

# Bicentennial Elementary School Safe Routes to School Travel Plan

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Prepared by the  
 **Nashua Regional Planning Commission**

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## BICENTENNIAL ELEMENTARY SCHOOL SAFE ROUTES TO SCHOOL TRAVEL PLAN

### A. BACKGROUND

The purpose of the Bicentennial Safe Routes to School Travel Plan is to develop a strategy for encouraging a greater number of students to walk and bicycle to and from school. The U.S. Department of Health and Human Services recommends at least 60 minutes of physical activity for children every day. The reason this is important is because physical exercise, such as biking and walking, can help prevent heart disease, as well as other chronic diseases such as diabetes, hypertension and depression. Physical activity also helps to build and maintain healthy bones and muscles and promotes psychological well-being. Developing a healthy physical lifestyle at an early age tends to stay with individuals throughout their lifetimes.

Despite these benefits, the Centers for Disease Control and Prevention (CDC) report that of children age 9 to 13 years, 62% do not participate in any organized physical activity and 23% do not participate in any free-time physical activity outside of school hours.

The Safe Routes to School (SR2S) program encourages children to bike or walk to school through education and incentives that remind children how much fun biking and walking can be. The program also addresses the safety concerns of parents by encouraging greater enforcement of traffic laws, exploring ways to create safer streets and educating the public about safe biking, walking and driving practices. The Safe Routes program uses a combination of education, encouragement, enforcement, engineering and evaluation (the 5E's) activities to help achieve the goal of increased physical activity among children. The 5E's will be more fully discussed later in this report.



### B. BICENTENNIAL ELEMENTARY SCHOOL

Bicentennial Elementary School is located in the south-central section of Nashua, New Hampshire (Maps 1-1a, 1-1b). It is part of a "neighborhood" school system and is therefore surrounded by a network of residential streets that are generally pleasant and walkable. East Dunstable and Lamb Roads, however, present significant barriers to walking or biking for children who live to the west and south of the school.

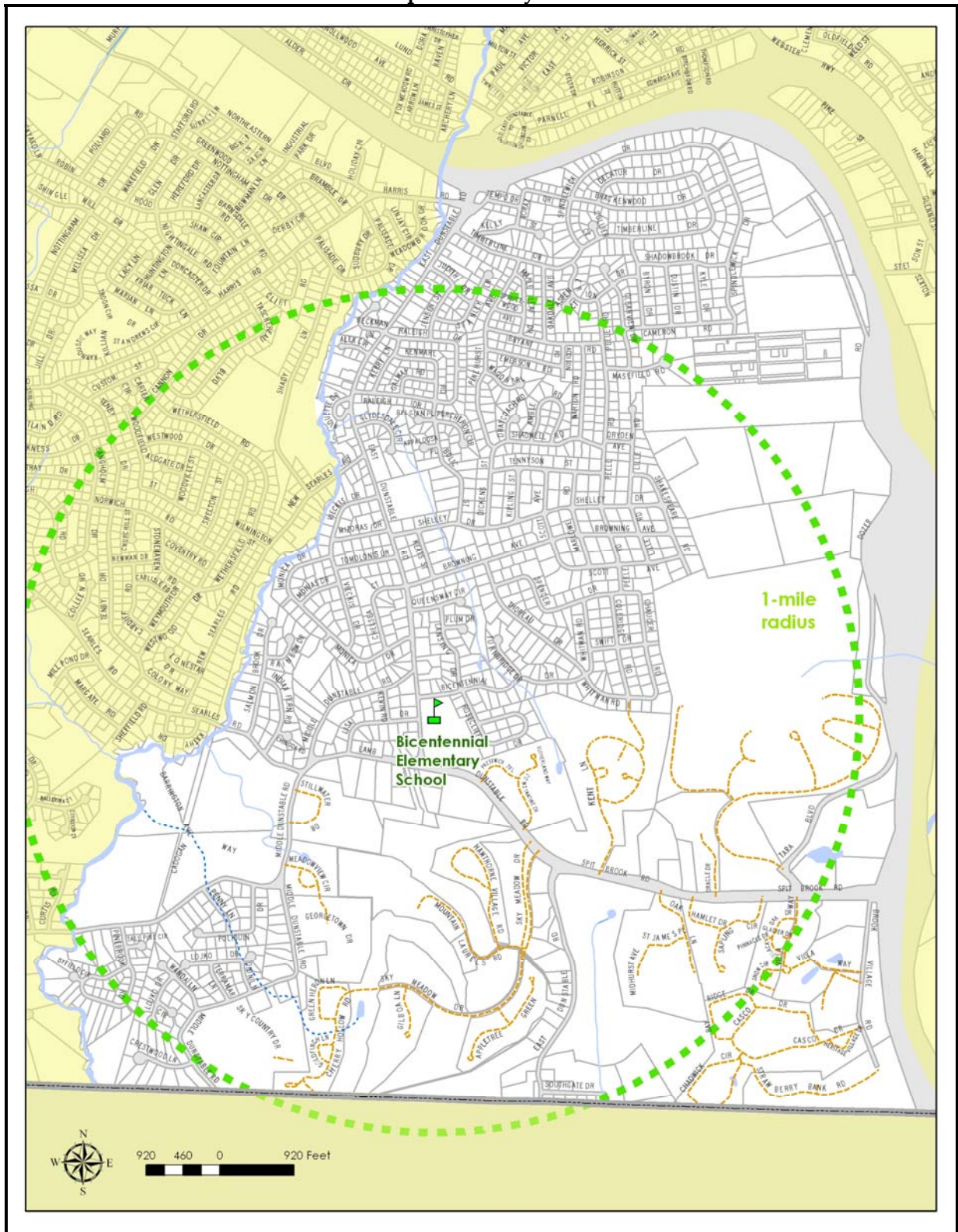
The school, not including kindergarten, has an enrollment of approximately 530 students in grades 1-5. Approximately 118 students (22%) live within a one mile radius of the school. Children who live within the one-mile radius are considered "walkers" and are technically not eligible to ride the bus to school.



