



Impact of Maine's state-wide rule on high school nutrition environments & student dietary behaviors

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Background

- In 2002, legislation was filed to revamp foods offered in school vending and a la carte programs.
- During the hearings the Department of Education (DOE) stated they would adopt rules to improve school vending and a la carte program.
- In July 2005, the DOE amended Chapter 51.



Statewide Rule: Chapter 51

- Extended the USDA regulation of the sale of “foods of minimal nutritional value” (FMNV) standard from the school day to 24-hours a day, 7 days a week on school property in schools participating in the federal meal programs.



FMNV Regulations

- Eliminates all soda, most candy, and a few other non-nutritious snacks from schools.
- The current regulation has no authority over foods with a high fat content or high sugar content if they meet the 5% threshold.
 - FMNV definition: A food which provides less than 5% of the RDI for each of eight specified nutrients.
 - Protein, Vitamin A, Vitamin C, niacin, riboflavin, thiamine, calcium and iron.



Exceptions to Chapter 51



- Local school boards could make exceptions to limitations on FMNV for
 - Teacher lounge/room
 - Any event on campus open to the public
 - Career and Technical Education Culinary Arts Programs



Why Choose To Examine Chapter 51?

- Limited statewide evaluation or enforcement of the ruling by the Maine Department of Education in every school each year.



Research Questions:

1. To what extent was Maine's statewide rule implemented in high schools.
 - Is the school environment supportive of the rule?
2. To understand high school students' dietary behavior (e.g. consumption of soda and candy).
 - Is the school environment supportive of healthy dietary behaviors during school?
 - Is the community environment surrounding high schools supportive?



Methodology

1. Survey to Food Service Directors

- Identified 89 “free-standing” high schools.
- Asked questions about the school nutrition environment before and after Chapter 51.
- 62% returned (55 of 89)

2. Observation data from 11 randomly chosen high schools throughout the state.

- Schools had $\geq 30\%$ of students eligible for free or reduced federal meal programs



Methodology

3. **Examination of secondary data** (Maine Youth Tobacco Survey) collected in 2004 (before Chapter 51) and 2006 (after Chapter 51).
 - N= 38,000 high school students
4. **Student surveys**
 - Randomly selected 100 students from each of 11 high schools
 - 52% returned (571 of 1100)
5. **Geographical Information Systems (GIS) data collection**
 - Proximity and density of food venues within 2 km radius of schools

To what extent was Chapter 51 implemented?

- Variations in the level of implementation was found.
 - 67% made exceptions for teacher lounge/room
 - 85% made exceptions for events open to public held on school property
 - 31% made exceptions for the Culinary Arts Programs

