Abstract:
The Learning Community Charter School in Central Falls, RI faces transportation problems often endemic of charter schools, and find that they lack the capabilities to help parents who are having a transportation problem to or from school. This study was performed in cooperation with the school, and used geocoding and GIS mapping to better understand the residential and transportation patterns of LCS families, and provide useful tools for connecting parents and resolving some of these issues.

The Learning Community:
Started in 2004, LCS currently serves 282 students grades K-4 and will reach 400 students K-6 in two years. The school focuses on four commitments: literacy, parent engagement, professional development, and equity.

Student demographics are 76% Latino, 18% African-American, 4% Caucasian; 77% in Spanish-speaking homes; 88% qualify for free or reduced-price meals.

LCS ranks in the top 1% in the state for a variety of parent engagement indicators and had the highest student achievement among schools with very high poverty on state standardized tests.

The school serves students from three adjacent communities: Central Falls (47%), Pawtucket (30%) and Providence (27%). Assuming that low rates of affordable housing cause families to move between these three cities, they believe that serving students from all will decrease student mobility. However, this increased service area also creates a bigger transportation challenge: some students travel a long distance to school; transportation for each city is provided by that individual district, so the effort is not centralized or consistent.

Problem:
1. LCS does not have the capabilities to help parents when they have a transportation problem.
2. Central Falls School District will be cutting transportation for students grade 3 and above next year. LCS will need new solutions to get these children to school.

Goals:
1. Better understand residential and transportation patterns among LCS families.
2. Create set of potential tools to better connect parents to each other.
3. Evaluate transportation for Central Falls students who will no longer qualify for the district bus next year.

Methodology:
I used geocoding to locate all students address on RIGIS shapefiles of RI streets. Using data provided by Kath Friedman, and the rest of the staff and students at the Learning Community for your help and direction.

On the above map we can visualize the residences of the entire LCS student body, and what their primary form of transportation is. Most students use the bus (57%), though rates differ by city and increase with distance from the school. Initial observations are boxed in red. On the left we see that students in the same area are taking two different buses (34 and 42). For what reason? Could we advise other parents? Better advise bussing? On the right, there is one student getting picked up at school in a cluster with others. Perhaps they might agree to carpool. At the very least, we can identify some clustering patterns and parents could visualize their proximity to other families.

Below, are the bus routes for the two intersecting routes in the left box above. We can also see that students are not always using the closes bus stop to their house (example: blue boxes). Perhaps this can be explained by parent transportation or work patterns, but perhaps it is due to misinformation or poor planning and organization and could be remedied.

Conclusion:

Questions and Recommendations for further research:
Evaluation: How useful are these tools? Focus groups with teachers, administrators and parents would be necessary to determine ways to maximize effectiveness. We also must ensure that any suggestions are feasible economically, and consistent with parents’ needs and willingness. Such groups also might provide information regarding parent work and transportation patterns as well as illuminate other social networks to work through (other than school networks such as grade or class).

Sustainability: How can these maps be reproduced and altered easily? Need a more sustainable mapping system to make all information accessible and flexible, as families move and new families enter the system. A consistent relationship with Lynn Carlson and student volunteers at Brown University’s Earth Lab could be useful. Google Earth would be a valuable tool for viewing digitally. Other free mapping opportunities such as CommunityWalk could also hold potential, and can be altered without advanced technology or software.

To what extent does the LCS student body move between their three communities? I would recommend that LCS invest in an IT system to track mobility in order to better understand student dynamics, better inform these map tools, and better support their mobility hypothesis.

Decreased Bussing in Central Falls, starting school year 08/09:
In the three maps at left I examined those students grades 2 and up who currently ride the Central Falls bus to and from school and will no longer qualify next year.

Map 1 plots walking routes for those students we might consider close enough to the school to walk (<15 minutes walking, <0.625 miles) The quickest walking route for each student is shown as a black line.

Map 2 takes the remaining students (outside a ‘walkable’ boundary, and plots the fastest driving route to pick them up: potential if the school were able to acquire a van through grant or donation. Total route distance of 3.4 miles.

Map 3 considers the possibility of bussing all students – if they weren’t already walking, it might be a difficult or unlikely transition. This driving route would be a total of 4.3 miles, but would take considerably more time at stops, and would require a bigger van (19 students vs. 12). Also plotted on this map are all students currently getting transported by parents. Note that each student will no longer qualify for the bus is within a block of a student with a transportation – perhaps family networks could lead to cooperative solutions.

Other Results and Maps Produced for LCS:
- Residences of all students in each grade
- All students in each city, symbolized by grade (with name labels)
- All students in each city, symbolized by primary form of transportation
- Each district bus mapped with stops, color coded with students who use stops
- Individual map for each teacher with students’ residences (with name labels)
- Map of student absence and parent café attendance data (mapped by student residence)

Transportation Study and Solutions for the Learning Community Charter School, Central Falls, RI

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