

What was the purpose of creating these maps? The maps are part of a larger project developed to understand students' mobility. They represent specific areas and campuses within the district that have high and low levels of student campus mobility, and are used as a visual tool for understanding student campus mobility.

What question do these maps answer? Student campus mobility refers to student turnover at a school during an academic year. This turnover includes students who change schools within the district or between

districts, and students who drop out of school completely (Millea, Christian, Stojakovic, & Rao, 2013). Evidence has shown that school mobility can affect academic performance and psychological well-being, not only for mobile students, but also for teachers and other students, and it can affect the overall effectiveness of the school (Mueller & Tighe, 2007). Mobility affects individual students' educational experiences in terms of attendance, continuity in learning, and achievement (Reynolds, Chin-Chi, & Herbers, 2009).

What methodology was used? Campus mobility status for each student was determined from a weekly record of campus of enrollment between October 1, 2010, and May 31, 2011. A *campus mobile* student in this study was defined as a student who was enrolled in an Austin Independent School District (AISD) school less than 83% of the days in a full school year, or who was enrolled at two or more campuses during the school year. Students who did not change campus or who were enrolled for at least 83% of the days in a full school year in this period were defined as *campus stable* students. There were 15,810 (17.2%) campus mobile students during the 2010–2011 school year. This number also included all of the temporary disciplinary moves. Finally, vertical team attendance zones were mapped to show percentages of students attending schools outside of their home attendance zones.

What specific data elements were used in the maps? Concentration maps represent neighborhood concentrations of

students enrolled in AISD at any point during the 2010–2011 school year. The colors represent the density of students with the mapped characteristic (e.g., campus mobile or stable) living in that area. The three highest density deciles are colored red, orange, and yellow. Two types of block group maps are used: density and proportion. The density maps are based on counts of students within block groups who had the mapped characteristic, and the proportion maps are based on the proportion of students who lived in a block group and had the mapped characteristic. Campus-centered maps illustrate student campus mobility, stability, mobility type, and home school enrollment, from the perspective of the campus, and are represented in pie charts.

What are the conclusions? The maps in this report enabled us to visualize areas with differential rates and concentrations of mobile students within the district. Because student mobility has been associated with poor

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academic performance (Mueller & Tighe, 2007), it is important to know where the greatest rate of mobility and therefore, the greatest potential for improvement—existed in order to develop a community plan to intervene. In addition, these findings enable further research into why certain neighborhoods experienced lower levels of campus mobility than did others. These maps illustrate that mobility is a district-wide concern and that additional support may be needed in some schools and neighborhoods.

Only 35% of a total of 15,810 campus mobile students actually changed campus during the school year. The remaining mobile students were enrolled at only one campus, but for less than 83% of the days in the school year. More than half the campus mobile students who attended only one campus (5,911) were enrolled in AISD by October 1, but exited before the end of the school year; 4,296 students enrolled late but completed the school year. Finally, 500 students both enrolled late and exited before the end of the year. With respect to neighborhood, the greatest proportions of campus mobile students were concentrated east of IH35 and between US183 and IH35 in the Rundberg Road area. The average mobility rate was greatest at the high school level and lowest at the elementary school level. The rate of mobility ranged from 1.17% at Pease Elementary School to 40.29% at Pearce Middle School.

The stability rate represents the percentage of stable students on an average day in a school. It was calculated based on average daily enrollment of stable and mobile students, as opposed to cumulative annual enrollment. This rate is the inverse of the average turnover of students in a school. For example, "rotating" seats are repeatedly filled by a stream of mobile students; the rest are stable. Note that the proportions of campus mobile students, relative to stable students, on an average day are lower than the (cumulative) campus mobility rates.

Additional understanding of campus mobility is further explained by the percentage of home school enrollment. The maps represent the ratio of students residing in an attendance zone who are enrolled at the assigned campus for that attendance zone. Some schools have special programs for students from neighboring attendance zones, and some have district-wide attendance in addition to home school zone attendance, which lowers the rate of home school enrollment. The greatest variation in home school enrollment numbers was at the middle school level, where home school enrollment ranged from 34.63% at Kealing, which houses a magnet program, to 96.86% at Mendez. Finally, the outside of attendance zone enrollment is further represented on a neighborhood level for all students in that area. In some areas more than a third of the entire student population was attending school elsewhere.

Studying student mobility is important because other factors related to student educational outcomes were found to be associated with mobility. For example, the rate of high absenteeism (absent more than 10% of enrolled days) was almost four times higher for campus mobile students than for campus stable students. Additionally, economically disadvantaged students were twice as likely as non-economically disadvantaged students to be campus mobile.

What are future considerations? Further research will study change in mobility rates from one school year to the next. With Austin neighborhoods dynamically changing, and the district's rapidly growing student population, changes in campus mobility rates are expected. Additional maps will explore specific neighborhoods with high mobility concentrations, and links between those neighborhoods and schools outside of their attendance zones. Further questions to explore involve spatial analysis of clusters of mobile students, the socio-demographic characteristics of those students and the neighborhoods in which they live, as well as the academic performance of specific groups of campus mobile students.

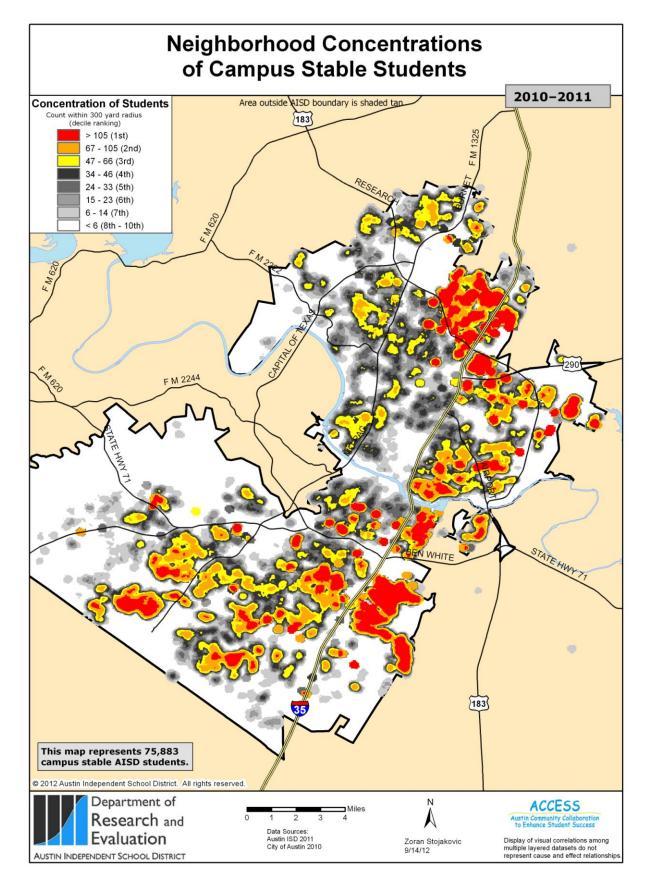
Concentration Maps

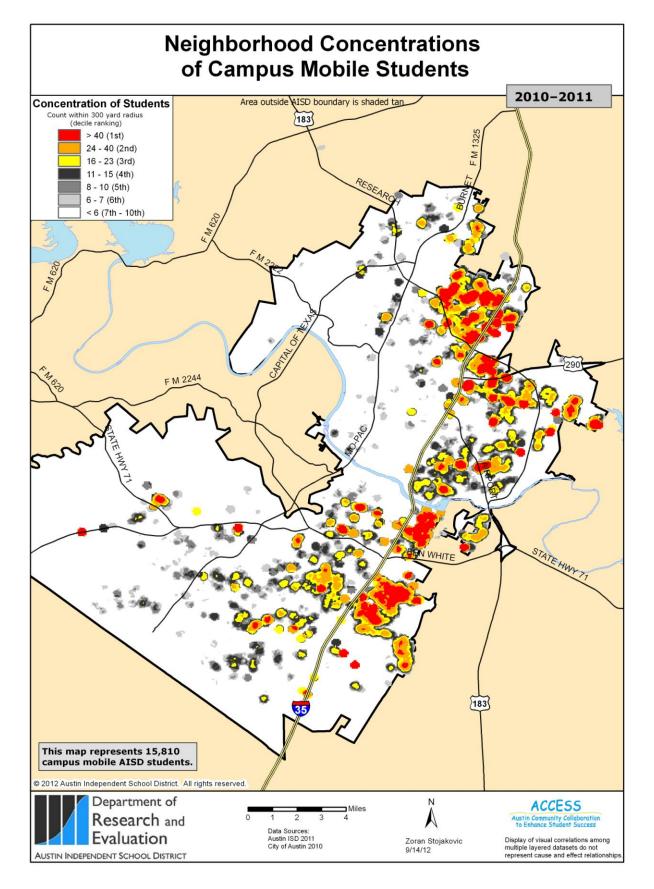
Description

- Concentration maps represent the neighborhood concentrations of students with the mapped characteristic who were enrolled in AISD at any point during school year 2010–2011.
- Students are grouped by deciles, with the three highest density deciles colored red, orange, and yellow.
- Housing type (apartment and single family homes) affects the way students are concentrated.
- Students were mapped based on their last known address within the school year 2010–2011.

