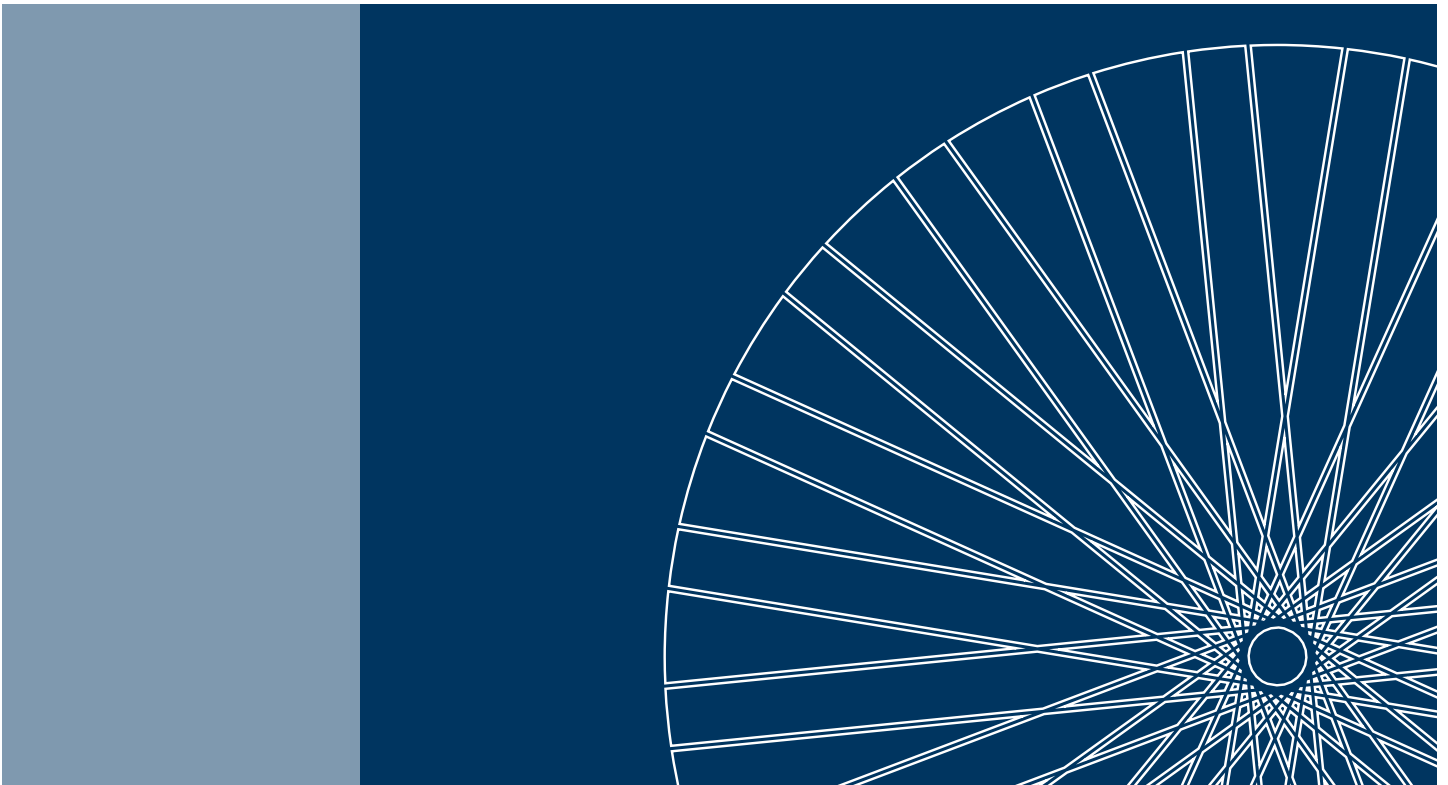


POLICY BRIEF

Children's Health

A Growing Need to Incorporate Physical Activity
into the Daily Lives of Youth



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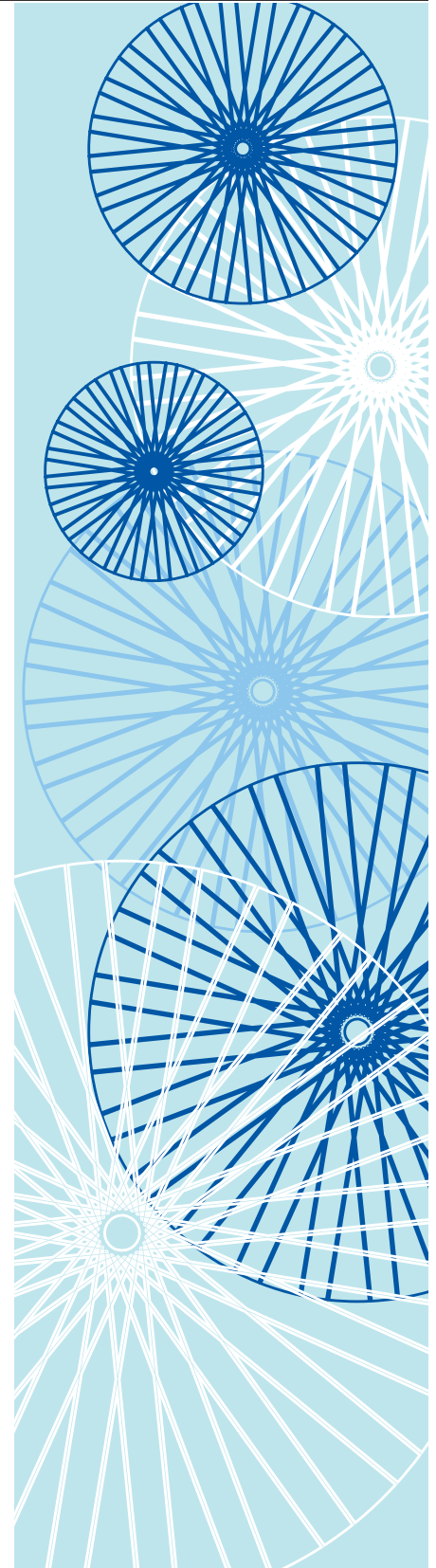
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Introduction

According to the US Department of Health and Human Services, children should participate in at least 60 minutes of physical activity daily to be healthy. Children should use most of these 60 minutes engaging in aerobic activities such as walking, running, jumping, and biking. The remaining time should be spent on age-appropriate muscle and bone strengthening exercises [1]. Meeting these physical activity requirements is easiest if physical activity is incorporated into children's daily routines. Children can engage in active living in many different ways. They can travel to school using physically active means such as walking or bicycling. Children can participate in physical education classes and team sports at school. They can also simply enjoy unstructured active play at home or school.

Not all children have the opportunity to live an active lifestyle. While there are many barriers to children's physical activity, a significant barrier is the environment in which they live. Healthy Kids, Healthy Communities – Buffalo, a partnership of many organizations, works to identify and facilitate policy changes that result in a built environment that is conducive to children's physical activity in the City of Buffalo. This policy brief, produced on behalf of the partnership focuses on assessing the impact of the built environment on children's physical activity in Buffalo. It describes the context in which children live in the City of Buffalo. It also describes current trends and barriers to youth physical activity in the City of Buffalo.



Youth in Buffalo

Youth compose a large percentage of Buffalo residents

The City of Buffalo is home to 61,576 children under the age of 18. The number of male children, 31,121, slightly outnumbers females, 30,455, although the sex ratio is reversed in the adult population. Youth comprise about 22 percent of the city's population of 261,310 residents.* The proportion of youth in Buffalo's population is marginally higher than that in Erie County and New York State [2].

Buffalo's youth are a diverse group

A significant proportion of youth in Buffalo are African American (48%), while 35 percent are white. These proportions are different than in the overall population, wherein the majority of Buffalo residents report themselves to be white (50%) and 39 percent identify themselves as African American [2]. A small, but growing, number of Buffalo's youth were born in a country other than the United States. Of all youth, 2,416 (3.6%) are foreign-born (overall, 16,670, or 6.1 percent of, city residents are foreign-born) [3].

Many youth live in families headed by single mothers

About 28,000 (46%) children in Buffalo are raised by a single mother, while 34 percent are raised by a married couple. Eleven percent of children live with either their grandparent or another relative, while seven percent live with a single father [2]. The percentage of children raised by married couples is significantly lower in Buffalo than in Erie County (60%) and New York State (61%).

Buffalo's youth attend public and private schools

During the 2010-2011 school year, 43,000 youth were enrolled in public and private schools. Of these, 33,701 children were enrolled in 58 public schools in the City of Buffalo, while about 9,000 were enrolled in 39 private schools (Pre-K through 12) [3]. Seventy-two percent (24,157) of the 33,701 children attending public schools were enrolled in Pre-K through 8th grade while the remaining twenty-eight percent (9,544) were enrolled in 9th through 12th grades [4].

The 43,000 youth enrolled in school spend a considerable amount of time—about 180 days a year—in the built environment in and around their schools. Any changes in the built environment in and around the school, and the policies guiding those changes, have the potential to impact children's opportunities for engaging in physical activity.