Map 1-1a shows the border of the Bicentennial Elementary School neighborhood. Children who live within the un-shaded area attend Bicentennial. Map 1-1b shows a closer view of the school and includes an aerial view of sidewalks, crosswalks, paths and the school driveways.

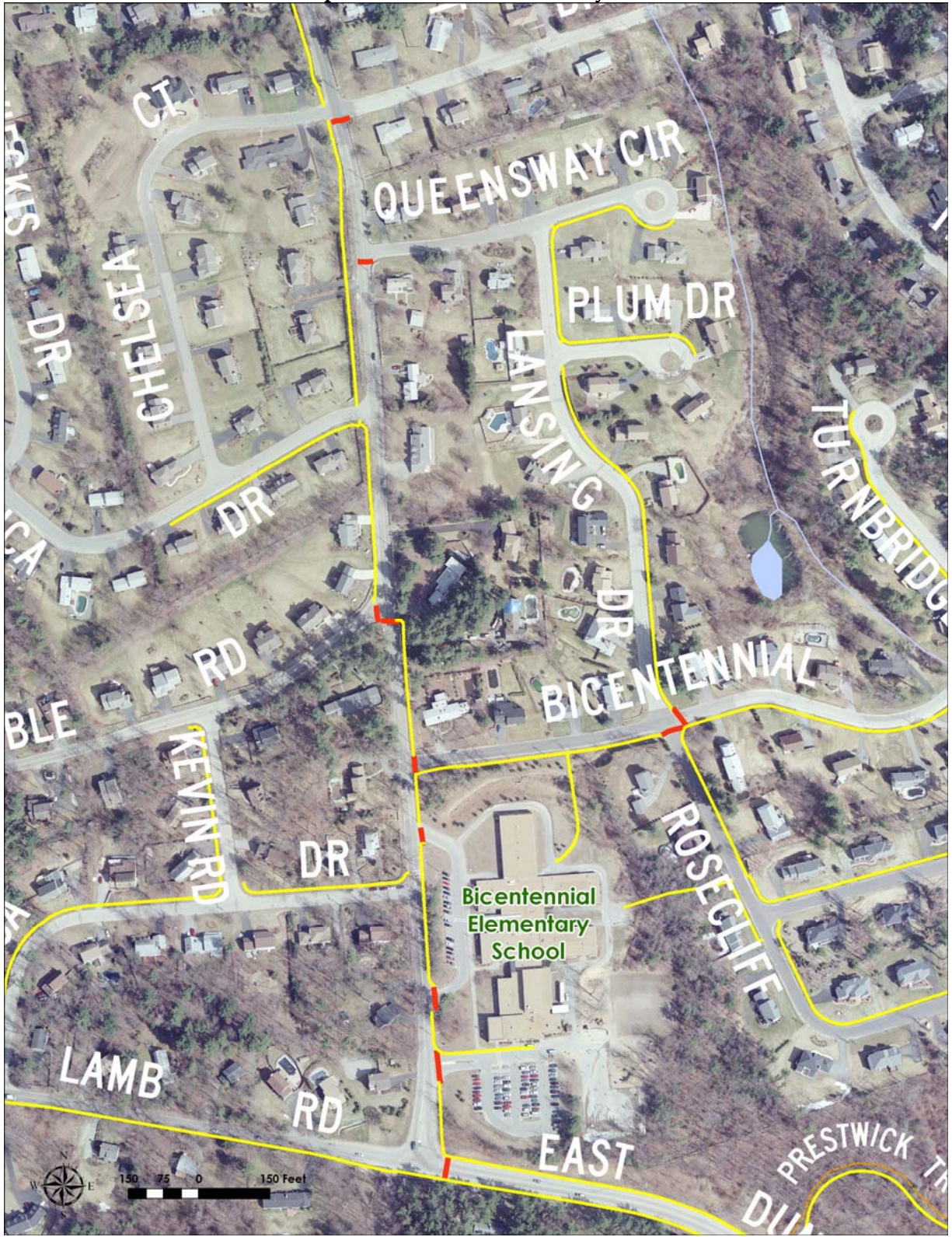


Map 1-1a: Study Area





Map 1-1b: Aerial View of Study Area





## C. GOALS OF THE STUDY

There are several major goals of this study:

- To increase the number of students who use non-motorized transportation to get to and from school;
- To ensure the safety of students on their way to and from school;
- To improve children's fitness and health;
- To provide recreation and fitness opportunities close to home, and;
- To protect the environment by reducing dependency on motor vehicles.



## D. STUDY PROCESS

The study process was designed to gather information from students and their parents regarding the trip to and from school. A physical inventory of the existing traffic and sidewalk conditions was also conducted. Input from the community was also gathered with the help of the Safe Routes Task Force, Bicentennial PTO, SAU safety committee and the City of Nashua. The specifics of the study process are as follows:

- An in-class survey was administered to all students in grades 3 through 5 during the week of March 2<sup>nd</sup>, 2009. Approximately 255 students were surveyed. The purpose of the surveys was to gather specific information regarding students' trips to and from school, as well as children's attitudes regarding the trip.
- Students were also given a take-home mapping exercise to complete with the assistance of their parents. The map was of the Bicentennial neighborhood and the students were asked to draw their route to school on the map, regardless of the mode (walk, bike, car, bus) of transportation. Students were also asked to indicate on the map locations that were perceived to be dangerous.
- Parent surveys were sent home along with the mapping assignment. The parents were asked various questions regarding how their children get to and from school, why their child uses that particular mode of transportation, and parents general attitudes about biking and walking. Parents were also asked how *they* got to school as children and how they would like to see their children get to school in an "ideal" Nashua.
- NRPC conducted a field survey of the existing sidewalk conditions within walking distance (approximately 1-mile) of the school. The inventory was conducted during the month of June, 2009.
- Preliminary findings were presented to the Bicentennial Safe Routes to School Task Force on August 6<sup>th</sup> and 27<sup>th</sup>, 2009.
- Preliminary findings were presented to the Bicentennial School Parent Teacher Organization on September 8<sup>th</sup>, 2009.
- NRPC staff provided draft of this report to Nashua Public Works staff in order to identify realistic improvements to road surface, sidewalks and crosswalks.
- NRPC Staff provided draft of this report to SAU Safety Committee for comment





- NRPC staff provided draft of this report to City of Nashua Community Development Division staff in order to coordinate goals and objectives of the Safe Routes project that overlap with those of the Community Development Division.