Observations

• Concentrations of mobile and stable students followed similar geographic patterns (representing the overall student population concentration), with the exception of stable students having greater concentrations than mobile students had in the southwestern region of the district.





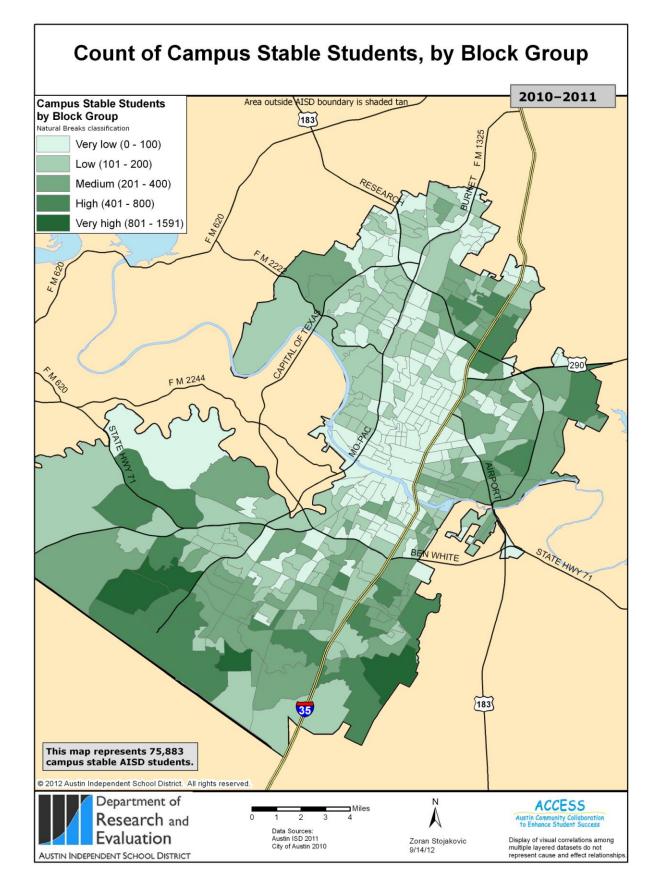
Block Group Maps

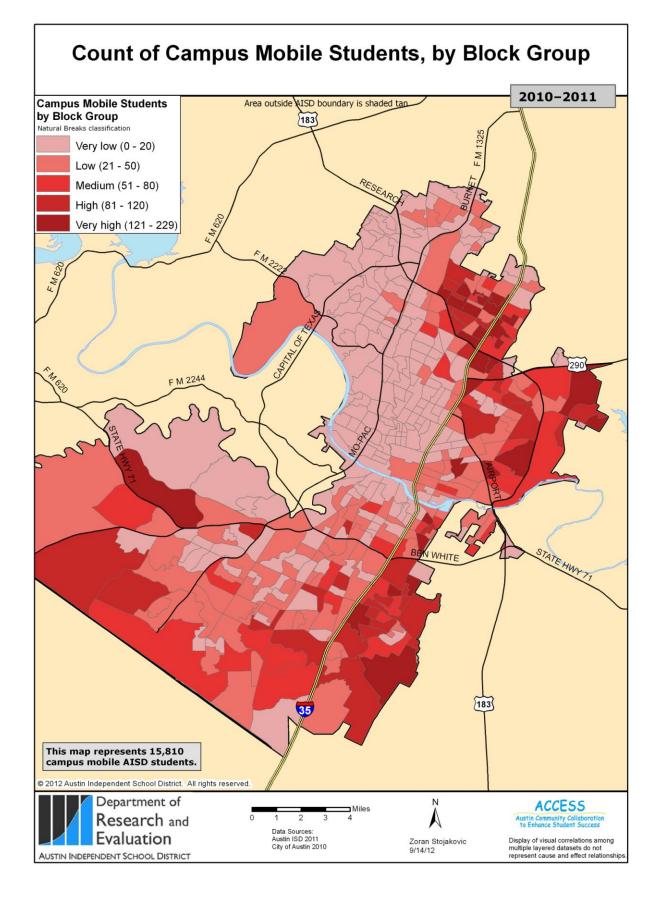
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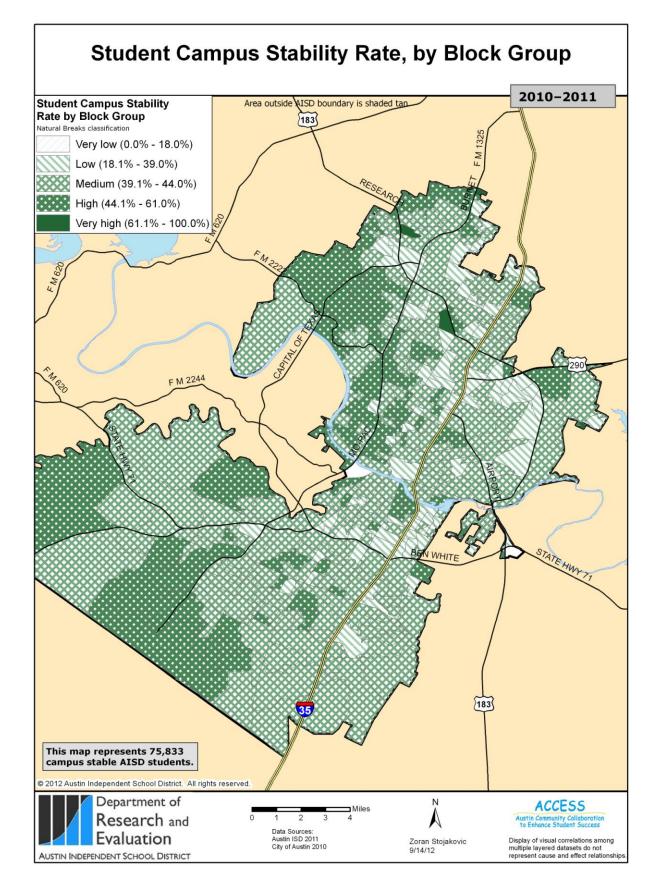
- A block group is defined as a geographic area unit containing between 600 and 3,000 people, and is the smallest area for which the Census Bureau tabulates sample data, making it useful for additional demographic comparisons.
- There are two different types of block group maps in this set: density and proportion.
- Density maps represent the density, or number, of AISD students living in a neighborhood who have the given characteristic (i.e., stable or mobile).
- Proportion maps represent the percentage of AISD students living in a neighborhood who have the given characteristic.
- Variations in color indicate difference in density or proportion of target students in each block group.
- Students are mapped based on their last known address within the school year 2010–2011.