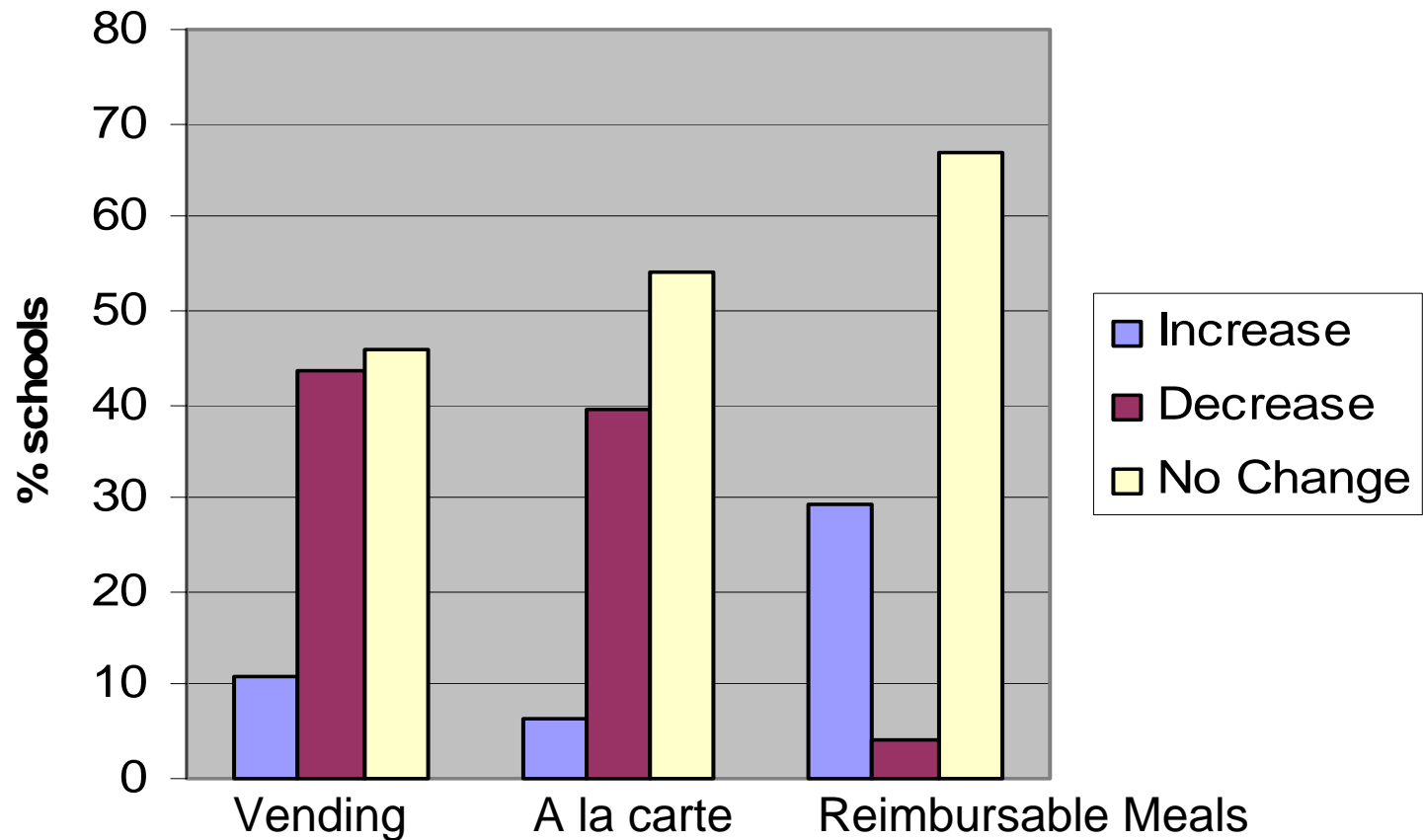
Teacher Lounge



Other findings from food service director's survey:

- A decrease in the availability of FMNV to students during the school day
 - 17% (N=8) of schools reported soda in vending programs before Chapter 51 (2004) vs. 4% (N=2) after Chapter 51 (2006) ($p<0.05$).
 - Trends of decreased number of schools with candy available in vending, a la carte, school stores, and club sales.

Was there a change in revenue since the implementation of Chapter 51 ?



Is the school environment supportive?