## E. STUDY FINDINGS

### 1. Student Attitudes and Travel Patterns

When students were asked how they typically get to school in the morning, 8% said they walk, 1% ride bikes, 54% ride the bus and 36% are driven (Figure 1-1). When asked how they get home from school in the afternoon, 11% said they walk, <1% bike, 61% ride the bus and 27% are driven (Figure 1-2).

When students were asked how they would like to get to school (Figure 1-3), 14% said they would prefer to walk, 22% bike, 28% take the bus, 24% would like to be driven and 12% said some other non-motorized (inline skate, skateboard) mode.

Currently, only about 10% of students use non-motorized transportation to get to school as opposed to 48% who say they would like to walk, ride their bikes, or use some other form of non-motorized transportation to get to school.

Figure 1-1: How Do You Get to School?

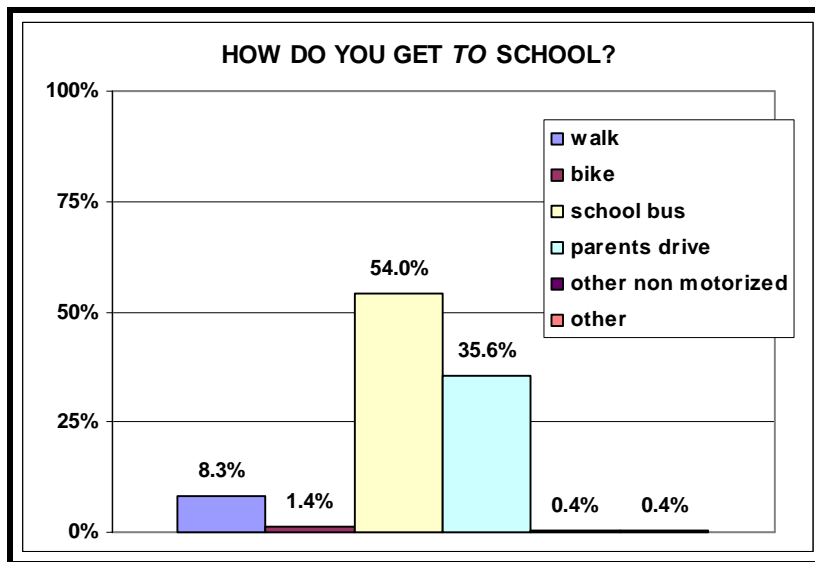




Figure 1-2: How Do You Get Home From School?