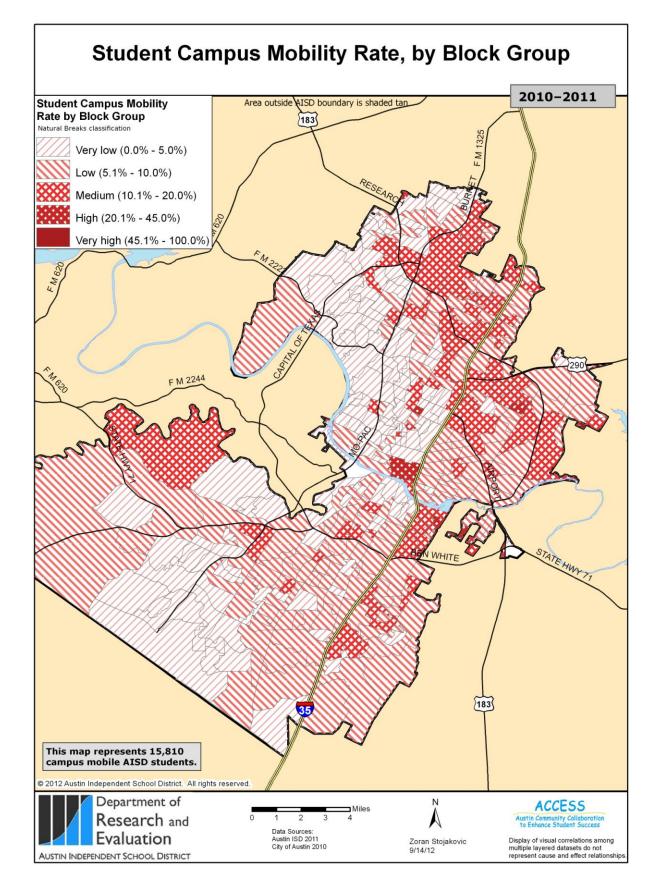
Observations

• Although the densities of stable and mobile students were very similar, because they mirrored the concentrations of the student population, the proportion maps show a greater rate of stability in the northwest and southwest sectors of the district, but a greater rate of mobility in the north and northeast sectors.









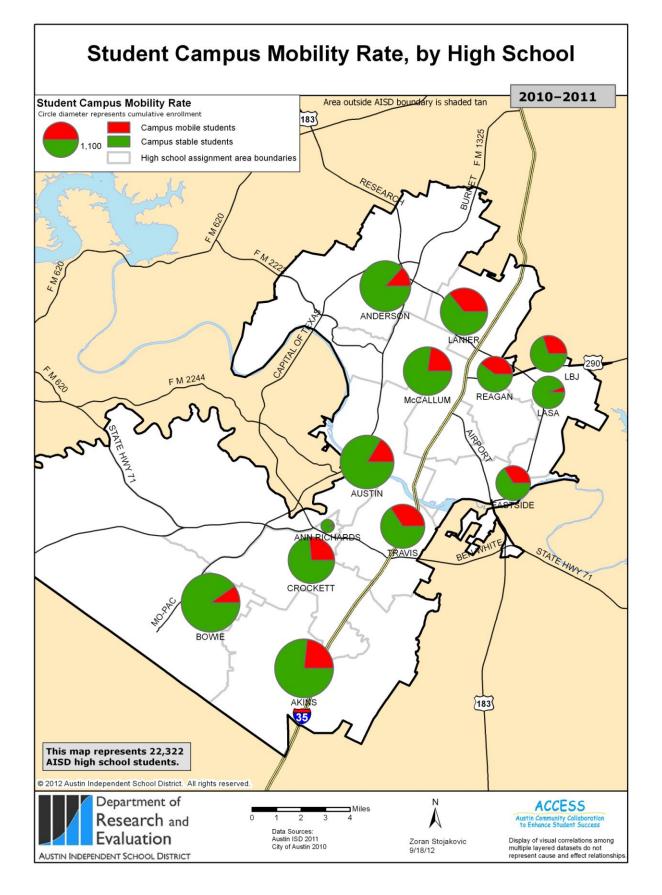
Maps of Student Campus Mobility Rate

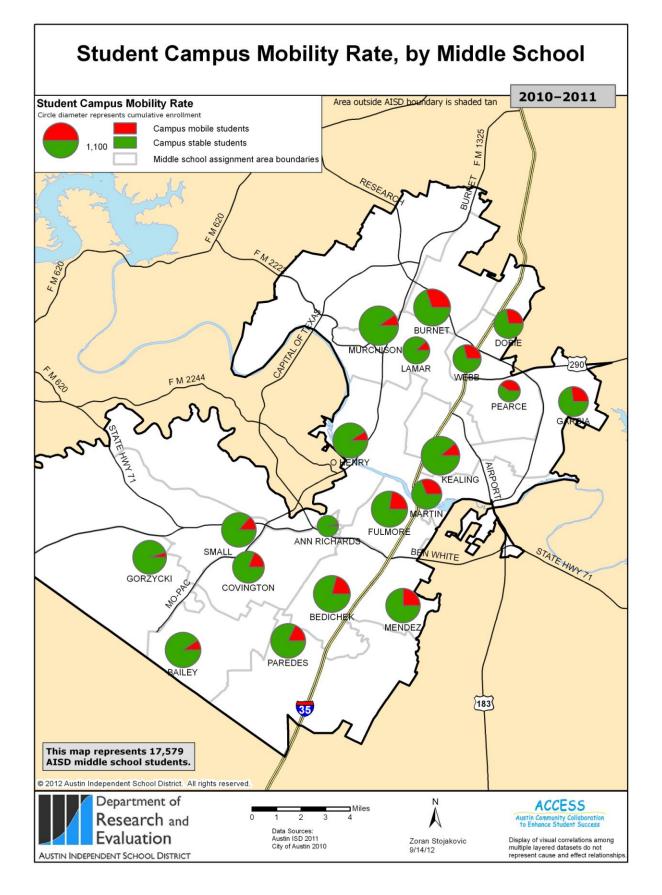
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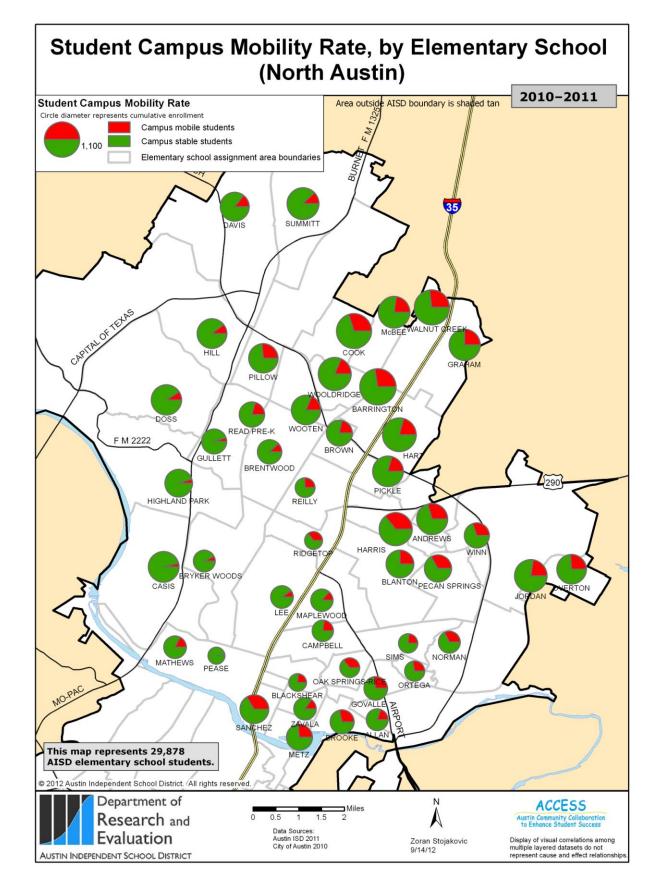
- Maps represent student mobility at each campus.
- Pie charts are based on the cumulative enrollment at the campus (i.e., the total number of students who attended the campus throughout the school year).
- Because the maps include cumulative enrollment, they do not represent the average composition of students at the campuses at any given point in time. Therefore, the cumulative proportion of mobile students represented appears inflated compared with the reality of experiencing a day on the campus.
- The types of campus moves that are made by students who are mobile are disaggregated in the *Type of Student Campus Mobility* maps (pp. 18–21).
- Circle diameters are proportioned to represent size of cumulative enrollment.
- The definition of mobility for this study is student centered, rather than campus centered. Each student's mobility status was either *mobile* or *stable*, and did not vary by campus. Note that this is contrary to the Texas Education Agency's (TEA) definition of mobility, which is campus centered. For example, in this study a student who was enrolled at one campus for more than 83% of the school year and who was also enrolled at another campus for the remainder of the school year was counted as *mobile* at both campuses. TEA would include this student as mobile in the mobility rate calculation for one campus but as non-mobile in the mobility rate calculation for the other campus. In this study, using the student-centered approach, because the student was at multiple campuses (regardless of length of stay), he or she was counted as a mobile student in all campus rate calculations.
- Mobility rate is equal to the cumulative total enrollment of students who are mobile, divided by the cumulative total campus enrollment.
- Rates are also presented in a tabular format on pages 16 and 17.