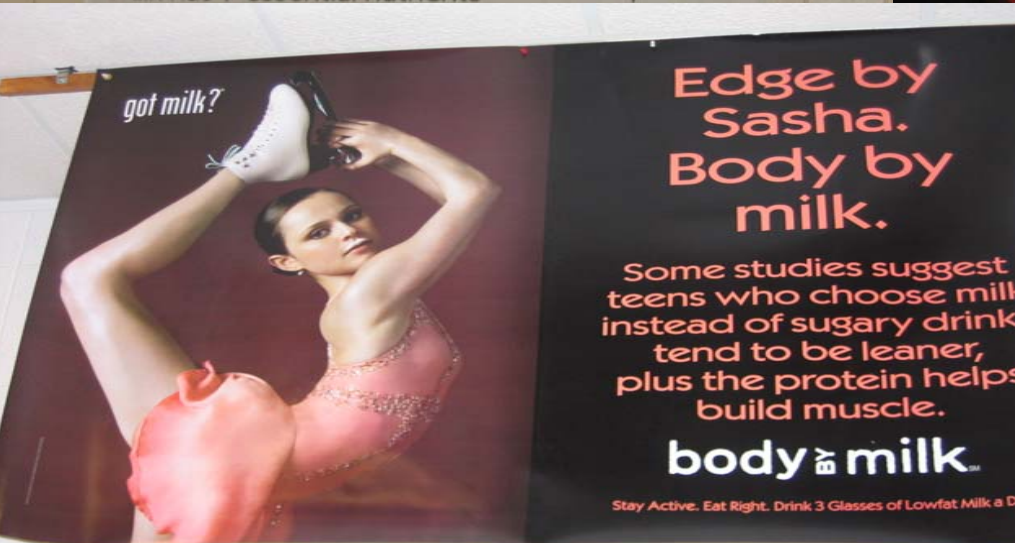


Cafeteria



Milk has 9 essential nutrients

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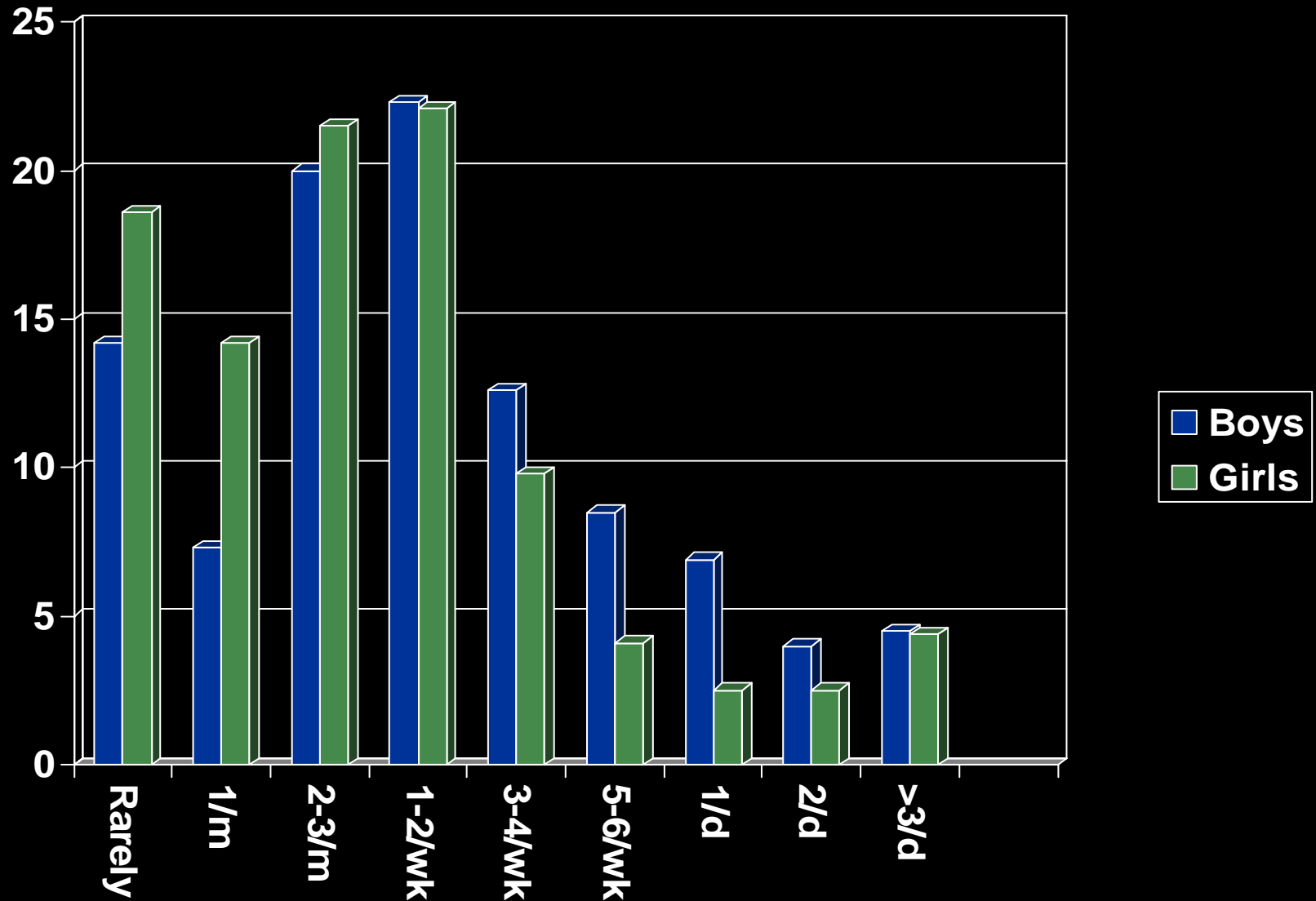
Is soda/candy consumed by students?

- Statewide secondary data showed a downward shift in the frequency of soda consumption from 2004 to 2006.
 - More students (6%) reported never or consuming only 1-3 cans of soda per month
 - Less student (5%) reported consuming 1 or more cans of soda per day

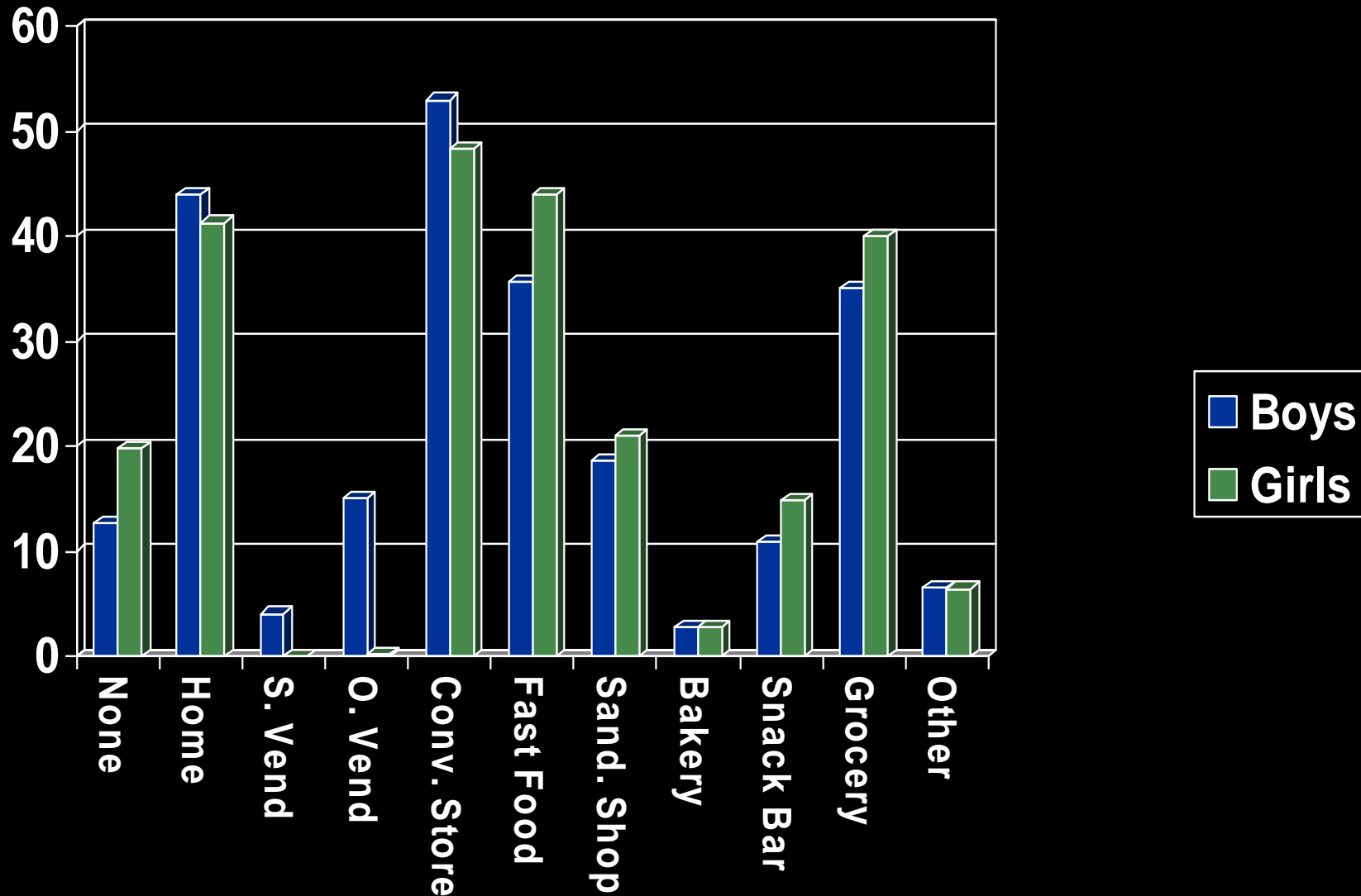
Is soda/candy consumed by students?