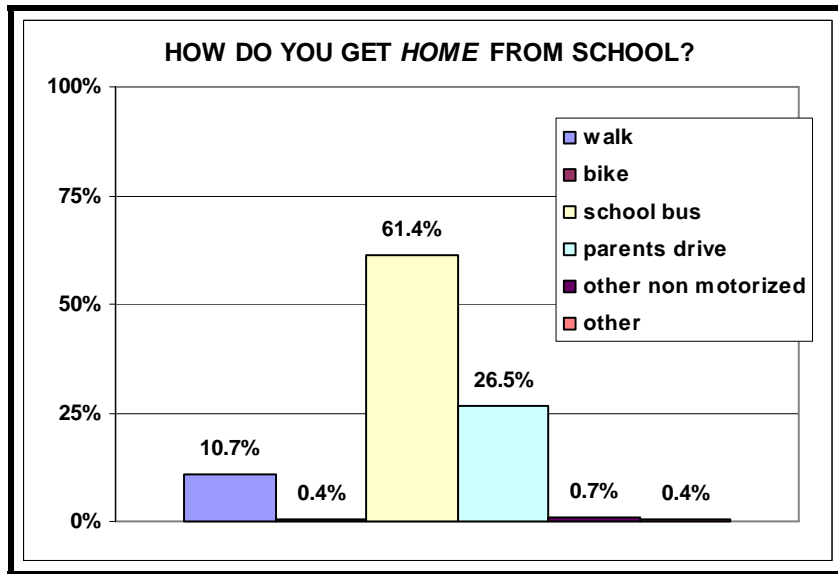
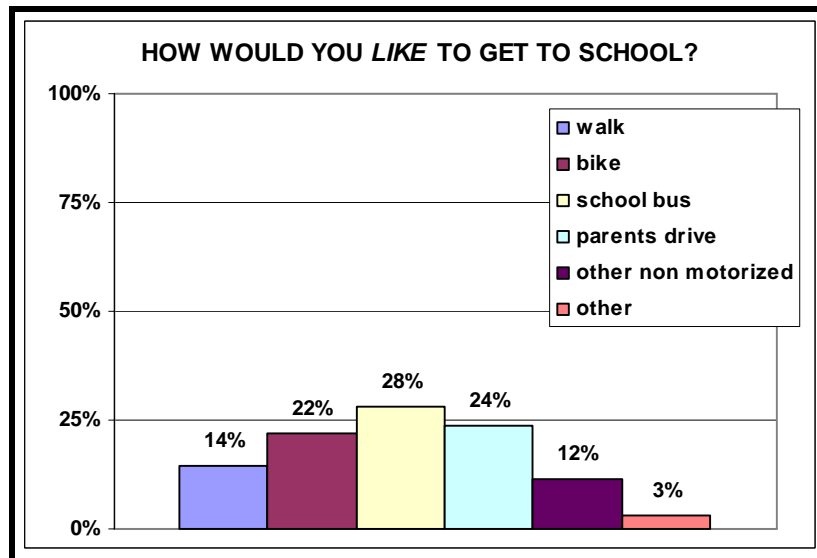


Figure 1-3: How Would You Like to Get to School?





When the students were asked if walking is fun or boring 73% said fun and 27% said