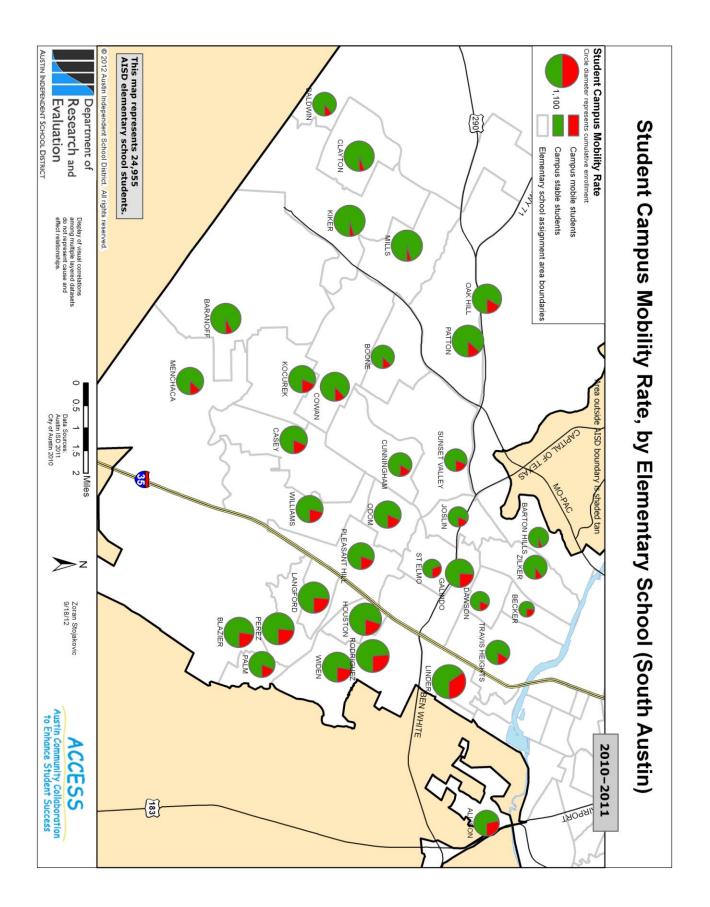
Observations

- The average student campus mobility rate was greatest at the high school level and lowest at the elementary school level. However, a wide range of mobility rates occurred within each level.
- The rate of student campus mobility ranged from 1.17% at Pease Elementary School to 40.29% at Pearce Middle School.
- Some of the schools with the lowest student campus mobility rates were on the west portion of the AISD attendance zone.
- The student campus mobility by type maps (pp. 18–21) showed that the greatest proportion of mobility at each campus was due to students moving into the campus, which was expected in a city with a growing population.









High school	Student mobility rate
Reagan	39.76%
Lanier	35.83%
Travis	34.08%
Eastside ¹	33.79%
LBJ	30.12%
Crockett	26.51%
Akins	23.28%
McCallum	22.74%
Austin	16.36%
Anderson	13.28%
Bowie	9.53%
LASA	5.97%
Ann Richards ²	5.33%

Table 1. 2010–2011 Student Campus Mobility Rate, by High School

Source. AISD cumulative records of student enrollment

Note. Students were considered mobile if they were either enrolled for fewer than 83% of school days or if they were enrolled in more than one AISD school during the school year.

1. Eastside Global Tech, Eastside Green Tech, and International schools combined

2. 9th- and 10th-grade students

Table 2. 2010–2011 Student Campus Mobility Rate, by Middle School

Middle school	Student mobility rate
Pearce	40.29%
Martin	31.19%
Burnet	30.07%
Webb	29.08%
Garcia	27.68%
Dobie	27.58%
Mendez	25.00%
Fulmore	22.86%
Bedichek	20.86%
Covington	18.88%
Paredes	18.10%
Small	13.51%
Lamar	12.04%
Kealing	11.15%
Murchison	9.43%
Bailey	9.30%
O. Henry	8.75%
Gorzycki	4.80%
Ann Richards ¹	3.41%

Source. AISD cumulative records of student enrollment

Note. Students were considered mobile if they were either enrolled for fewer than 83% of school days or if they were enrolled in more than one AISD school during the school year.

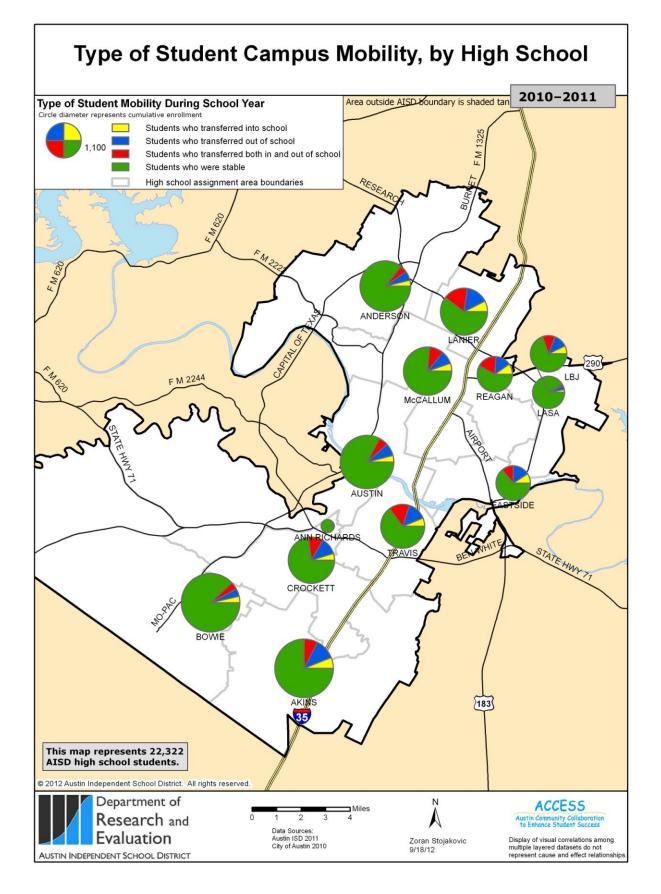
1. 6th- through 8th-grade students

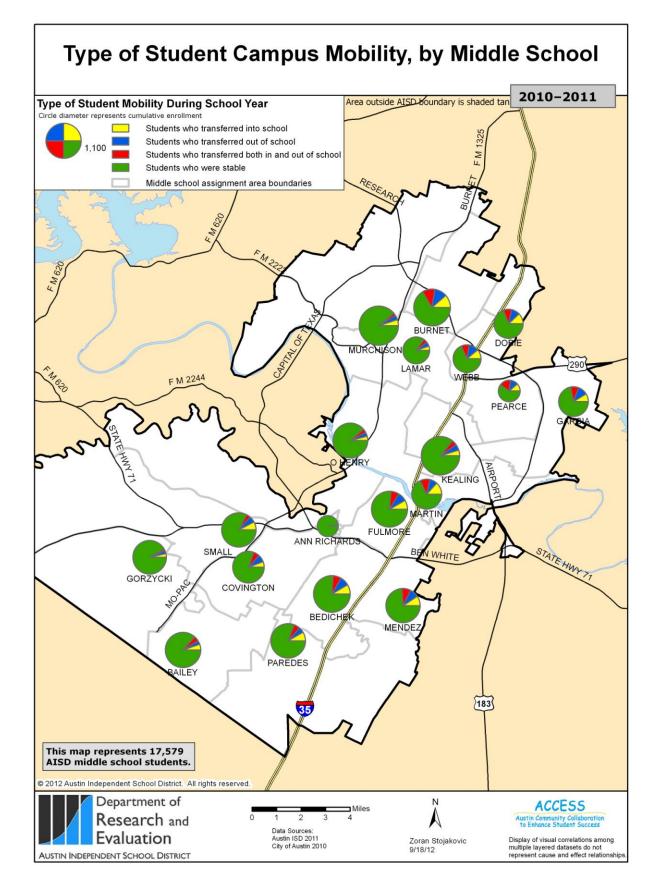
Elementary school	Student mobility rate	Elementary school	Student mobility rate
Harris	35.74%	Houston	20.17%
Oak Springs-Rice	35.73%	Allan	19.62%
Ridgetop	35.23%	Pleasant Hill	19.49%
Linder	34.31%	Sunset Valley	19.13%
Sanchez	33.97%	Kocurek	18.90%
Pecan Springs	33.28%	Palm	18.66%
Norman	32.32%	Wooldridge	18.61%
St Elmo	30.43%	Wooten	18.57%
Winn	30.18%	Dawson	18.53%
Cook	29.82%	Casey	18.46%
Andrews	29.41%	Joslin	18.32%
Brooke	29.05%	Odom	18.10%
Govalle	28.19%	Mathews	17.40%
Allison	28.13%	Oak Hill	16.78%
Ortega	27.81%	Cunningham	16.40%
Barrington	27.67%	Travis Heights	16.15%
Walnut Creek	27.07%	Zavala	15.40%
Metz	26.64%	Davis	14.21%
Pillow	26.51%	Maplewood	13.54%
Rodriguez	26.23%	Menchaca	13.37%
Overton	26.19%	Patton	12.93%
Becker	25.62%	Boone	12.38%
Reilly	25.58%	Cowan	11.95%
Blanton	25.07%	Summitt	11.93%
Graham	25.06%	Brentwood	11.91%
Galindo	23.84%	Baldwin	10.83%
Langford	23.80%	Hill	10.43%
Sims	23.62%	Zilker	10.07%
Blackshear	23.47%	Lee	9.49%
Perez	23.46%	Doss	9.01%
Campbell	22.69%	Baranoff	7.33%
McBee	22.66%	Bryker Woods	6.65%
Blazier	22.66%	Barton Hills	6.17%
Jordan	22.51%	Clayton	5.76%
Widen	22.37%	Gullett	5.21%
Brown	21.68%	Kiker	4.90%
Williams	21.24%	Highland Park	4.86%
Hart	20.85%	Mills	4.59%
Pickle	20.79%	Casis	3.57%
Read Pre-K	20.42%	Pease	1.17%