- Soda and candy was most frequently consumed after school and purchased from convenience stores.
 - During school sport drinks* and water* were reported as the most frequently consumed beverages.

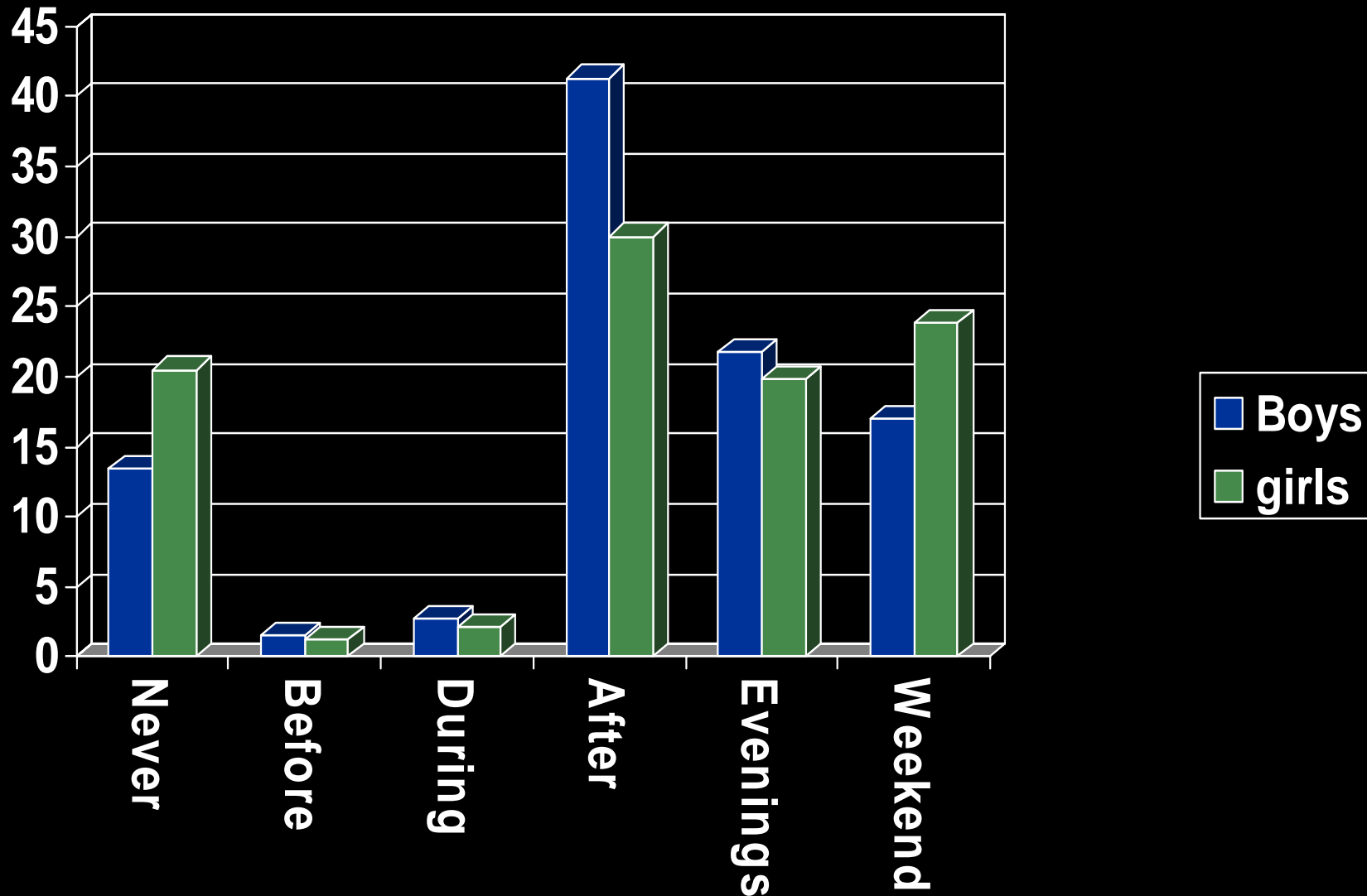
How often do you drink soda?