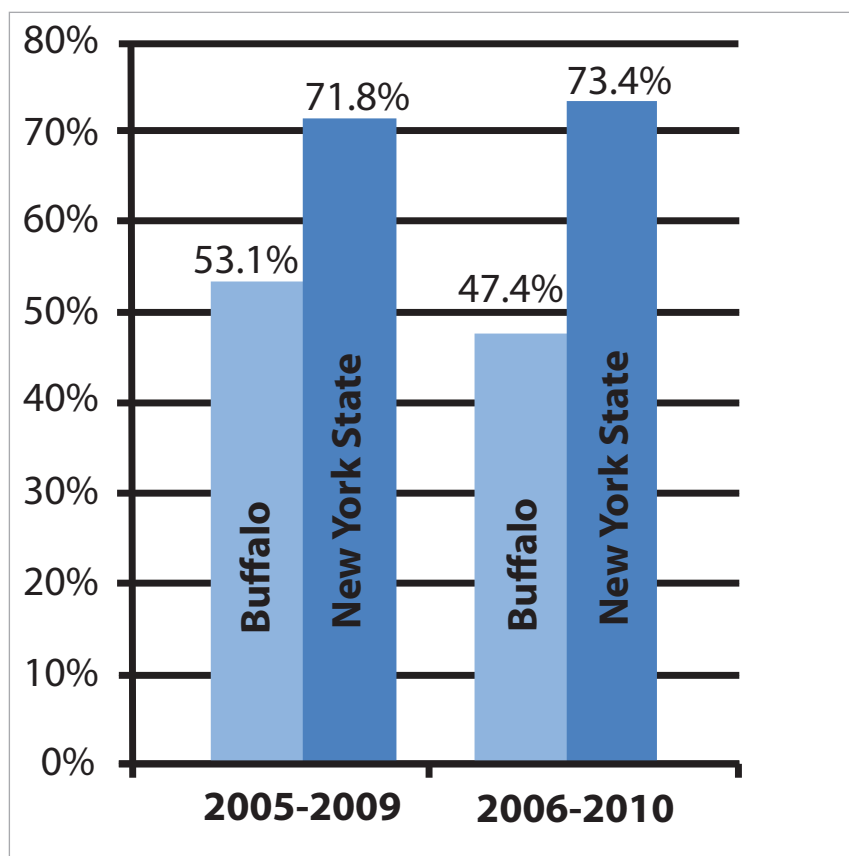
* This words "children" and "youth" are used interchangeably, and refer to individuals younger than 18 years old, unless specified otherwise.

High school graduation rates in Buffalo are low

High school graduation rates in Buffalo's public schools are low and worsening over time. Only 47.4 percent of students who entered public high schools in the fall of 2006 graduated by June of 2010, (within the standard four-year schedule for high school completion). This rate is even lower than the previous year, when 53.1 percent of high school students graduated in four years. The New York State Department of Education attributes this 5.7 percentage point decrease primarily to a large change in the number of students [5].

Dismal high school graduation rates mirror low educational attainment of adult residents, which have remained relatively stagnant over time. About 19 percent of Buffalonians over the age of 18 did not graduate from high school, a rate much higher than the county's 12 percent and state's 16 percent. Furthermore, only 27 percent of city residents have some form of college degree, lagging far behind both the county (36%) and the state (37%) [3].

Figure 1: 4-Year Graduation Rates



Youth in Buffalo

Children Bear a Disproportionate Burden of Poverty in Buffalo

Buffalo's children bear a disproportionate burden of poverty. Although children comprise only 22 percent of Buffalo's population, they comprise 36 percent (27,150) of Buffalo's poor [3]. Buffalo residents' median family income is only \$37,488 and nearly 30 percent of city residents have incomes below the federal poverty line. Children in families with limited resources face far greater health-related barriers.

A majority of Buffalo's youth live in rental housing

The quality of houses in which children live, and the neighborhoods in which their homes are located, matter for children's health and well-being. Compared to home-owners, renters typically have less control over the quality of their dwellings. The majority (59%) of occupied housing units in Buffalo are home to renters, a rate much higher than that of the county and the state [2]. Although the cost of renting in Buffalo (where the median rent is \$453) may be marginally lower than the cost of renting in the county (where the median rent is \$505), the health consequences of living in poor quality rental housing may be significantly higher [3].

Compared to the overall population, Buffalo's children are also more likely to live in rented homes. Of all occupied housing units, 31,650 units are home to youth under the age of 18. Of these youth-inhabited houses, about 63 percent are renter-occupied, while the remaining 37 percent are owner-occupied [2].

Many homes exist in neighborhoods struggling with vacancy and blight, making neighborhoods unsafe and unattractive for children's outdoor physical activity. Sixteen percent of the city's 133,444 housing units are vacant. Although the housing vacancy rate has decreased dramatically from previous years, it is still much higher than the county's (9%) and the state's (10%) vacancy rates. Policy efforts to facilitate children's outdoor physical activity must ensure a safe and welcoming neighborhood environment.

A significant proportion of households lack access to a vehicle

About 30 percent of households in Buffalo do not have access to a vehicle, a rate much higher than that in the county (13.72 %). Automobile ownership is more limited among renters than home owners. Of the Buffalo households that do not have access to a vehicle, approximately 83.5 percent are renters [3]. Given that most youth in Buffalo live in rental housing, many of them may not have access to a family vehicle and therefore may need to walk, bicycle, or ride a bus to get around. Incidentally, only seven percent of Buffalo residents walk or bike to work and 12 percent take public transportation. These rates are higher than those in the surrounding county, where only three percent walk or bike to work and four percent take public transportation [3].

Physical activity levels among Buffalo City School District (BCSD) middle and high school students are low

A 2011 survey of BCSD students reports dismal physical activity rates among students in grades 6-12. Seventy-one percent of students are not physically active at least 60 minutes each day. Furthermore, nearly 20 percent of students grades 6-12 are not physically active for at least 60 minutes on any day of the week. Compared to high school students, a higher percentage of middle school students reported being physically active for at least 60 minutes every day (32% of middle school students and 25% of high school students). Conversely, more middle school students than high school students reported not being physically active any day of the week (21% of middle school students and 18% of high school students) [6].

Youth obtain limited physical activity through school physical education classes

Physical Education (PE) classes are an important opportunity for Buffalo's children to be physically active in a safe and adult-supervised setting. Unfortunately, the BCSD does not require the 60 minutes per day of moderate daily physical activity that is recommended by the federal government [1]. Moreover, the PE requirement for children in kindergarten through third grades does not meet minimum PE standards set by the New York State Department of Education, which requires that students participate in PE class every day [7, 8].

Figure 2: BSCD Physical Activity Requirements and Federal Physical Education Recommendations by Grade

Grade	City of Buffalo PE Requirements	Federal PE Recommendations
Kindergarten – 3 rd Grade	1-30 mins, once every 6 days*	60 mins per day
4 th -6 th Grade	40 mins, once every 3 days	
7 th -12 th Grade	40 mins, every other day	

*Not compliant with the NYS Department of Education standards.

Limited PE opportunities impact youth physical activity behavior. In a recent survey, about 10 percent of Buffalo School District students from grades 6-12 reported never having attended PE classes [6]. Increasing PE requirements, options, and opportunities in the schools would help Buffalo's children obtain the minimum 60 minutes of moderate physical activity required to be healthy.

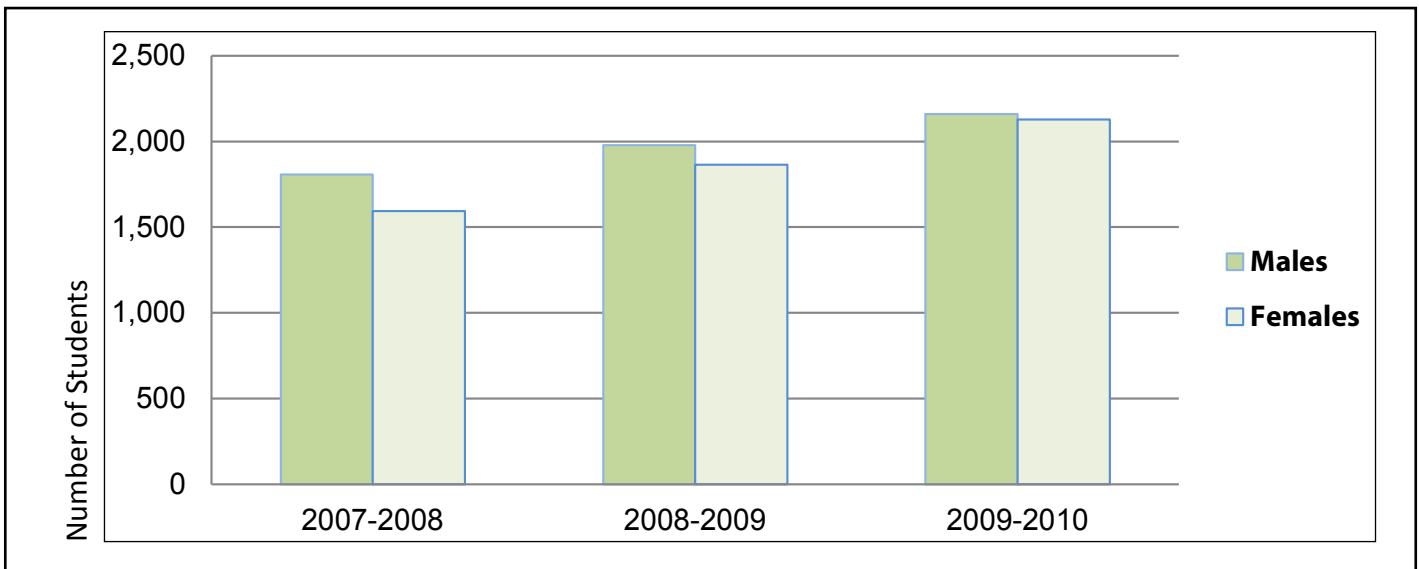
Physical Activity Behaviors

Children's participation in after-school sports

After school sports leagues, supported by school or community programs, are an opportunity for youth to engage in physical activity in a safe environment. Participation in after-school sports programs is limited to students in 7th grade or above. Youth below 7th grade are limited to playing on community sports leagues that usually require a fee. Youth must arrange their own transportation to practices and games because leagues are not affiliated with the school district.

Buffalo City School District students in 7th grade and above have many more sports team options than students below 7th grade. In the 2011-2012 school year, students (depending on gender) can try out for football, volleyball, soccer, golf, cross country, cheerleading, rowing, basketball, bowling, swimming, baseball, softball, track, tennis, and lacrosse. Many of these teams are varsity level, but there are also junior varsity, modified, and club sports teams. During the 2009-2010 school year, only 4,288 BCSD students (of approximately 15,300 7th-12th grade BCSD students) participated in a school sport [9]. Although this number represents a 22.5 percent increase in student participation over a three-year period (27% increase for girls and 18% increase for boys), there is still reason to be concerned [10]. In the 2011 BCSD student survey, nearly 40 percent of 6-12 grade students reported not belonging to any sports team in their school or community during the past 12 months [6]. Lack of participation in a sports team limits physical activity, as well children's ability to learn teamwork.

Figure 3: Participation in After-school Sports by Gender



Children's travel to school

One opportunity for children to be physically active is by using a physically-active mode of transportation—such as walking or bicycling—on their daily journey to school. Most school students in Buffalo take the bus to school rather than walk or bicycle. During the 2008-2009 school year, 90.7 percent of BCSD elementary school students were bused to school [11]. This is almost an 11 percentage point increase from the 2006-2007 school year, during which 80 percent of BCSD elementary school students were bused [12]. Students who were not bused walked, biked, or were driven to school.