boring. (Fig.1-4). when asked if walking is cool or not cool 74% said it is cool and 26% said not cool (Fig. 1-5).

Figure 1-4: Walking is Fun/Boring

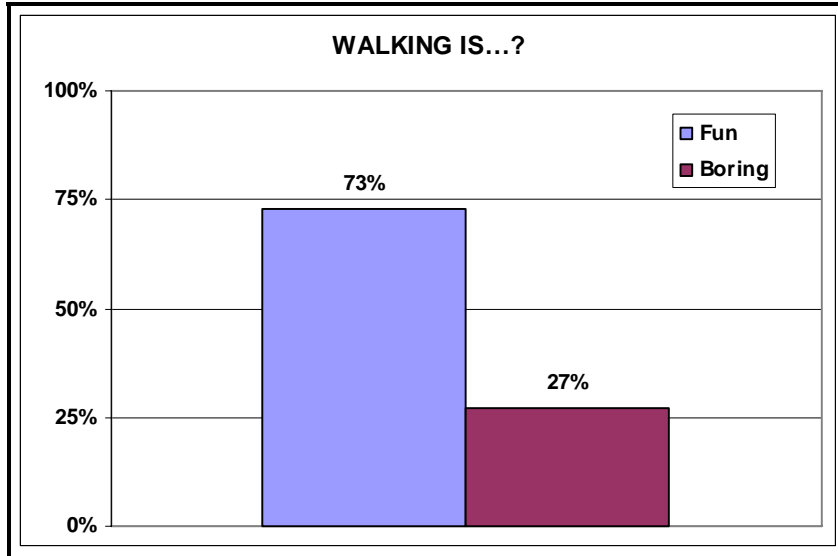
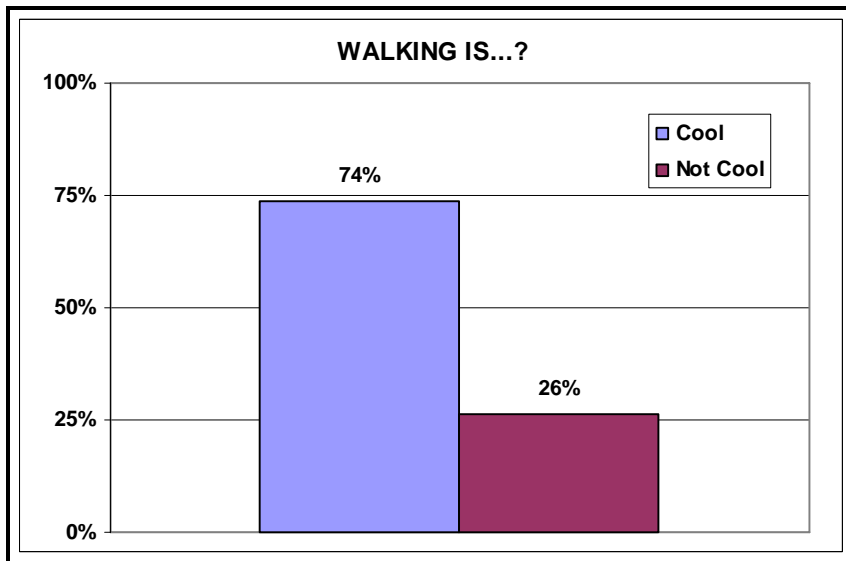