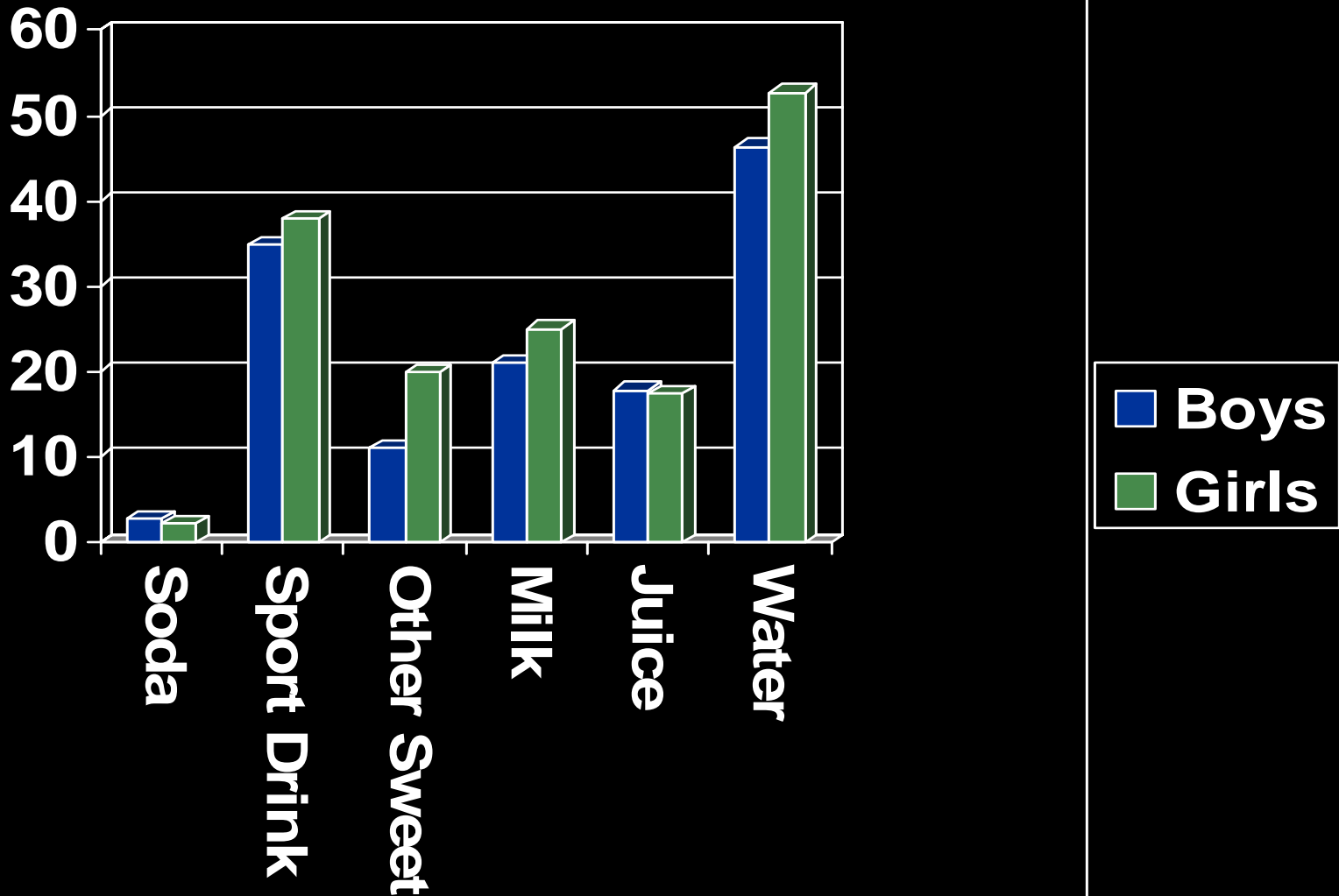
Where do you buy soda?



When do you drink soda?