Children's transportation behaviors are a reflection of the district's policies around busing, as well as the absence of neighborhood-based schools which children can reach easily by walking or bicycling. BCSD Policy #5730 deems the following students eligible for bus transportation to and from school:

- * *Students attending schools located within the City of Buffalo and more than one and one-half miles and less than fifteen miles walking distance from their home. A student's "home" is defined as the legal residence of that student's parent or guardian. Legal residence must be within the boundaries of the Buffalo City School District (BCSD).*
- * *Students attending schools whose transportation pattern was developed as a result of the BCSD's response to Court Ordered Desegregation.*
- * *Students with disabilities if they need these services to receive an appropriate education. The child's Individual Education Plan (IEP) or 504 Plan must include transportation needs in order for the child to be eligible.*
- * *Under limited circumstances, the BCSD may modify transportation guidelines to prevent serious safety hazards [13].*

Students are permitted to attend almost any public school in the district and are not required to attend a school within their immediate neighborhood. As a result, most students are eligible for transportation.

Usually, elementary and middle school students (Pre-K to 8th grade) are transported on "yellow" school buses operated by the school district. Currently, the district operates 631 "yellow" buses. During the 2010-2011 school year, the district buses drove 34,208 miles per day. The cost of operating these buses averaged \$1,200 per student [14].

High school students (9th to 12th grades) use the Niagara Frontier Transportation Authority's metro transit system. On school days, NFTA buses supplement the BCSD bus system by running along school routes immediately before and after the school day [15]. Students riding the NFTA metro system receive route-specific passes for use on the transit system on school-days. These route-specific transportation passes, however, may interfere with youths' access to after-school programs not located on their designated route. The student metro pass system costs \$640 per student—significantly less expensive than the school buses [14].

Physical Activity Behaviors

The combined impact of school locations, transportation policies, and transportation methods is costly. In 2010-2011, nearly \$32 million were spent on the district's buses and about \$6.5 million were spent for metro passes [14]. If the BCSD returned to using neighborhood-based schools, the city would see several benefits: transportation costs would decrease and more children would be able to walk and bicycle to school. Reducing busing and increasing walking among school children would also generate less pollution, thereby creating attendant health benefits, like reduced asthma rates.¹

Children's non-school travel

The availability, cost, and quality of public transportation are pivotal aspects of children's ability to engage in active transportation. In Buffalo, public transportation is provided by the Niagara Frontier Transportation Authority Metro system. The system consists of a 6-mile MetroRail system and a bus system with 313 buses. The bus system includes 42 local bus routes, 17 express bus routes, 8 Metrolink bus routes, and 8 school bus routes. On average, over 80 percent (69,411) of daily boardings occur on the transit system within the City of Buffalo.² During the weekdays, the MetroRail records over 20,000 daily boardings. Between 3,000 and 7,000 daily boardings occur on each of the ten most used bus lines. Youth account for about 21% of MetroRail riders (about 4,200) and 13 percent of bus riders (between 390 to 910 per line) [16].

On non-school days, youth aged 12 to 18 cannot use their route-specific school-issued NFTA passes and must pay adult fares to ride the NFTA system [17]. A single trip fare is \$1.75 for adults. For the following groups, a single trip fare is \$0.75 per person: children aged 5 to 11, people over 65 years old, the disabled, and Medicare recipients. Riding on the system is free for children under 5 years old. Day passes cost \$2 for children aged 5-11 and \$4 for people older than 11. Monthly passes are also available, costing \$32 or \$64, respectively [15].³

Bus stops within the city are spaced approximately 0.1 and 0.25 miles apart [16]. Spacing stops farther apart may decrease stop delays, increase service speeds, and require people to walk or bicycle farther. However, increased spacing might also decrease ridership if children find the longer distances between stops to be a nuisance. Ideally all buses should have bike racks to encourage multi-modal transportation. In Buffalo, however, less than half of the bus fleet (147 buses) is equipped with bicycle racks [18].

1: In neighborhood-based school system means children attend school in the neighborhood in which they live.

2: The remainder occurs in the NFTA's service area outside the City of Buffalo.

3: These fares will increase on May 1, 2012. As of May 1, 2012, a single trip fare will cost \$2 for adults and \$1 for children, seniors, the disabled, and Medicare recipients. Day passes will cost \$2.50 for children and \$5 for adults. Monthly passes will cost \$37.50 and \$75 for children and adults, respectively.

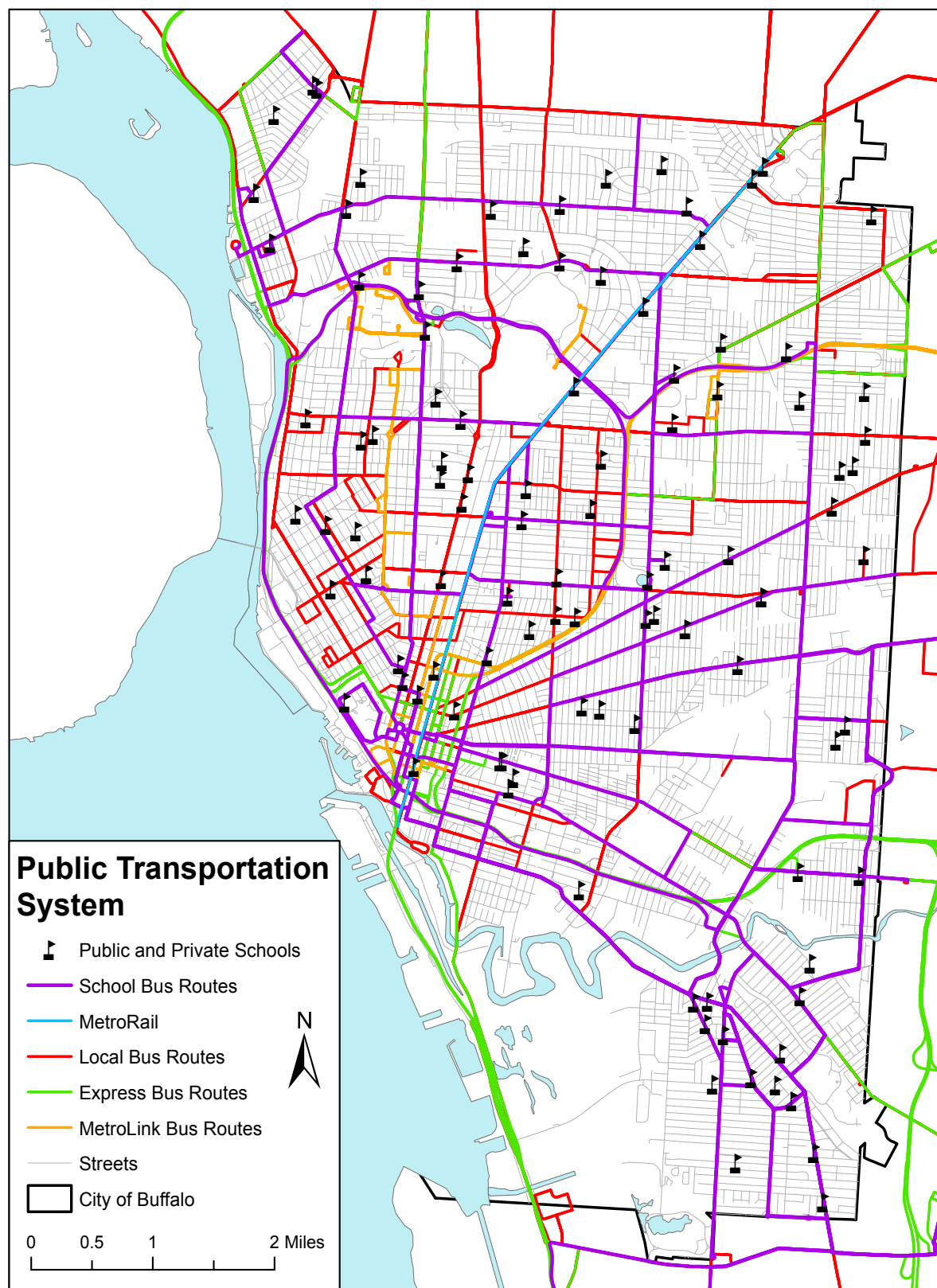


Figure 4:
Public
Transportation
Network
in Relation
to School
Locations

Youth Behavior

The availability and placement of bus shelters in Buffalo's cold climate impacts children's ability and willingness to use the transit system. In Buffalo, bus shelters are located at popular stops throughout the bus route system in the city of Buffalo [16]. Increasing the number of bus shelters and cleaning and maintaining existing bus shelters will likely increase the number of children using the bus system.

Making Buffalo's transit system friendlier, cheaper, more convenient, and safer for Buffalo's children is an important step for promoting physical activity among children.

Figure 5: NFTA MetroRail Station in Downtown Buffalo



Obesity and Overweight are high among BCSD Students

The most visible consequence of children's physical inactivity is the growing incidence of childhood overweight and obesity. Overweight and obesity are external indicators of a person's health status and possible future health problems, including heart disease, some cancers, and type-2 diabetes. Consequently, it is concerning that more than 25 percent of all BCSD students are overweight or obese.

BCSD overweight and obesity trends show that the incidence of overweight and obesity in BCSD students increases as they progress from elementary through middle school, then decreases slightly when students are in high school. During the 2008-2009 school year, nearly 30 percent of Pre-K and Kindergarten students were overweight or obese. By the 2009-2010 school year, 37 percent of students in the same grades were overweight or obese (a seven percentage point increase). Rates decreased below 30 percent during the 2010-2011 school year for Pre-K students; however, rates increased to nearly 40 percent for Kindergarten students. In the same time period (school years 2008-2009, 2009-2010, 2010-2011), second grade students' overweight and obesity rates increased from 37 percent to 41 percent, then decreased to 40 percent [19].

Of all grade levels, fifth and seventh grade students have the highest incidence of overweight and obesity. During the 2008-2009 school year, more than 43 percent of 5th and 7th grade students were overweight or obese. The following year (2009-2010), the rate increased to 46 percent and 47 percent, respectively. The rate of overweight and obesity among 5th and 7th graders decreased slightly to approximately 43% and 45%, respectively, during the 2010-2011 school year [19].