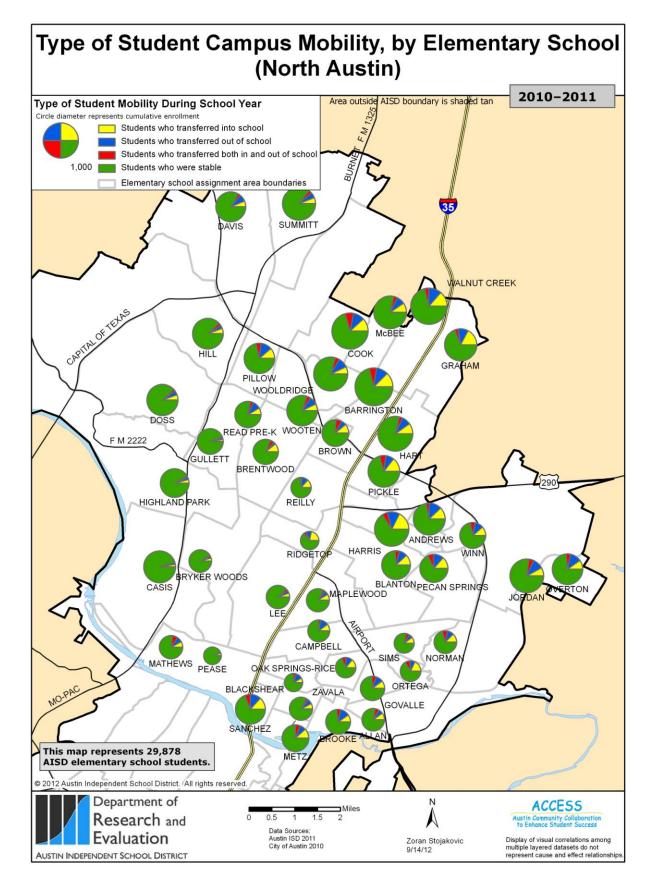
Table 3. 2010–2011 Student Campus Mobility Rate, by Elementary School

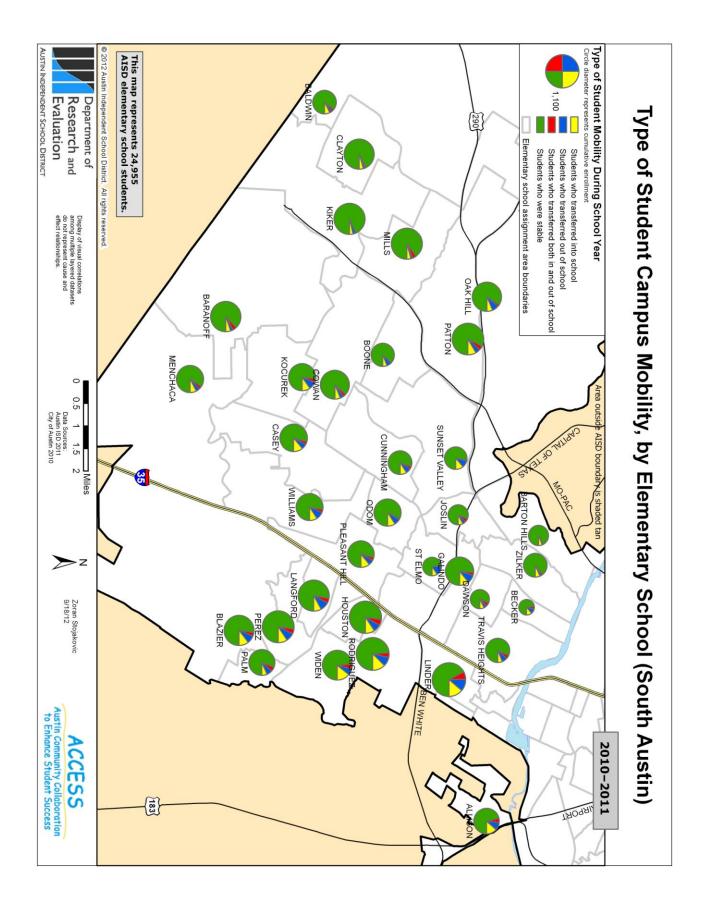
Source. AISD cumulative records of student enrollment

Note. Students were considered mobile if they were either enrolled for fewer than 83% of school days or if they were enrolled in more than one AISD school during the school year.