During school beverage consumption



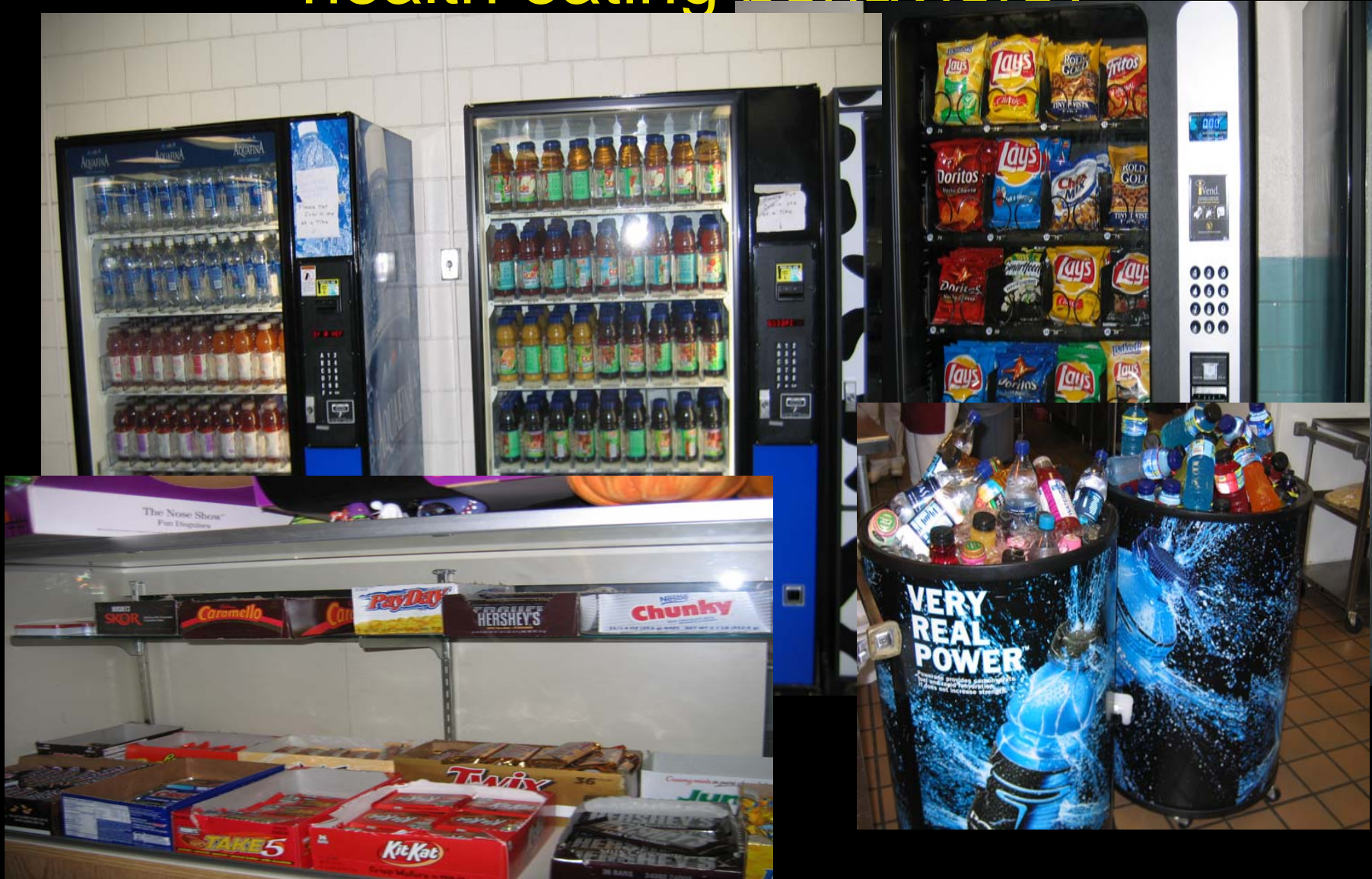
Observation of the school environment....



Is the school environment supportive of health dietary behaviors?

- Decreased soda in vending *but* schools remain a source of other types of sugar-sweetened beverages.
 - Sugar-sweetened beverages accounted for 32% of all beverages in vending programs in the 11 schools observed.
- Candy availability did not change significantly.
 - Candy that meets the FMNV standard is available, mainly in school stores.

Is the school environment supportive of health eating behaviors?



Is the community environment supportive?