Tenth grade was the only grade level to show an overall reduction in overweight and obesity rates during the 2008-2009 and 2010-2011 school years. Overweight and obesity levels decreased from 37.5 percent in 2008 to 35.5 percent in 2009. Rates increased slightly to 36.7 percent in 2010, but remained under the 2008 level of 37.5% [19]. These rates, however, are still much higher than New York State and national overweight and obesity rates. The Centers for Disease Control and Prevention (CDC) report that nearly 16 percent of NYS high school students are overweight and 11% are obese. Nationally, the trend is reversed: 12% of 9-12 grade students are overweight and nearly 16% are obese [20].

During the 2010-2011 school year, the highest rates of obesity and overweight students in the BCSD were reported at: Public School (PS) 3, located on the West Side (73% of students were overweight (18%) or obese (55%); PS 69⁴ in South Buffalo (56%); and PS 96 on the Buffalo State College Campus (56%) [19]. See Figure 6.

4: PS96 is now closed.

Obesity Trends

Figure 6:
Rates of
Overweight
and Obese
Youth by
School

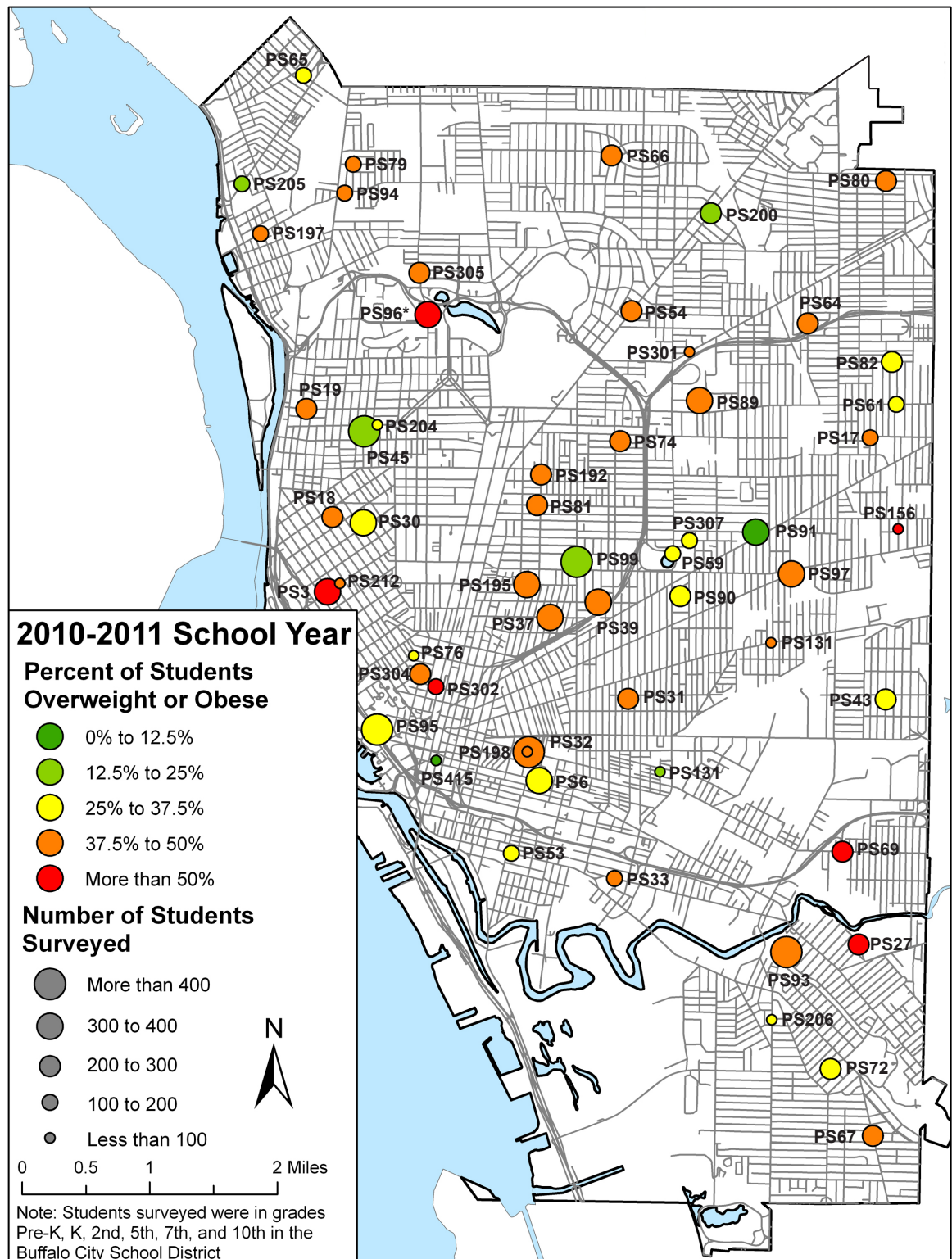
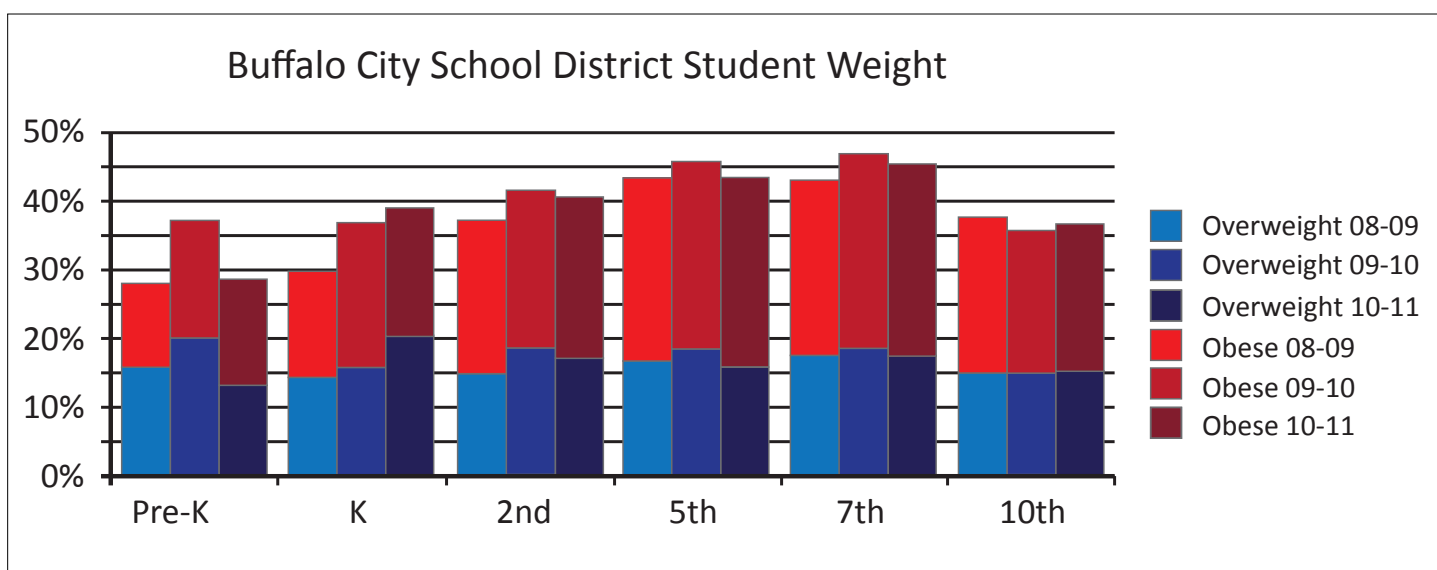


Figure 7:
Buffalo City School District Student Weights



In Buffalo, measures to prevent overweight and obesity should first target pre-adolescents, as children settle into their life-long physical activity patterns during adolescence. Physical activity programs should be promoted for both pre-adolescents and adolescents. Moreover, policy and built environment interventions that aim to decrease the rates of overweight and obese children should first target the largest schools with high rates of overweight or obese students. A balance must be found between helping schools with the largest population of obese and overweight students, and helping schools with the highest rates of childhood overweight and obesity.

Traffic and Crime

Traffic: Endangering pedestrians and bicyclists

During a one-year period, 8,705 motor vehicle accidents within city limits were reported to the Buffalo Police Department.⁵ Of those, 483 (5.6%) involved pedestrians or bicyclists. Youth were involved in 26.5 percent, or 128, of all pedestrian and bicyclist accidents with motor vehicles. Consequently, youth are involved in a disproportionate amount of pedestrian and bicyclist accidents with motor vehicles because 26.5 percent of accidents involve youth, but only 22 percent of city residents are youth [21].

Figure 8: Age of Youth Pedestrians and Bicyclists Impacted by Motor Vehicle Accidents

	Pedestrian MVA		Bicycle MVA		Combined Pedestrian and Bicycle MVA	
	<i>Ped. Age</i>	<i>MVD Age</i>	<i>Bic. Age</i>	<i>MVD Age</i>	<i>Ped/Bic Age</i>	<i>MVD Age</i>
Average	10.8	39.3	11.5	42.5	11.1	40.5
Median	12	38.5	12	39.5	12	39
Mode	15	28	11	20	11	39

The average age of youth pedestrians involved in accidents with motor vehicles (MVA) was approximately 11 years.⁶ The average youth bicyclists involved in motor vehicle accidents was 11.5 years.⁷ The average age of the motor vehicle drivers involved in the accidents was approximately 40 years.⁶ Only three pedestrian and bicycle accidents with motor vehicles involved drivers (MVD) under the age of 18 [21].

Of the 128 accidents involving youth, 80 were pedestrian with motor vehicles. Most of these occurred in the spring (March, April, and May) and the fewest occurred in the winter (December, January, and February). Pedestrian-motor vehicle accidents usually happened on Mondays or Wednesdays, while the fewest occurred on Sundays. Accidents typically occurred when children were returning home from school and most adults were returning home from work—between 3:00pm and 6:00pm. No youth pedestrian-motor vehicle accidents occurred between 3:00am and 6:00am [21]. See Figures 9-11.

5: The year beginning September 1, 2010 and ending August 31, 2011.

6: The median and mode were higher than the average age, suggesting most youth involved in accidents were actually older than 11. The median is the middle number in a sequential list of numbers. The mode is the number which occurs most often in a list of numbers.

