4**

# Racial/Ethnic Characteristics- Newark Area Charter Schools and Block Groups

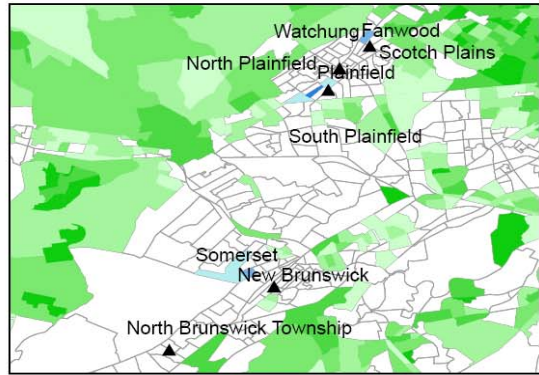


Map 5

# NJ Charter Schools- Block Groups With Racial/Ethnic Predominance



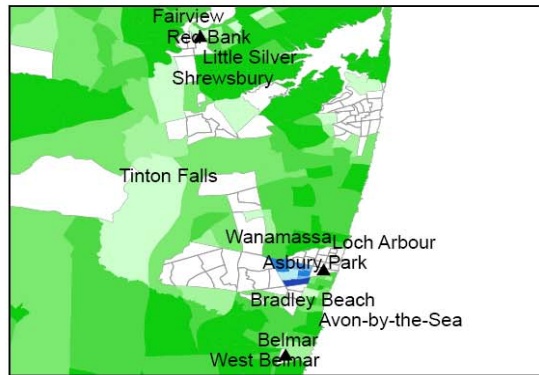
Morristown Area



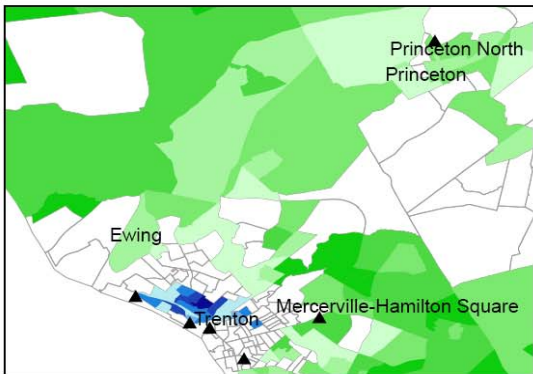
New Brunswick Area



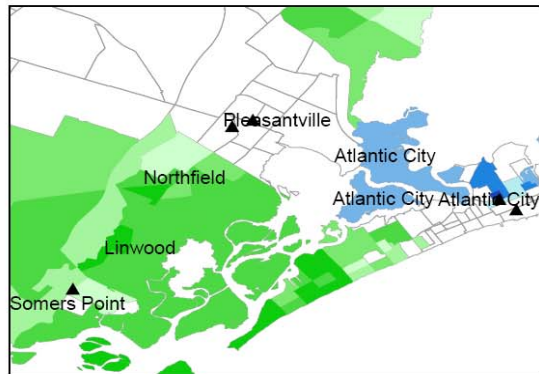
Camden Area



Asbury Park Area

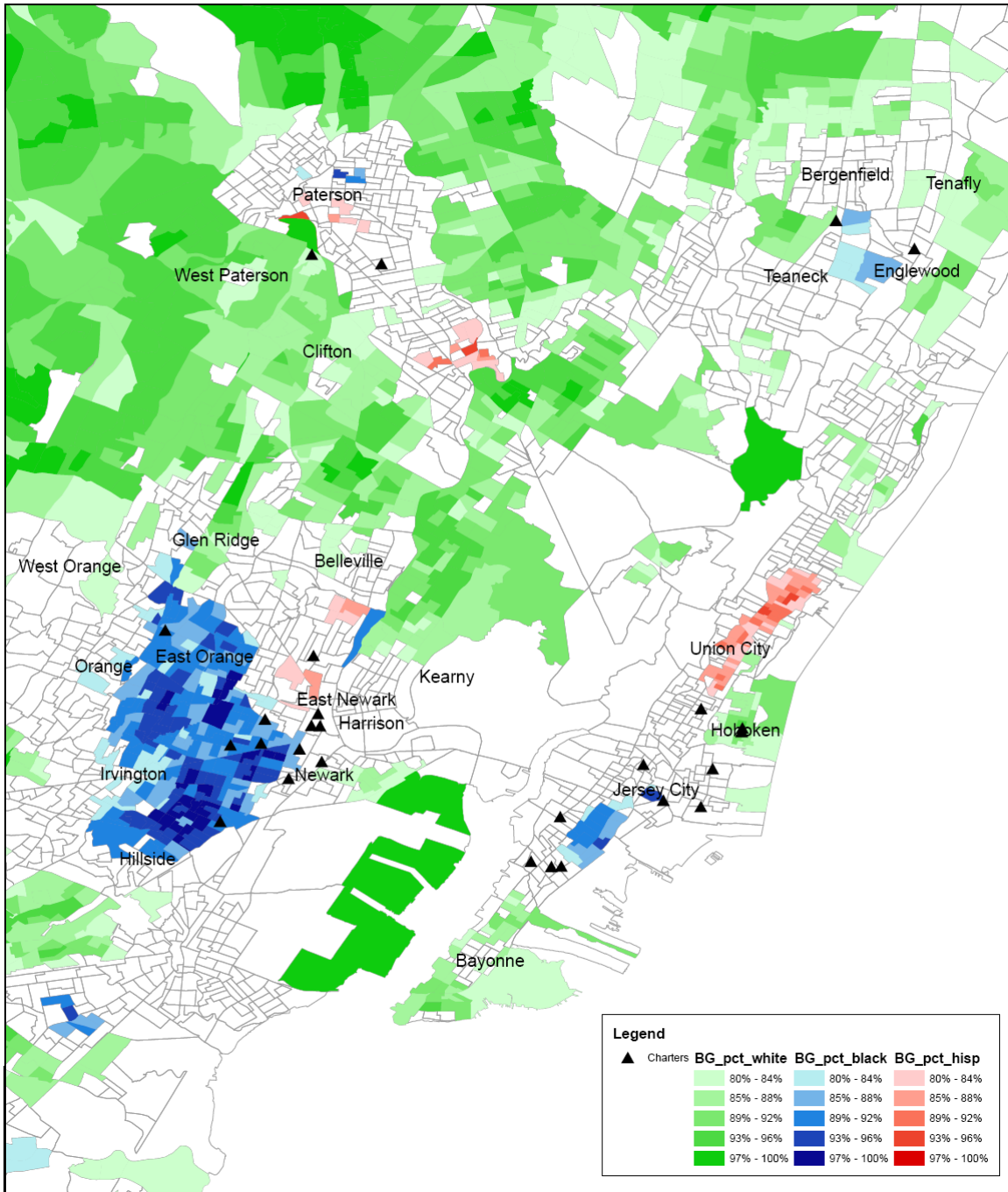


Trenton Area



Atlantic City Area

# Newark Area Charter Schools- Block Groups With Racial/Ethnic Predominance



Map 7