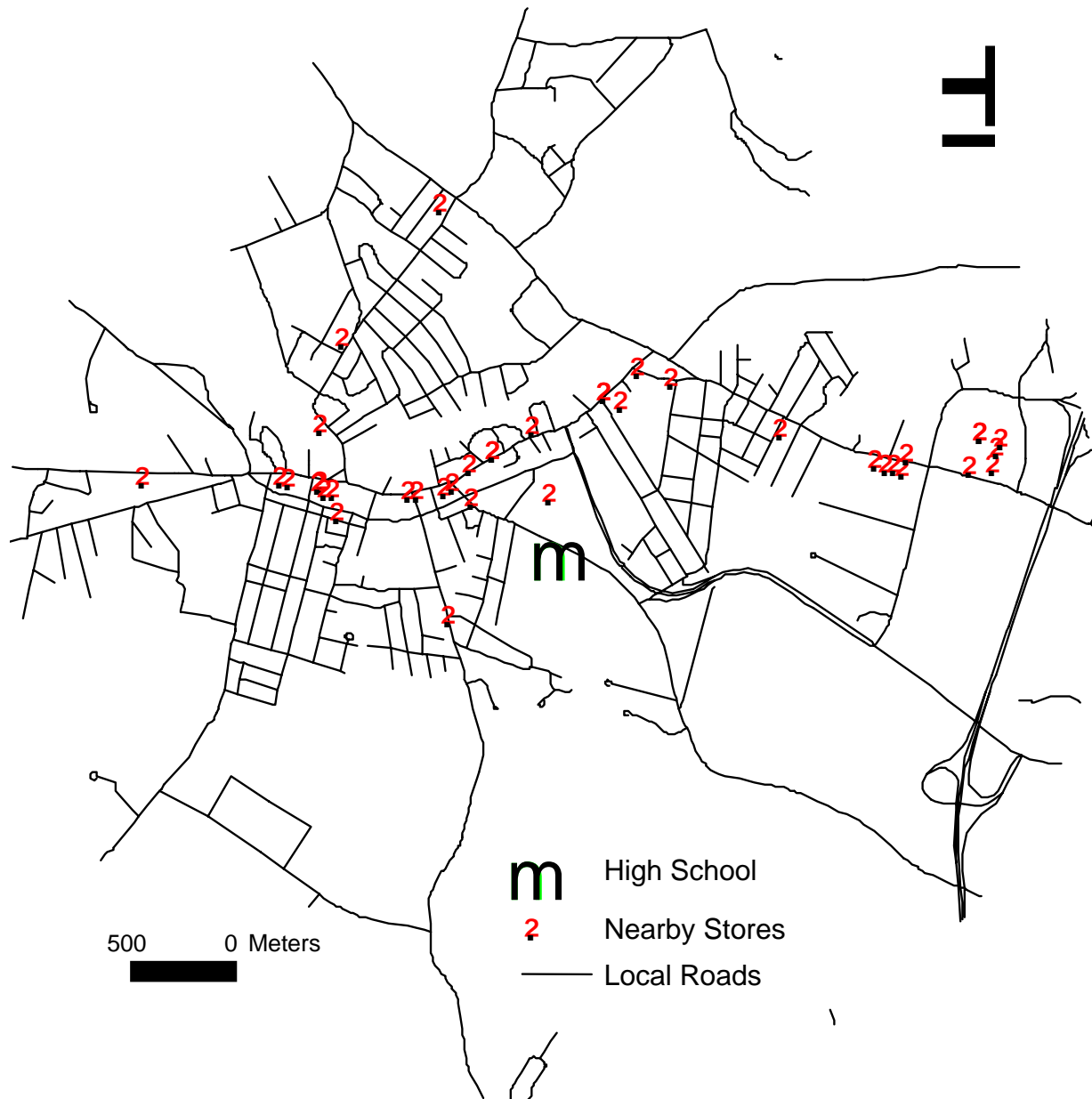


Geographical Information Systems

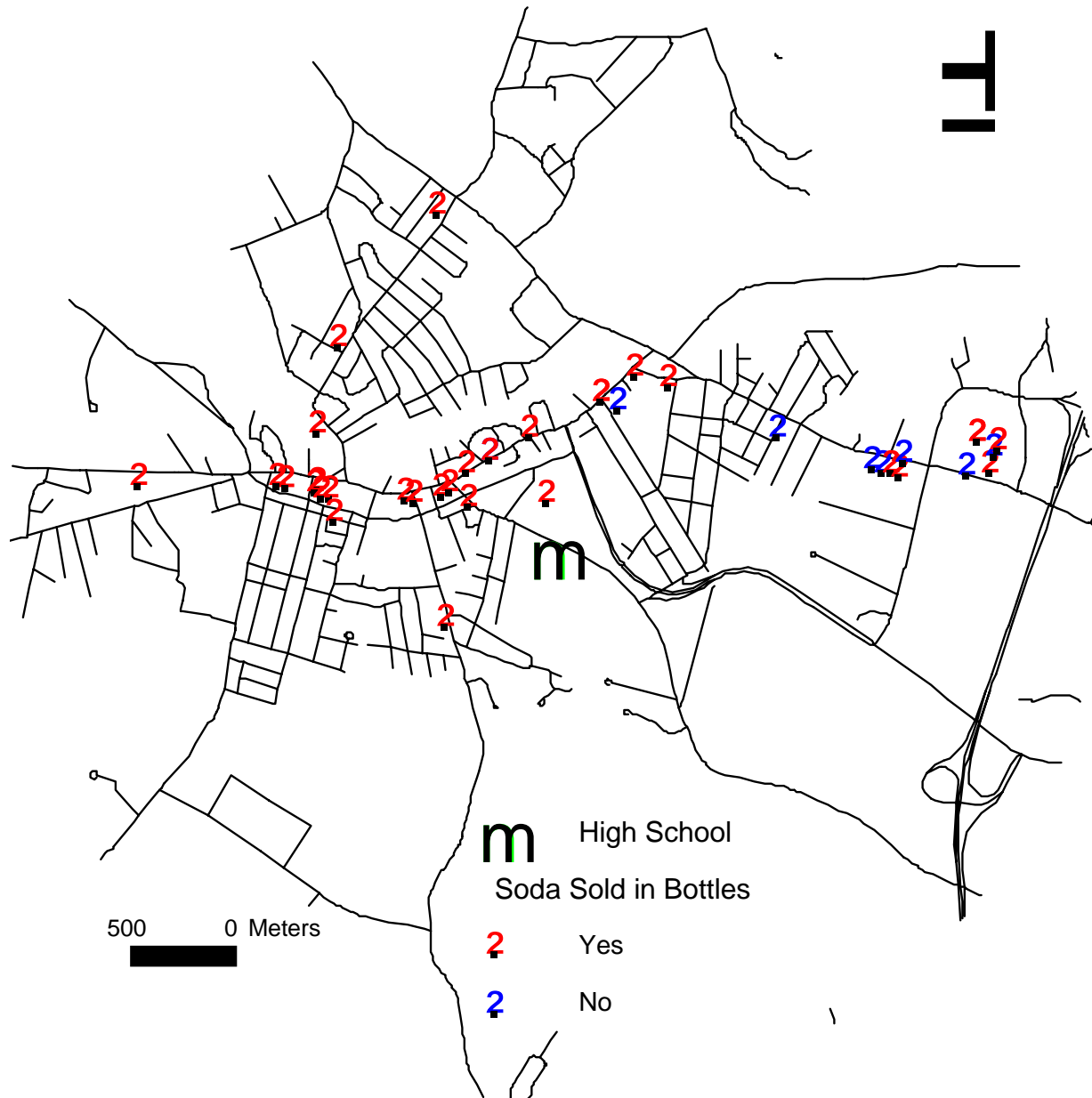


- 1) Determine locations that have soda/candy available within 2 km “as the crow flies” distance of school with GPS
- 2) Determine what was sold in stores by visual inspection
- 3) Use network analysis to determine driving distance (distance along roads) from the school to each store