7: Median and mode were also near 11.5.

Figure 9: Youth Pedestrian and Bicycle Accidents with Motor Vehicles (MVA): Seasons*

	Pedestrian MVA		Bicycle MVA		Bicycle and Pedestrian MVA	
	Number	%	Number	%	Number	%
Fall	19	24%	8	17%	27	21%
Winter	12	15%	1	2%	13	10%
Spring	26	33%	8	17%	34	27%
Summer	23	29%	31	65%	54	42%

Figure 10: Youth Pedestrian and Bicycle Accidents with Motor Vehicles (MVA): Days of the Week

	Pedestrian MVA		Bicycle MVA		Pedestrian and Bicycle MVA	
	Number	%	Number	%	Number	%
Monday	15	19%	7	15%	22	17%
Tuesday	13	16%	12	25%	25	20%
Wednesday	16	20%	6	13%	22	17%
Thursday	8	10%	9	19%	17	13%
Friday	8	10%	4	8%	12	9%
Saturday	13	16%	4	8%	17	13%
Sunday	7	9%	6	13%	13	10%

Figure 11: Youth Pedestrian and Bicycle Accidents with Motor Vehicles (MVA): Time of Day

	Pedestrian MVA		Bicyclist MVA		Pedestrian and Bicyclist MVA	
	Number	%	Number	%	Number	%
12:00am-02:59am	1	1%	1	2%	2	2%
03:00am-05:59am	0	0%	0	0%	0	0%
06:00am-08:59am	10	13%	1	2%	11	9%
09:00am-11:59am	8	10%	1	2%	9	7%
12:00pm-02:59pm	10	13%	12	25%	22	17%
03:00pm-05:59pm	26	33%	13	27%	39	30%
06:00pm-08:59pm	15	19%	12	25%	27	21%
09:00pm-11:59pm	10	13%	8	17%	18	14%

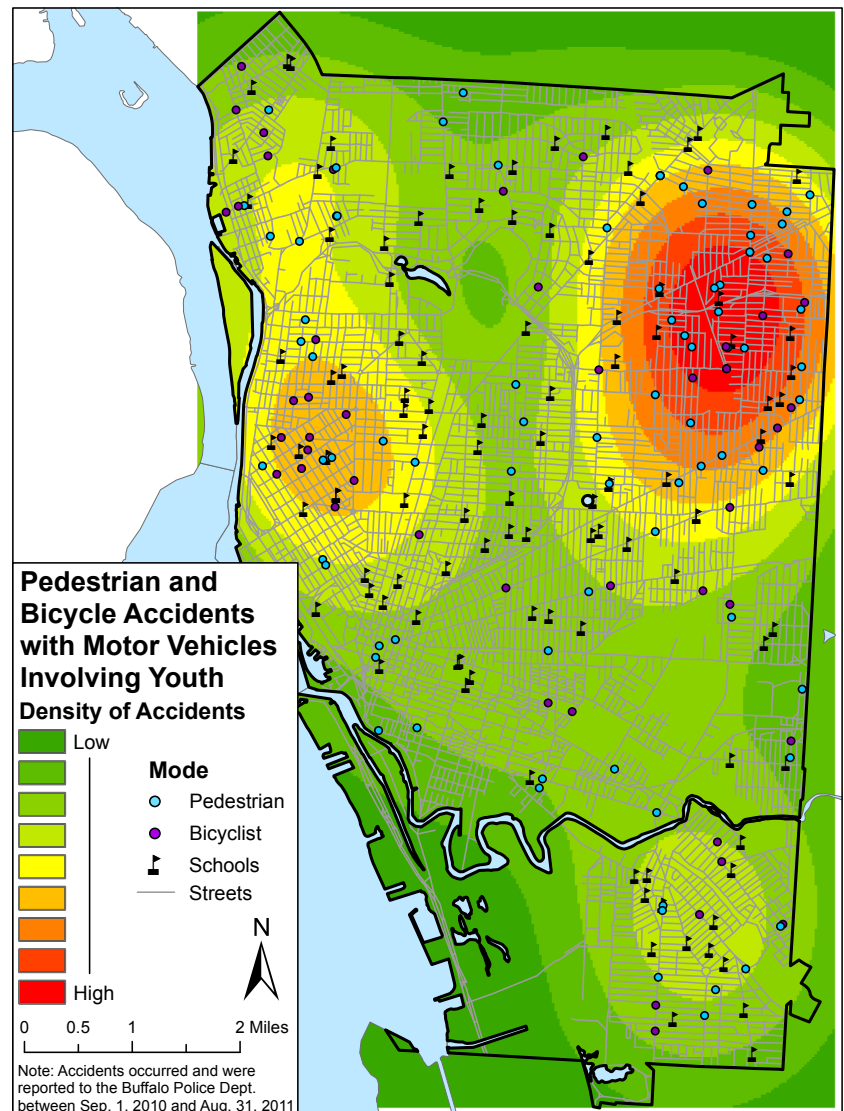
*The percentages in figures 9-11 are rounded to the nearest whole number, resulting in columns summing to values between 99% and 102%.

Barriers to Active Living

In addition to 80 pedestrian-motor vehicle accidents, youth were involved in 48 bicycle-motor vehicle accidents. Unlike pedestrian accidents, most accidents involving youth bicyclists and motor vehicles occurred in the summer (June, July, and August). The fewest occurred in the winter (December, January, and February), as few youth ride bicycles in the winter. Bicycle-motor vehicle accidents typically happened on Tuesdays, while the fewest occurred on Fridays and Saturdays. Similar to those involving pedestrians, most bicycle-motor vehicle accidents occurred between 3:00pm and 6:00pm. None occurred between 3:00am and 6:00am [21]. See Figures 9-11.

Most accidents resulted in minor injuries; however, one youth pedestrian accident resulted in death.⁸ The highest concentration of youth pedestrian and bicycle accidents with motor vehicles occurred around Bailey Avenue between Winspear and Walden Avenues. A second concentration of youth accidents occurred on the West Side between West Delavan and Porter Avenues. Thirteen accidents involved youth four years and younger. These occurred in two areas: a swath extending north from downtown to Black Rock and Riverside; and around the William L. Gaiter Parkway. Sixty-four accidents involved primary school children aged 5-13. These accidents were highly concentrated along Bailey Avenue between Minnesota and Walden Avenues. Finally, 46 accidents involved secondary school children aged 14-17. These crashes were concentrated between Bailey and Fillmore Avenues from Kenmore to Walden Avenues. A moderate concentration was also reported on the West Side [21]. Improving traffic safety, as well as pedestrian and bicycle infrastructure, in these areas would decrease youth pedestrian and bicycle motor-vehicle accidents and make the built environment safer for youth physical activity. See Figures 12-16.

Figure 12:
Pedestrian and Bicycle Crashes with Motor Vehicles
Involving Youth



8: There were an additional two pedestrian deaths involving only adults.