Figure 1-5: Walking is Cool/Not Cool





When the students were asked if biking is fun or boring 93% said fun and 7% said boring. (Fig.1-6).  
when asked if biking is cool or not cool 88% said it is cool and 12% said not cool (Fig. 1-7).

Figure 1-6: Biking is Fun/Boring

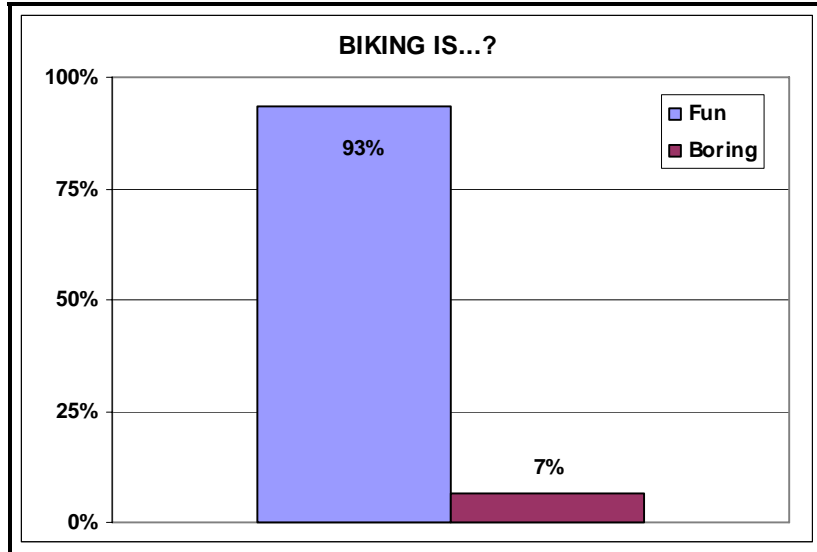
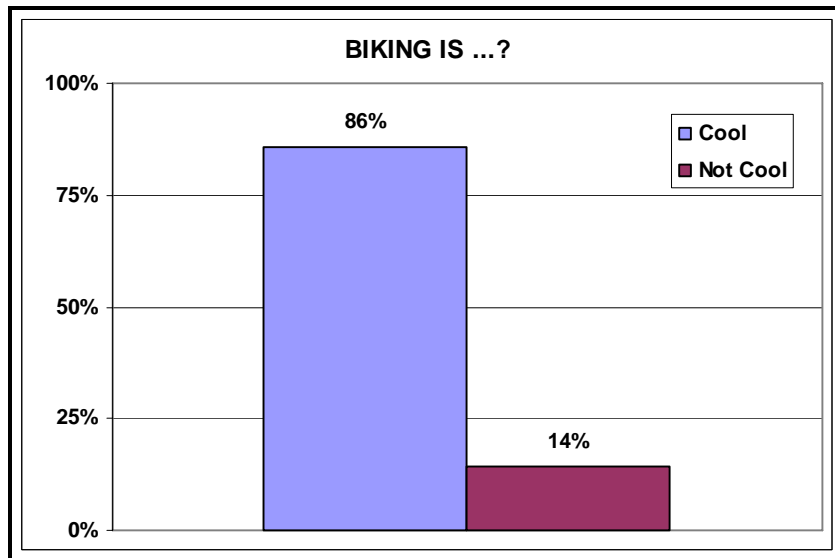