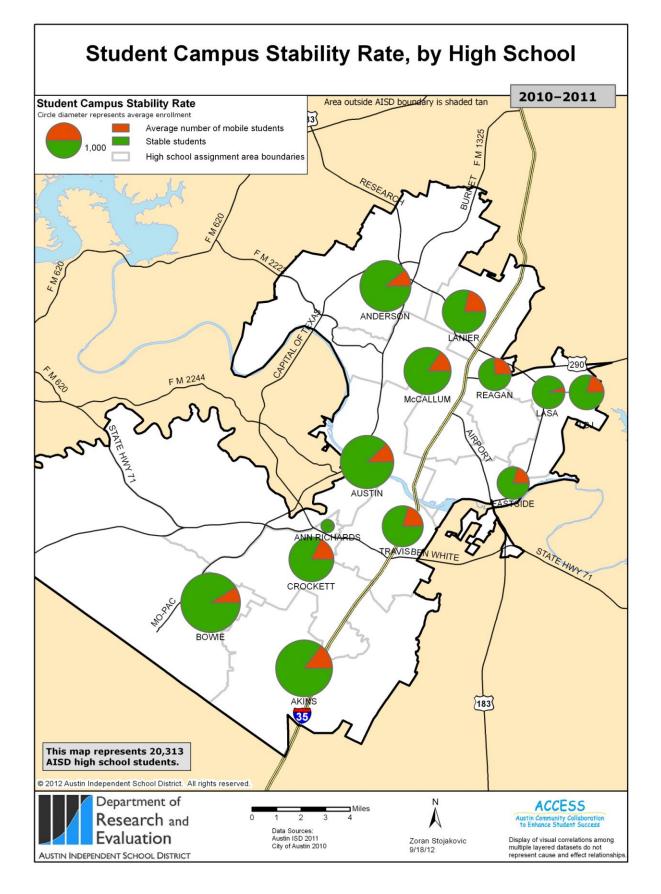
Maps of Student Campus Stability Rate

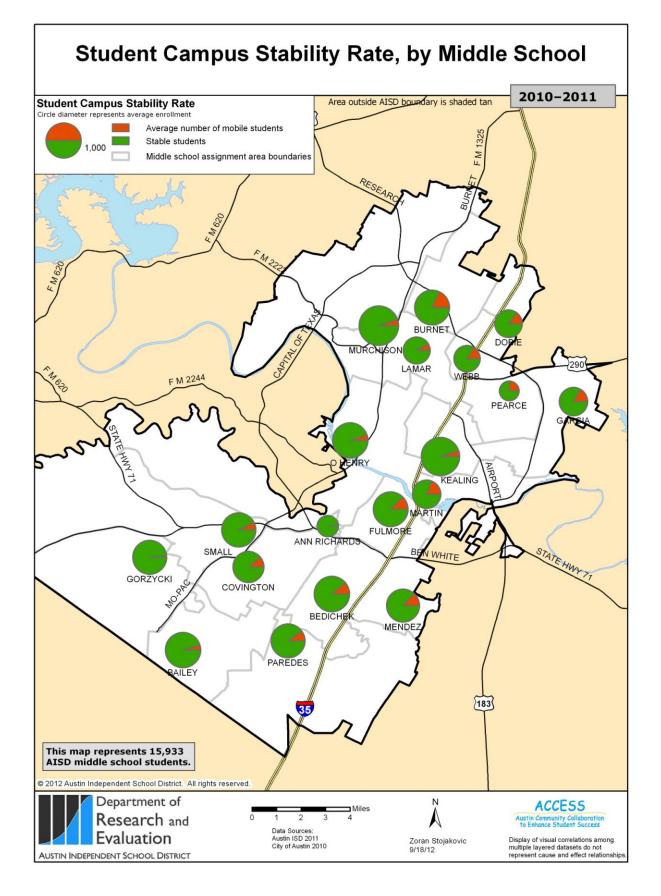
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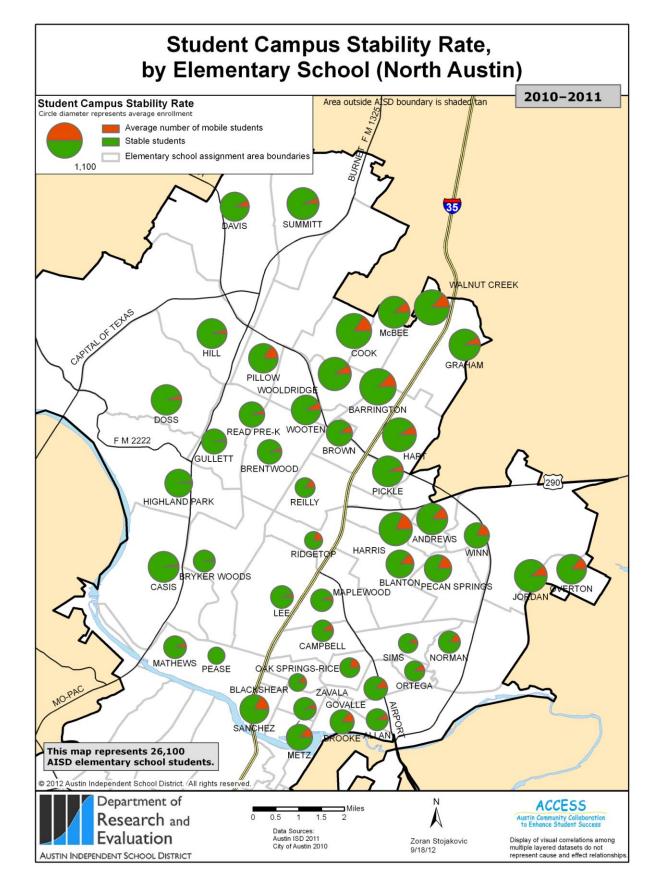
- Maps represent student stability for each campus
- Pie charts are based on the average daily enrollment at the campus (i.e., in contrast with the mobility rate, which was based on the cumulative enrollment).
- Student campus stability rate represents the proportion of stable students at a campus on an average day, and is the inverse of the average turnover of students in a school. For example, "rotating" seats are repeatedly filled by a stream of mobile students; the rest are stable.
- Circle diameters are proportioned to represent the size of average enrollment.
- The student campus stability rate is equal to the number of campus stable students, divided by the average daily campus enrollment.

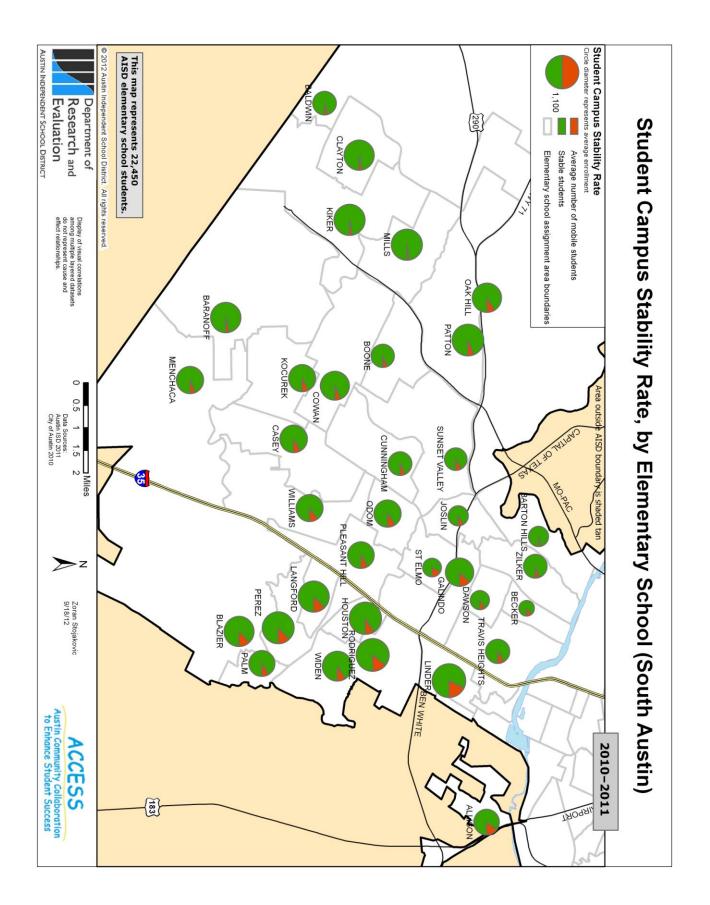
Observations

- In comparison with student campus mobility rates, stability rates were less variable across campuses.
- Because the student campus stability rate was not based on cumulative enrollment (i.e., the denominators were different), stability and mobility rates were not necessarily the inverse of one another. Two campuses with similar stability rates could have different mobility rates. This is related to an average time the campus mobile students spent enrolled at a particular campus. As this average time decreases, the difference between the average number and total number of campus mobile students would increase.









High school	Stability rate
Ann Richards ¹	97.93%
LASA	94.35%
Bowie	91.21%
Anderson	88.90%
Austin	87.90%
Akins	85.25%
McCallum	84.77%
Crockett	82.02%
LBJ	79.32%
Travis	79.20%
Eastside ²	79.16%
Lanier	79.03%
Reagan	74.20%

Table 4. 2010–2011 Student Campus Stability Rate, by High School

Source. AISD cumulative records of student enrollment

Note. Students were considered stable if they were enrolled for at least 83% of school days and were enrolled in only one AISD school during the school year.

1. Eastside Global Tech, Eastside Green Tech, and International schools combined

2. 9th- and 10th-grade students

Table 5. 2010–2011 Student Campus Stability Rate, by Middle School

Middle school	Stability rate
Ann Richards ¹	98.92%
Gorzycki	98.52%
Bailey	95.63%
Kealing	95.03%
Murchison	94.87%
O. Henry	94.36%
Small	92.71%
Lamar	92.04%
Paredes	90.29%
Bedichek	89.00%
Covington	88.96%
Fulmore	87.40%
Mendez	86.82%
Dobie	85.28%
Webb	83.86%
Garcia	83.43%
Burnet	82.02%
Martin	81.21%
Pearce	75.94%

Source. AISD cumulative records of student enrollment

Note. Students were considered stable if they were enrolled for at least 83% of school days and were enrolled in only one AISD school during the school year.