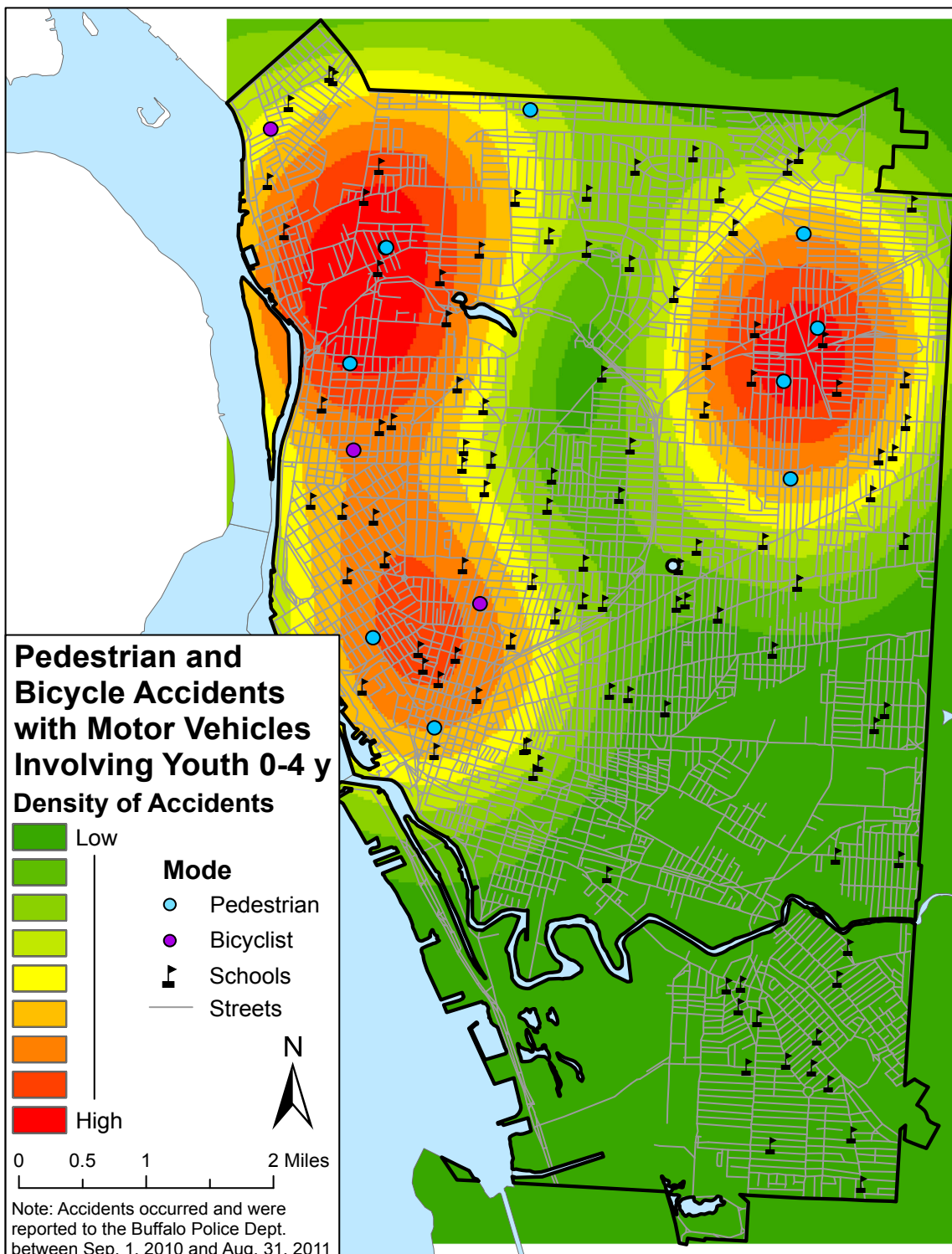
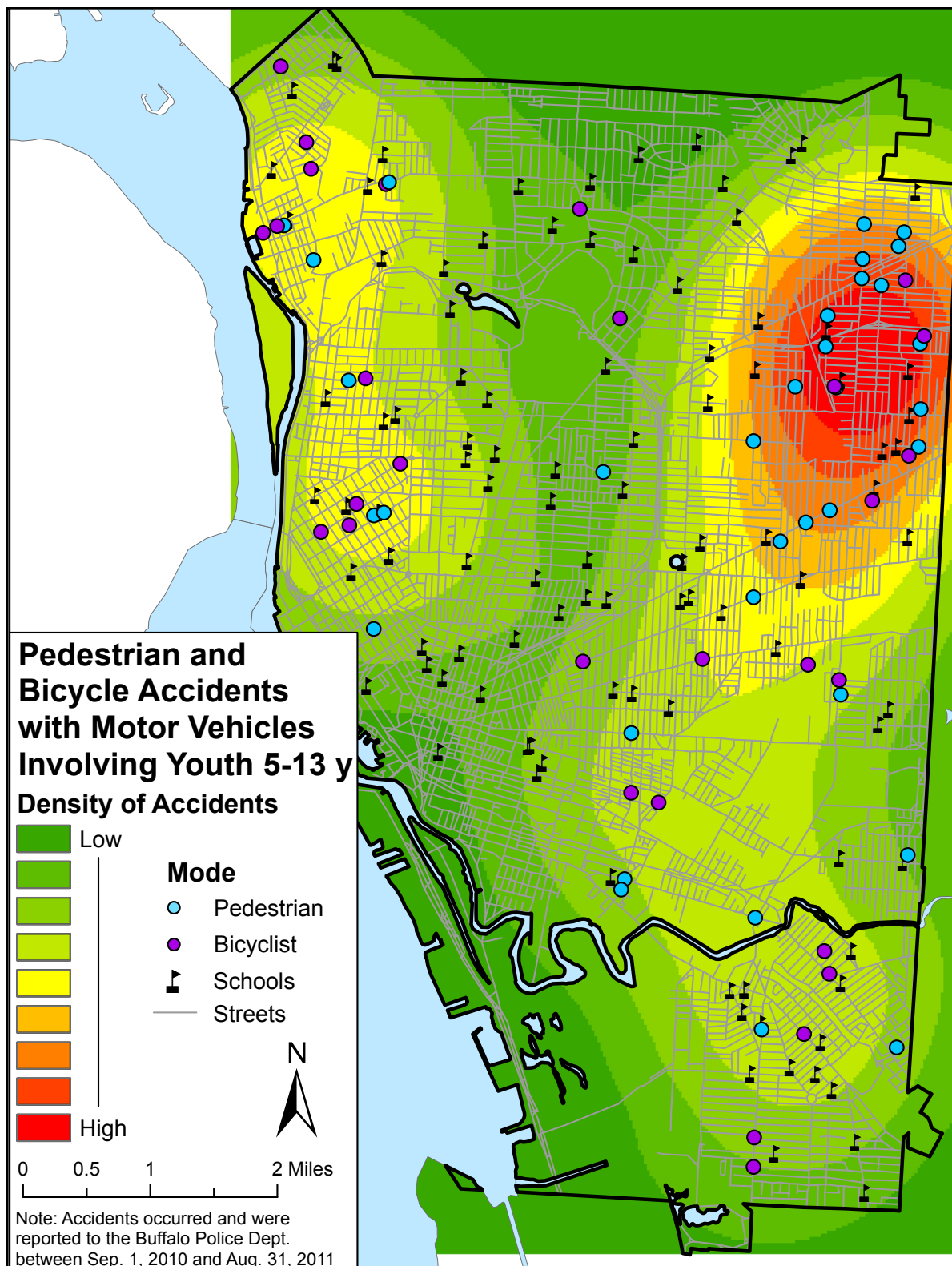


Figure 14:
Pedestrian
Accidents
with Motor
Vehicles
Involving
Youth 0-4
Years Old

Barriers to Active Living

Map 15:
Pedestrian and Bicycle
Accidents with
Motor Vehicles
Involving
Youth 5-13
Years Old



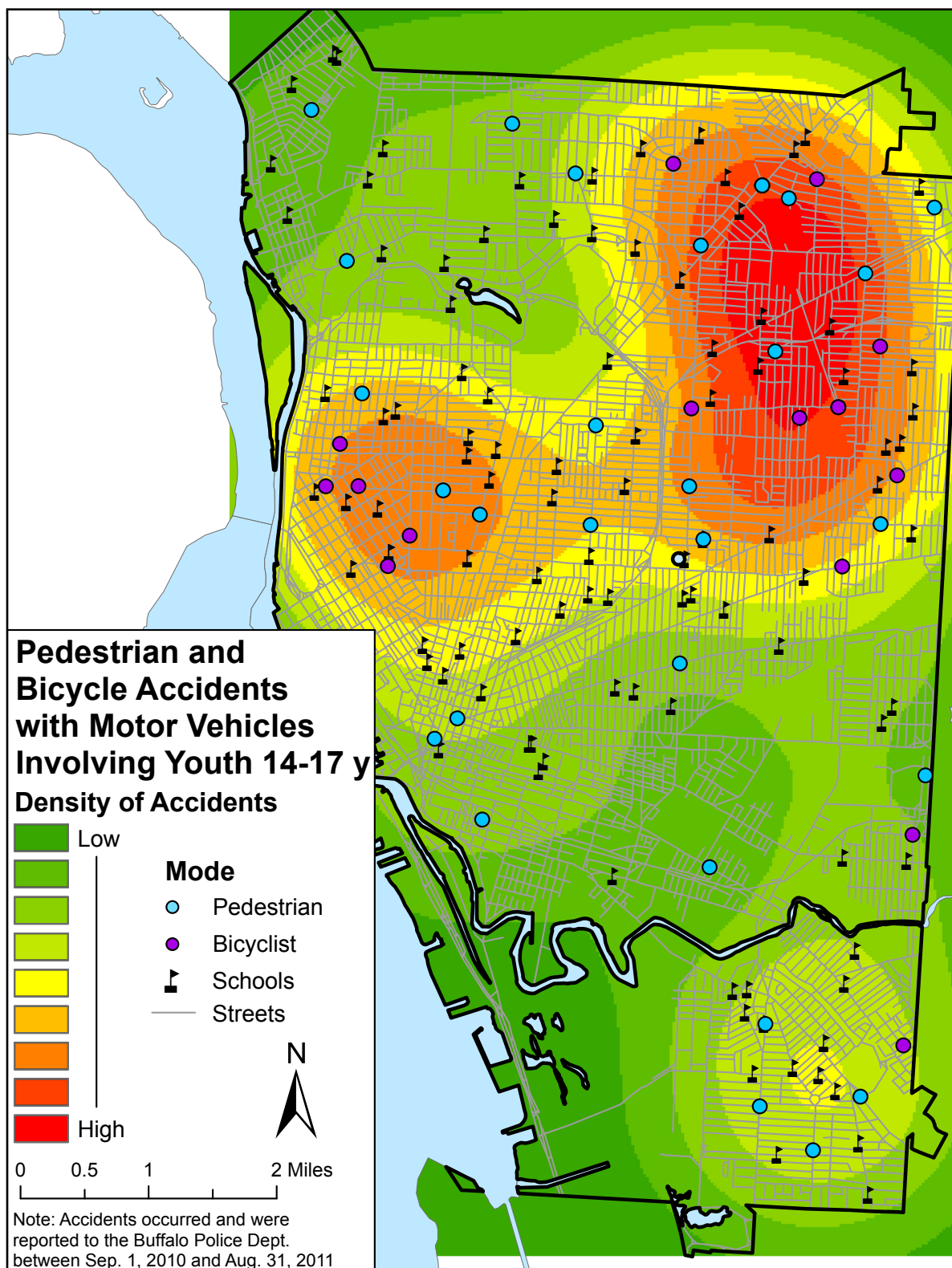


Figure 16:
Pedestrian
and Bicycle
Accidents
with Motor
Vehicles
Involving
Youth 14-17
Years Old