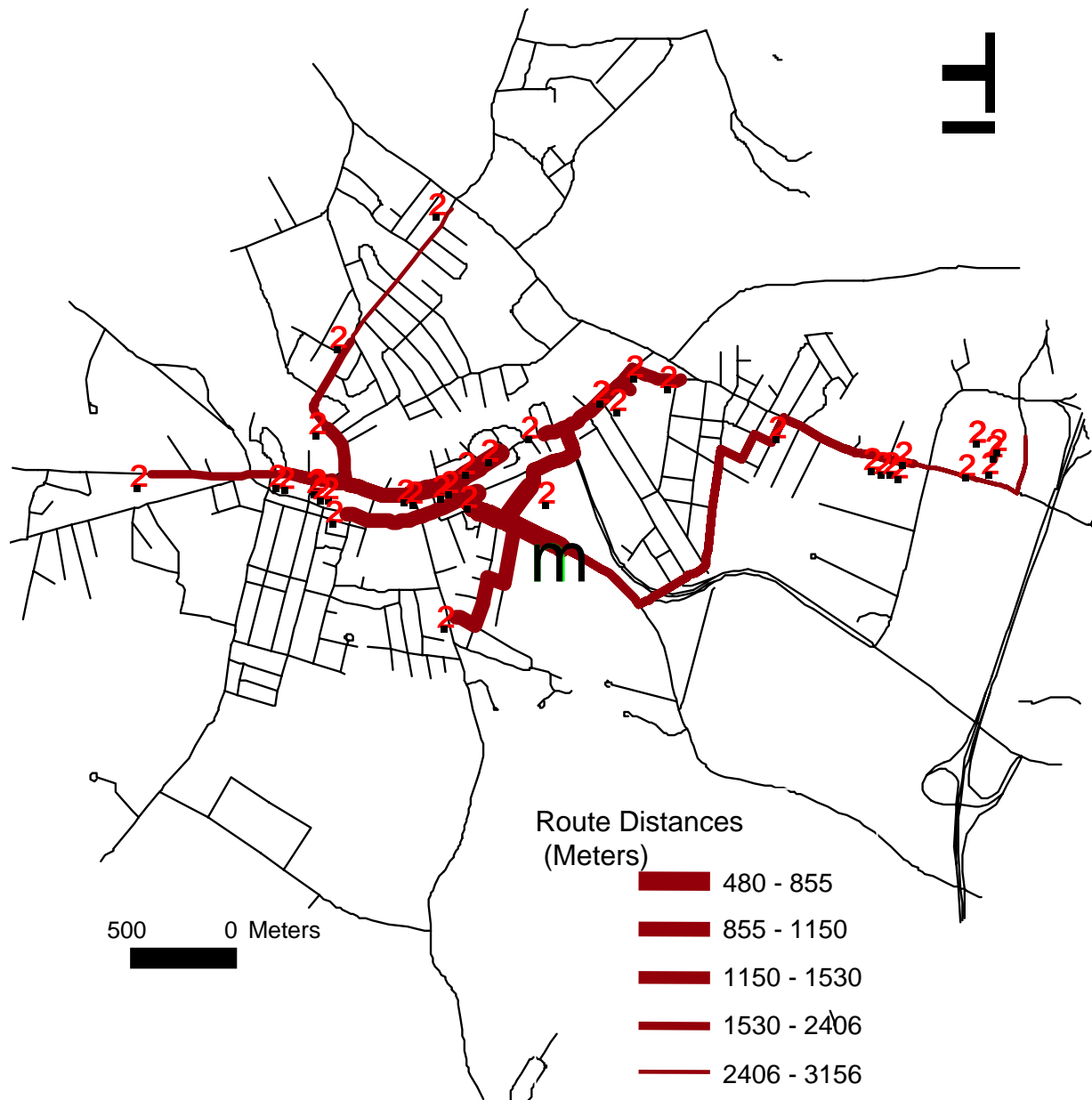
Store Locations Near School (Determined by GPS)



Do Stores Sell Bottled Soda? (Determined by visual inspection)



Road Distance From School To Each Store (Results of network analysis)



Effects of Chapter 51

- Most likely caused the decrease in vending availability of soda during the school day.
 - But, did it result in only a *shift* in the type of sugar-sweetened beverages available?
- Candy...did it result in only a *shift* in the type of candy available during the school day?
- Is the definition of FMNV too weak?
- Are there too many opportunities for exceptions to the Chapter 51 rule?

What are the next steps?