1. 6th- through 8th-grade students

Elementary school	Stability rate	Elementary school	Stability rate
Pease	100.00%	Odom	90.94%
Highland Park	97.88%	Sims	90.88%
Mills	97.86%	Widen	90.87%
Casis	97.59%	Hart	90.67%
Bryker Woods	97.52%	Wooldridge	90.52%
Gullett	97.24%	Allan	90.43%
Kiker	97.02%	Brown	90.31%
Clayton	96.92%	Williams	90.06%
Baranoff	96.69%	Jordan	89.24%
Barton Hills	95.96%	Campbell	89.08%
Baldwin	95.55%	Ortega	88.32%
Brentwood	95.49%	McBee	88.29%
Lee	95.35%	Becker	88.24%
Doss	95.22%	Blackshear	87.97%
Hill	95.14%	Perez	87.90%
Read Pre-K	94.76%	Blazier	87.83%
Zilker	94.52%	Langford	87.78%
Summitt	94.21%	Barrington	87.74%
Maplewood	94.10%	Galindo	87.46%
Pickle	94.01%	Govalle	87.19%
Patton	93.84%	Blanton	86.68%
Menchaca	93.80%	Metz	86.65%
Cowan	93.65%	Norman	86.27%
Mathews	93.52%	Andrews	86.21%
Boone	93.40%	Overton	86.14%
Zavala	93.12%	Walnut Creek	85.93%
Cunningham	93.06%	Rodriguez	85.92%
Davis	92.55%	Reilly	85.62%
Kocurek	92.36%	Allison	85.16%
Sunset Valley	91.93%	Brooke	84.87%
Joslin	91.67%	Pillow	84.34%
Casey	91.64%	Cook	84.07%
Travis Heights	91.56%	St Elmo	82.76%
Dawson	91.44%	Sanchez	82.45%
Houston	91.38%	Linder	82.20%
Pleasant Hill	91.29%	Harris	81.63%
Oak Hill	91.25%	Winn	81.63%
Wooten	91.13%	Pecan Springs	81.31%
Graham	91.11%	Ridgetop	79.48%
Palm	90.98%	Oak Springs-Rice	79.36%

Table 6. 2010–2011 Student Campus Stability Rate, by Elementary School

Source. AISD cumulative records of student enrollment

Note. Students were considered stable if they were enrolled for at least 83% of school days and were enrolled in only one AISD school during the school year.

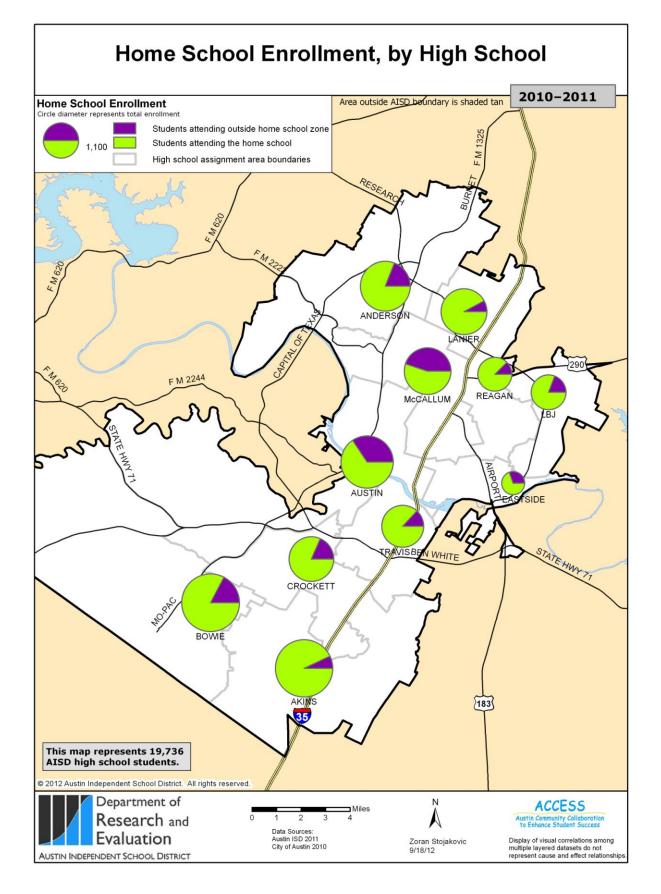
Home School Enrollment Maps

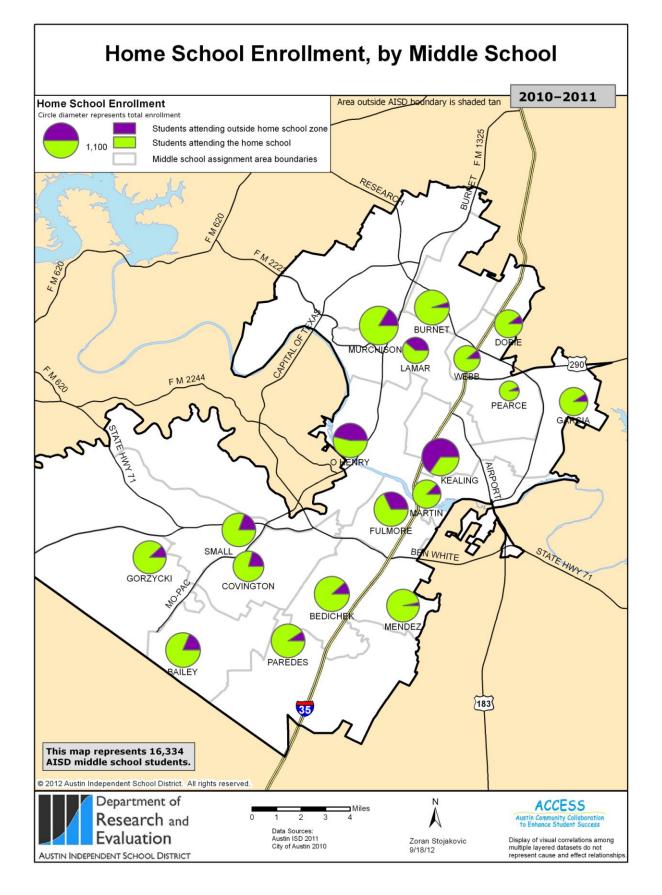
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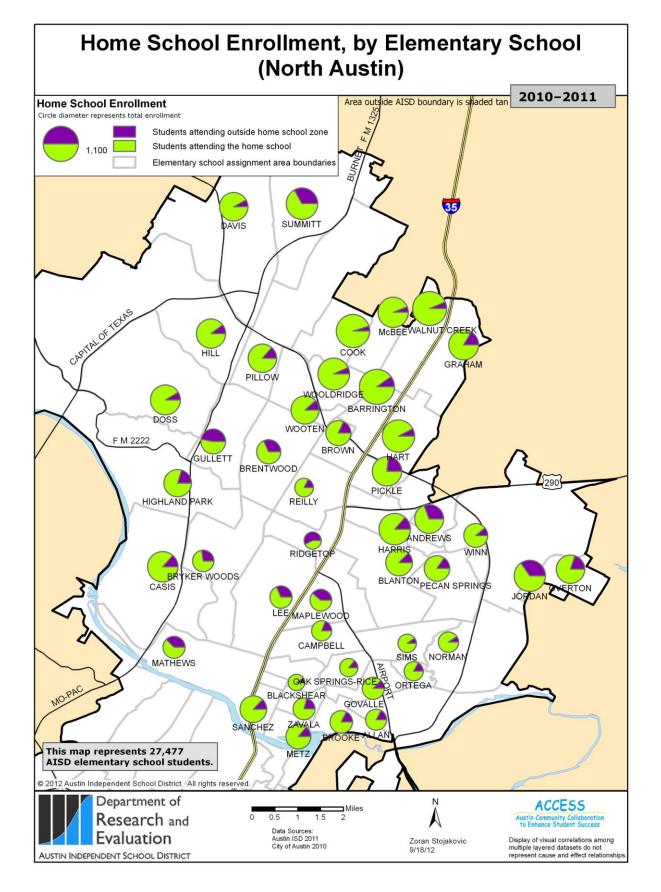
- Maps represent proportions of students enrolled at home campuses and vertical team cross-sectioned assignment zones.
- Student who were enrolled in a school outside their home school attendance zone are represented.
- Circle diameters are proportioned to represent the size of cumulative enrollment.
- Students were mapped based on their last known address within the school year 2010–2011.
- The home school enrollment rate is equal to the number of students attending the assigned school based on their residential address, divided by total school enrollment.