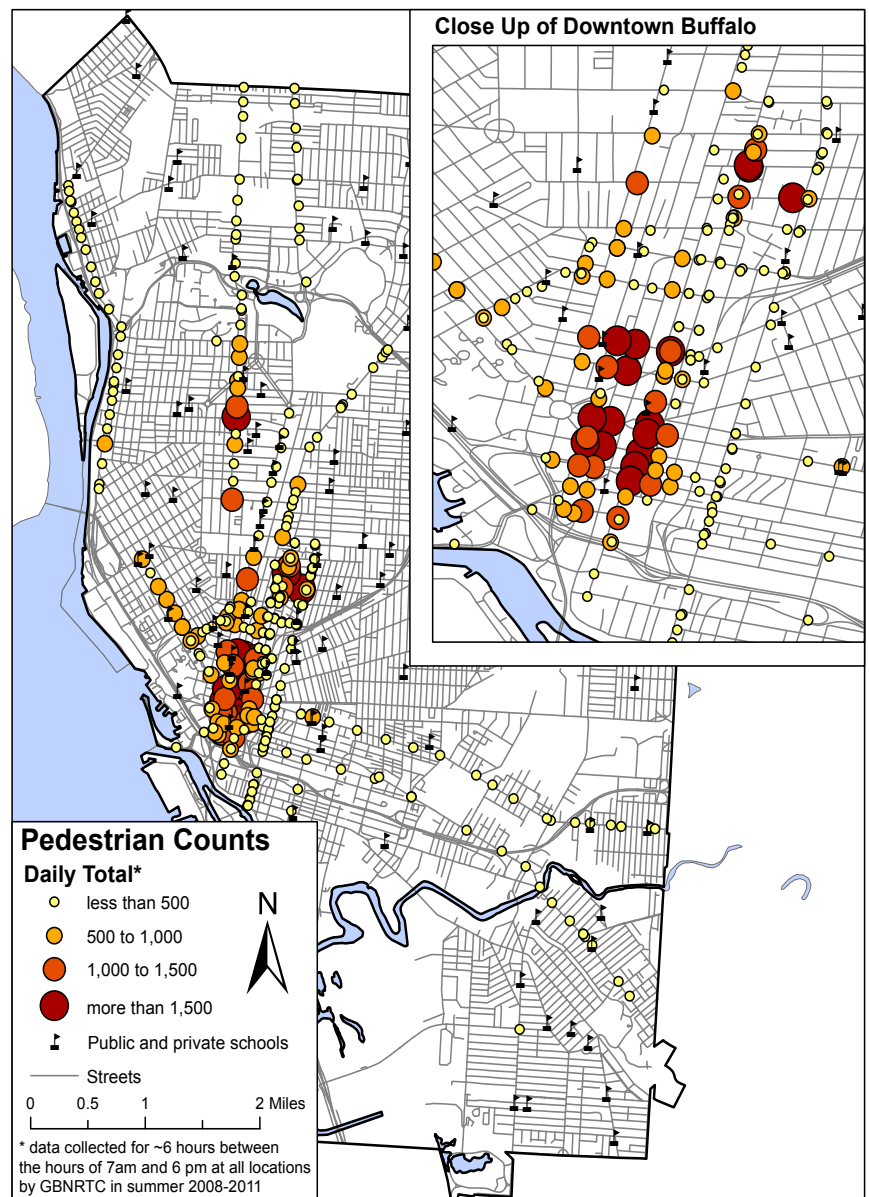
Barriers to Active Living

Model Active-Living Neighborhoods: The Elmwood Village, BNMC, and Downtown

The design and quality of pedestrian environments in children's neighborhoods impact their desire and ability to lead active lives. Pedestrian activity varies throughout the city and indicates the built environments that are conducive to walking. Pedestrian counts are high downtown, around the Buffalo Niagara Medical Campus (BNMC), and in the Elmwood Village [22].

Compared to weekends and evenings, downtown's pedestrian traffic is heavier on the weekdays during traditional work hours. This may be attributed to the concentration of offices and service destinations, rather than a well-designed pedestrian environment. The BNMC, conversely, has made considerable effort to improve its pedestrian environment, as seen in the campus's improved sidewalk infrastructure and construction of the linear Ellicott Park. Still, most of the campus's pedestrian activity likely results from a high concentration of health-care related research and service facilities. High pedestrian counts in the Elmwood Village, however, are most likely attributable to the high density of shops, restaurants, and residents, as well as the neighborhood's active living culture. Conversely, pedestrian counts on many of the City's arterial streets show low to moderate amounts of pedestrian traffic. This is due to factors such as: a lack of densely-arranged desirable destinations; a poorly designed pedestrian environment; and barriers like high volumes of traffic or crime [22].

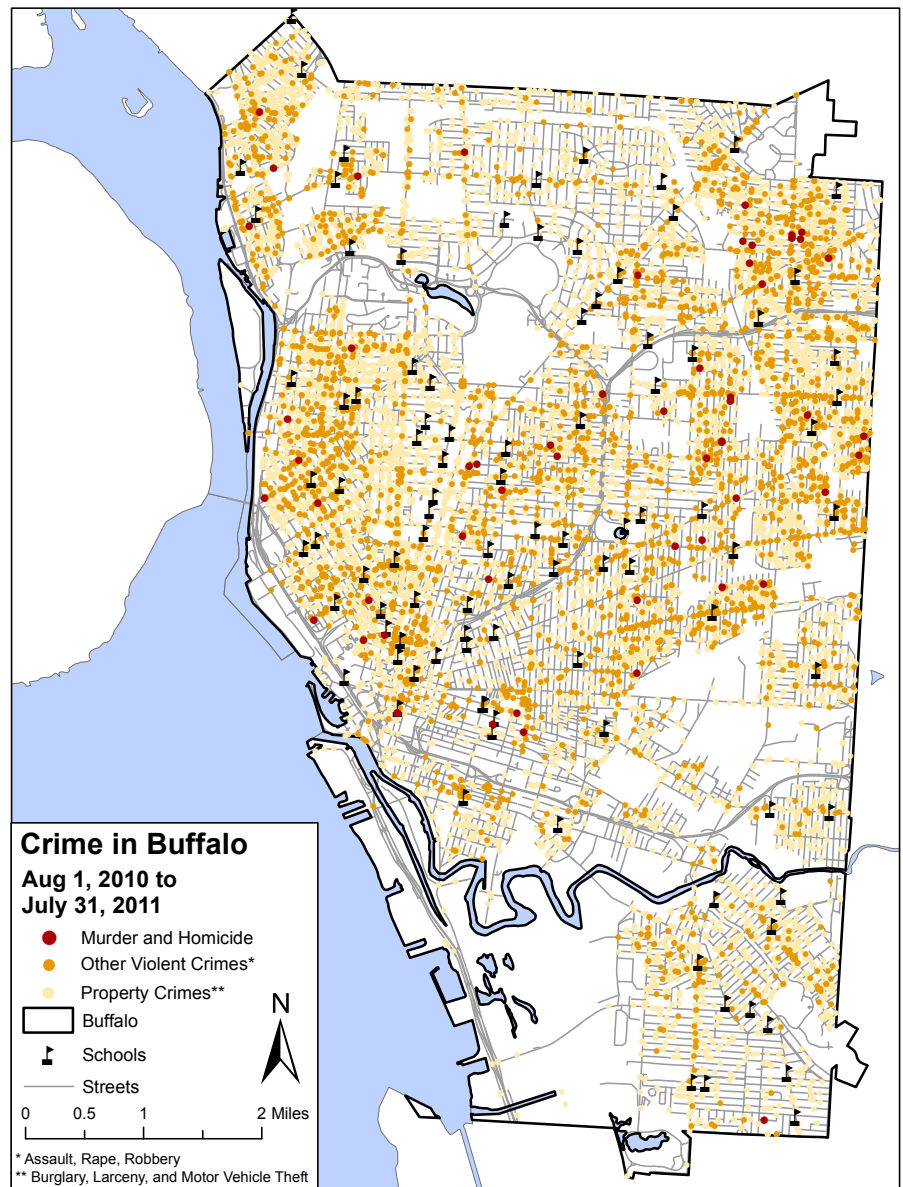
Figure 13:
Pedestrian Counts Along Major Streets



Crime: A major barrier to youth physical activity

Parents' fears about their children's safety negatively impact children's physical activity. Compared to parents who feel their neighborhood is safe, parents who feel their neighborhood is unsafe are less likely to allow their children to go outdoors to be active. From 8/1/2010 to 7/31/2011, 17,432 crimes were reported in the City of Buffalo. Of these crimes, 81.7 percent were property crimes (burglary, larceny, and motor vehicle theft). An additional 18.0 percent were violent crimes, such as assault, rape, and robbery. Murder and homicide accounted for only 0.3 percent of all reported crimes [23].⁹ The highest densities of violent crime (including homicide or murder) were reported in the City's West and East Sides. Murders and homicides were densely clustered on the East Side in an area bounded by Kensington Avenue and Genesee Street, and Fillmore and Bailey Avenues. Improving safety—as well as people's perceptions of safety—between Kensington Avenue and Genesee Street has great potential to increase opportunities for youth to engage in active living.

Figure 17:
Location of Crimes in Buffalo



9: More crimes were reported two years ago. Between August 1, 2008 to July 31, 2009, 18,008 crimes were reported in the City of Buffalo. While the spatial density of violent crimes has remained similar between 2008/2009 and 2010/2011, the density of murders and homicides shifted north, with an increased density in downtown Buffalo.

Barriers to Active Living

Figure 18:
Density of Violent Crimes

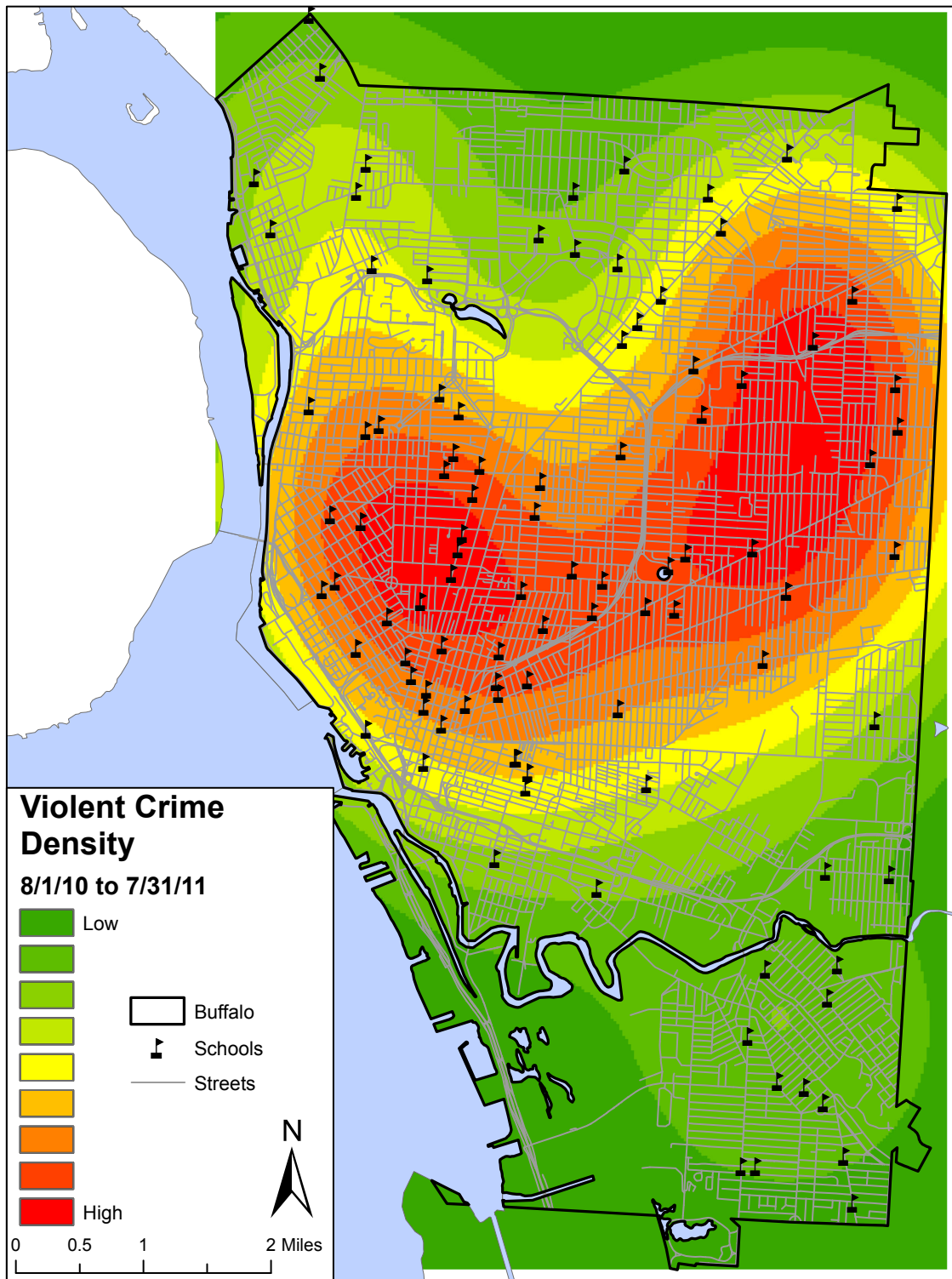
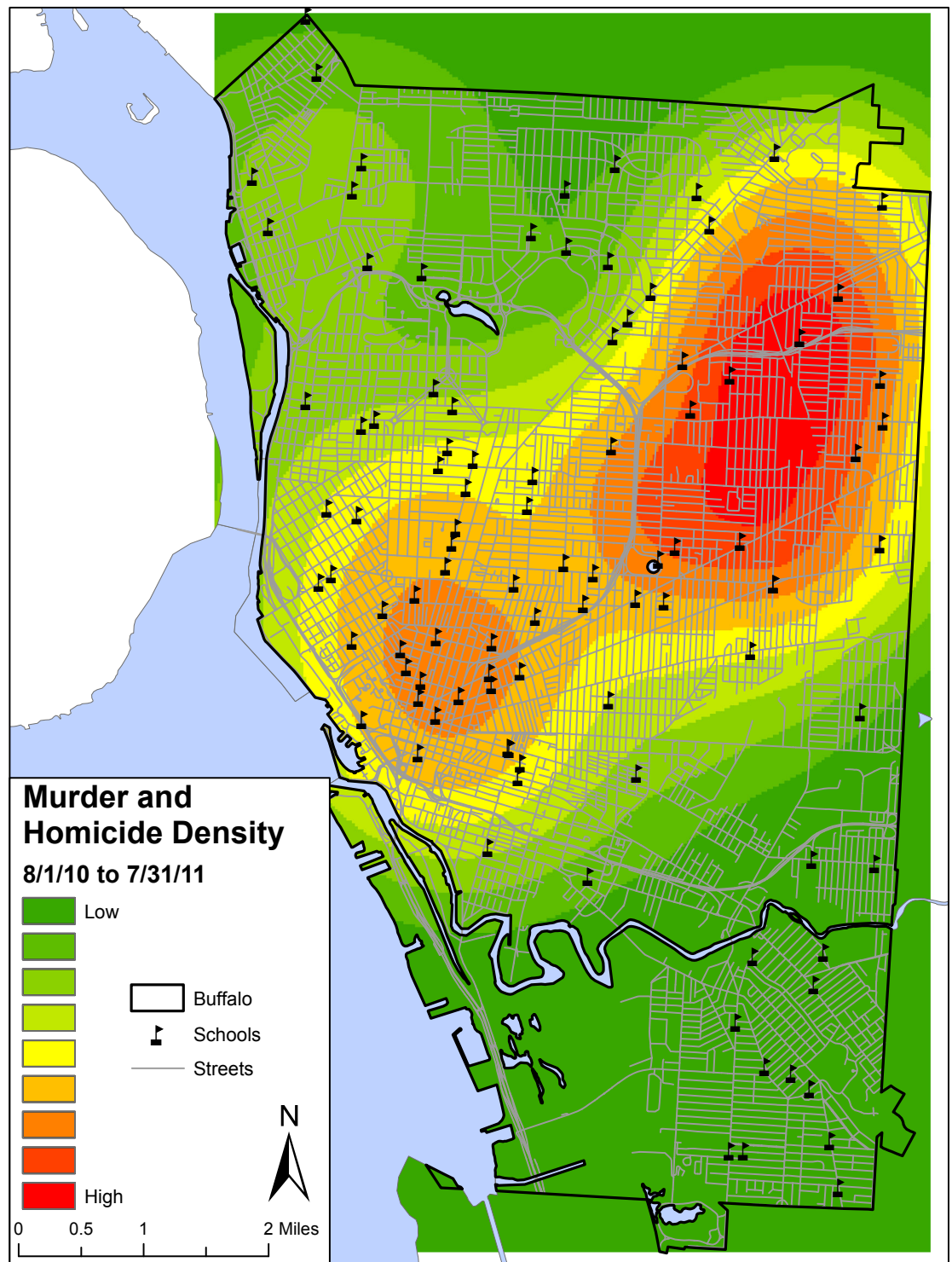


Figure 19:
Density of Murder and Homicide

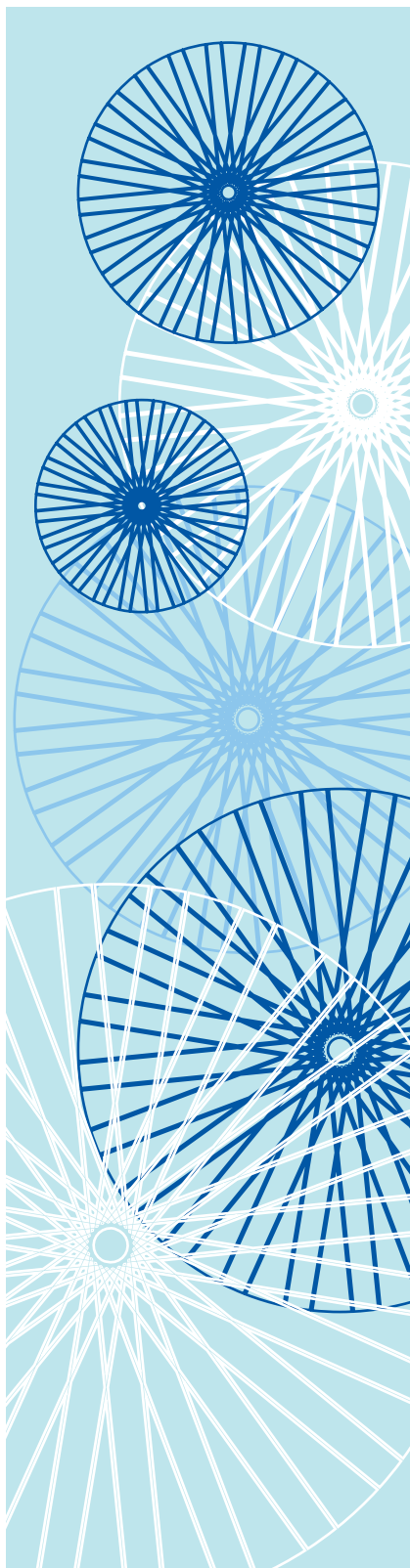


Conclusion

Most Buffalo youth do not engage in enough physical activity each day to be healthy. Compared to youth in New York State and around the U.S., a higher proportion of Buffalo youth are obese and overweight. For many of Buffalo's children, getting enough physical activity is a challenge. Opportunities to be physically active are limited by poverty, school and public policies, transportation systems, safety concerns, and the poor quality of the built environment. This report illuminates specific impediments to youth physical activity, such as:

- * Buffalo's youth bear a disproportionately high burden of poverty, which impacts their ability to be physically active. Poor families may not have enough money to pay for children's community sports league fees and to purchase transit passes for children to travel to games or practices. Compared to wealthier families, poor families more often live in high-crime areas with unsafe traffic conditions, impacting the safety of outdoor physical activity.
- * The BCSD's physical education requirements do not meet minimum national physical activity recommendations for youth. In order to be healthy, youth must obtain physical activity outside of the school setting.
- * The absence of neighborhood schools in the BCSD makes walking and biking to school a challenge, limiting children's active living options.
- * Several large areas of the City of Buffalo are unsafe pedestrian and bicycle environments. Youth were involved in a disproportionate amount of pedestrian and bicycle accidents with motor vehicles.
- * Large swaths of Buffalo are home to high densities of violent crime. In high crime areas, children are less likely to go outside to be physically active.
- * People's perceptions are created by a mixture of their personal beliefs and knowledge. Parents' perceptions of traffic and crime safety impact youth physical activity. Parents fearful of traffic danger and criminal activity in their neighborhood are unlikely to allow their children to play or walk outside.

Unless policy and environmental changes are made to support increased youth physical activity, Buffalo's children face severe health consequences. Their chances of struggling with heart disease, cancer, and type-2 diabetes can be greatly reduced if policy makers increase and improve children's options for active living and physical activity.



Policy makers can consider the following ideas to increase children's physical activity levels:

- * **Make community sports leagues more affordable to poor families and children, such as by working with health insurance companies to subsidize community sports leagues for children from families on Medicaid.**
- * **Provide more physical activity time during school in the BCSD by instituting daily physical education classes or unstructured on-site play for all BCSD students.**
- * **Give children the opportunity to walk and bike to schools by reinstituting the neighborhood-based school system. Any savings resulting from reduced expenditures on bus transit could be redirected towards improving BCSD school quality.**
- * **Improve traffic safety in the areas with the highest densities of motor vehicle accidents (MVA) with pedestrians and bicyclists. Some strategies include: decreasing speed limits; adding traffic lights; methodically ticketing traffic violations; crafting bump-outs; re-striping road markings; improving sidewalk quality; widening and planting the buffer-area between the sidewalk and street; and adding bicycle lanes.**
- * **Decrease crime by increasing police presence, promoting neighborhood watch groups, and working with neighborhood leaders to build community capacity to deter crime.**
- * **Develop an effective and accurate system to share information about crime, and pedestrian and bicycle MVAs, so parents can make informed decisions about where they encourage their children to play.**

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