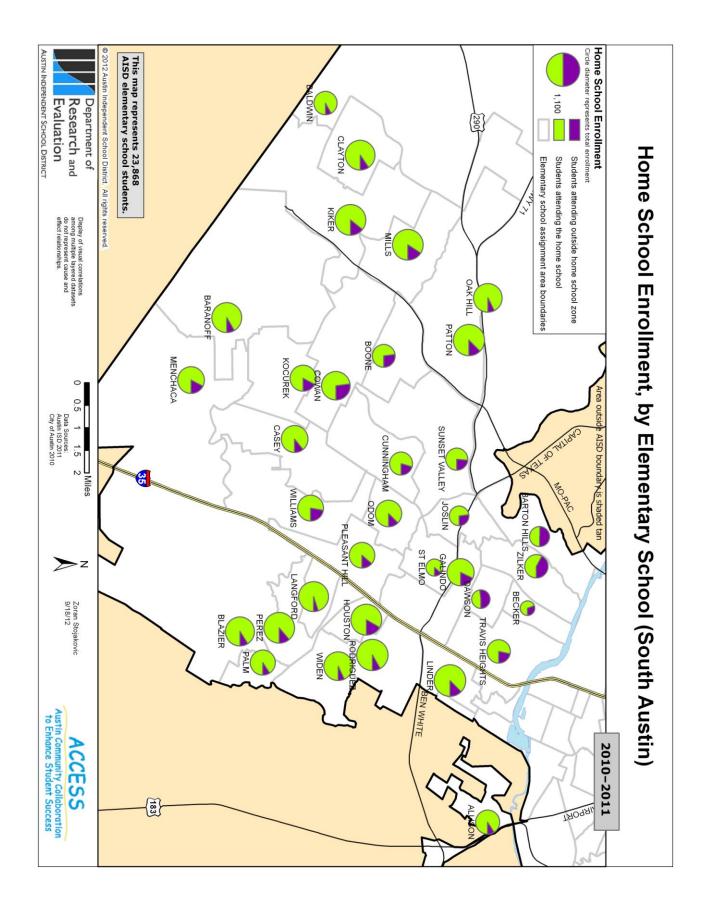
Observations

- Special programs (e.g., magnet programs and minority/majority programs) affected the home school enrollment rates at the campuses with the special programs, as well as at the home schools from which those students shifted.
- Proximity to a school of choice also had an impact on home school enrollment (e.g., McCallum drew students from the Lanier and Reagan school attendance zones).
- Changing neighborhood demographics (i.e., numbers of school-age children) also had an impact on home school enrollment proportions.









High school	Home school enrollment rate	
Akins	92.99%	
Lanier	92.18%	
Reagan	87.64%	
Travis	86.89%	
Bowie	82.70%	
Crockett	81.60%	
Anderson	80.97%	
LBJ	80.67%	
Eastside ¹	69.48%	
Austin	65.65%	
McCallum	55.05%	

Table 7. 2010–2011 Home School Enrollment Rate, by High School

Source. AISD student enrollment

Note. Home school enrollment rate represents the percentage of students attending the assigned school based on their residential address. Only schools with associated home school assignment zones are included.

1. Eastside Global Tech and Eastside Green Tech combined

Middle school	Home school enrollment rate		
Mendez	96.86%		
Burnet	95.00%		
Pearce	92.84%		
Garcia	90.86%		
Paredes	90.66%		
Dobie	89.99%		
Webb	88.91%		
Bedichek	88.56%		
Gorzycki	88.27%		
Martin	87.69%		
Murchison	83.67%		
Bailey	81.30%		
Small	80.52%		
Covington	79.40%		
Fulmore	67.95%		
Lamar	61.05%		
O. Henry	53.63%		
Kealing	34.63%		

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Source. AISD student enrollment

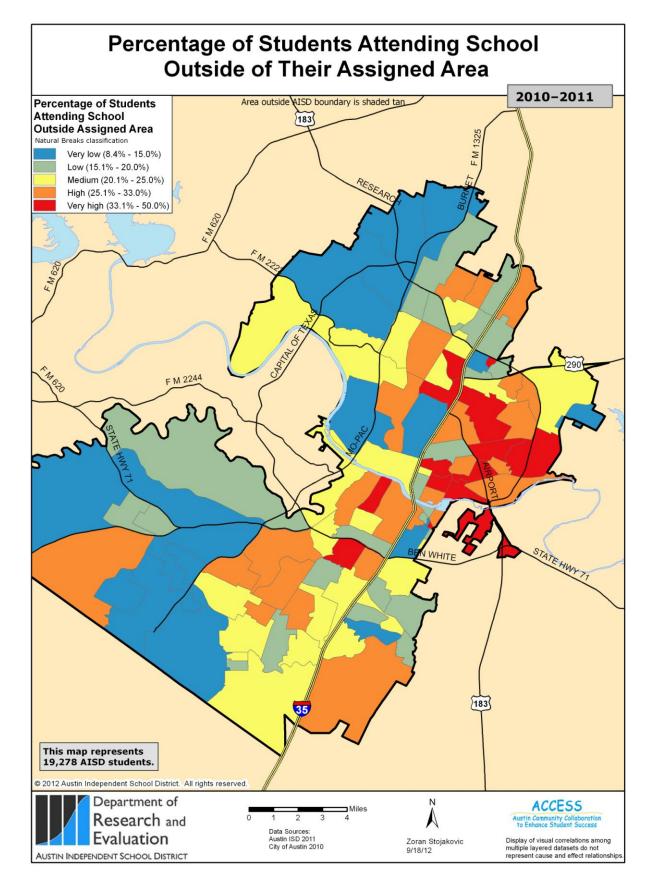
Note. Home school enrollment rate represents the percentage of students attending the assigned school based on their residential address. Only schools with associated home school assignment zones are included.

Elementary school	Home school enrollment rate	Elementary school	Home school enrollment rate
Cook	95.12%	Kiker	85.61%
Langford	94.91%	Pecan Springs	84.60%
McBee	94.10%	Mills 84.31%	
Walnut Creek	93.76%	Graham	83.54%
Widen	93.18%	Houston	83.37%
Wooldridge	93.11%	Ortega	83.18%
Oak Hill	92.75%	Kocurek	82.92%
Hart	92.36%	Allan	82.79%
Baldwin	91.79%	Reilly	82.76%
Davis	91.78%	Brooke	82.57%
Baranoff	91.72%	Menchaca	82.52%
Rodriguez	91.66%	Galindo	82.37%
Doss	91.34%	Brown	81.83%
Blazier	91.18%	Campbell	80.86%
Palm	90.91%	Overton	80.03%
Allison	90.85%	Highland Park	79.76%
Norman	90.69%	Cunningham	79.44%
Blackshear	90.65%	Zavala	79.35%
Sims	90.65%	Travis Heights	78.38%
Clayton	90.31%	Williams	77.76%
Barrington	90.04%	Pickle	76.85%
Hill	89.85%	Sunset Valley	76.53%
Casey	89.30%	Joslin	72.94%
Winn	88.97%	Cowan	72.80%
Perez	88.68%	Boone	72.76%
Wooten	88.32%	Bryker Woods	72.55%
Patton	87.70%	Andrews	69.18%
Blanton	87.50%	Becker	69.16%
Odom	87.45%	Lee	68.53%
Linder	87.30%	Brentwood	68.44%
Sanchez	87.25%	Summitt	66.89%
Govalle	87.07%	Jordan	65.38%
Casis	86.74%	Mathews	62.59%
Harris	86.56%	Maplewood	60.93%
Pillow	86.48%	Zilker	57.85%
Metz	86.27%	Gullett	52.97%
St Elmo	86.25%	Barton Hills	50.50%
Pleasant Hill	86.19%	Dawson	47.97%
Oak Springs-Rice	85.86%	Ridgetop	42.54%

Table 9. 2010–2011 Home School Enrollment Rate, by Elementary School

Source. AISD student enrollment

Note. Home school enrollment rate represents the percentage of students attending the assigned school based on their residential address. Only schools with associated home school assignment zones are included.



	Campus stable		Campus mobile	
	Ν	%	Ν	%
Low absenteeism (N=59,776)	53,177	70.1%	6,599	41.7%
Moderate absenteeism (N=18,990)	15,563	20.5%	3,427	21.7%
High absenteeism (N=12,927)	7,143	9.4%	5,784	36.6%
Total	75,883	100.0%	15,810	100.0%

Table 10. 2010–2011 Campus Mobile Students' Absenteeism Rate

Source. AISD records of student enrollment

Note. The rate of high absenteeism among campus mobile students (36.6%) was 3.9 times that of campus stable students (9.4%).

		Campus stable	Campus mobile	Total
		(N=75,883)	(N=15,810)	
Economically disadvantaged	Ν	49,341	12,838	62,179
	%	79.3%	20.7%	100.0%
Non-economically disadvantaged	Ν	26,542	2,972	29,514
	%	89.9%	10.1%	100.0%

Source. AISD records of student enrollment

Note. Economically disadvantaged students were 2 times more likely to be campus mobile (20.7%) than non-economically disadvantaged students (10.1%).

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