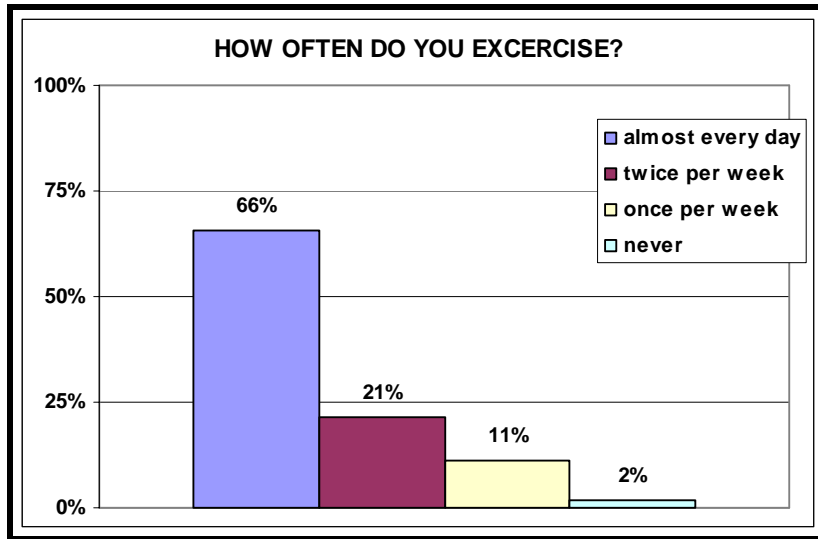
Figure 1-7: Biking is Cool/Not Cool





When the students were asked how often they exercise when not at school, 66% said they exercise every day (Figure 1-8). This combined with 48% saying they would like to use non-motorized transportation to get to school, is a clear indication that students are willing and able to bike or walk to school more often than they do at this time.

Figure 1-8: How Often Do You Exercise?

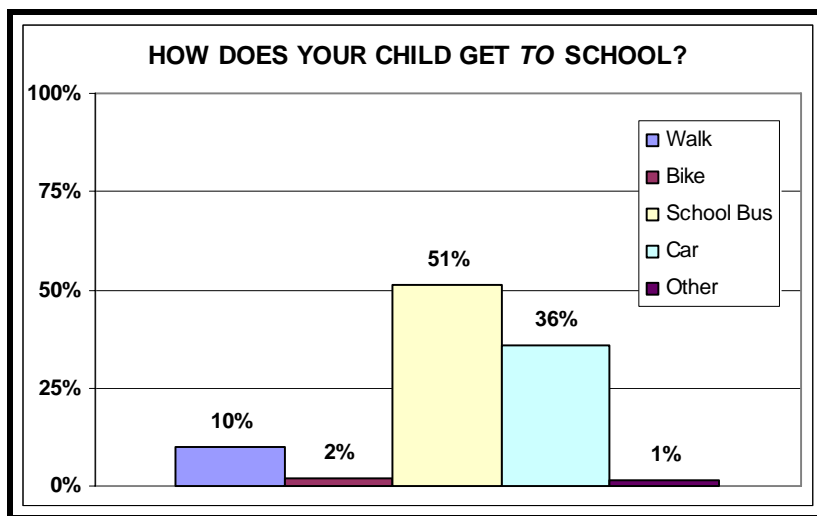




## 2. Parent Attitudes and Concerns

When parents were asked how their children travel to school, 10% said they walk, 2% bike, 51% take the bus and 36% are driven in the family vehicle (Figure 1-9). This is very similar to how children responded to the same question.

Figure 1-9: How Does Your Child Get to School?



When parents were asked how *they got to school* as children 44% of parents said they walked (only 10% of *their children* walk), 39% took the school bus and only 11% were driven in a car (Figure 1-10).

Figure 1-10: How Did Parent Get to School?

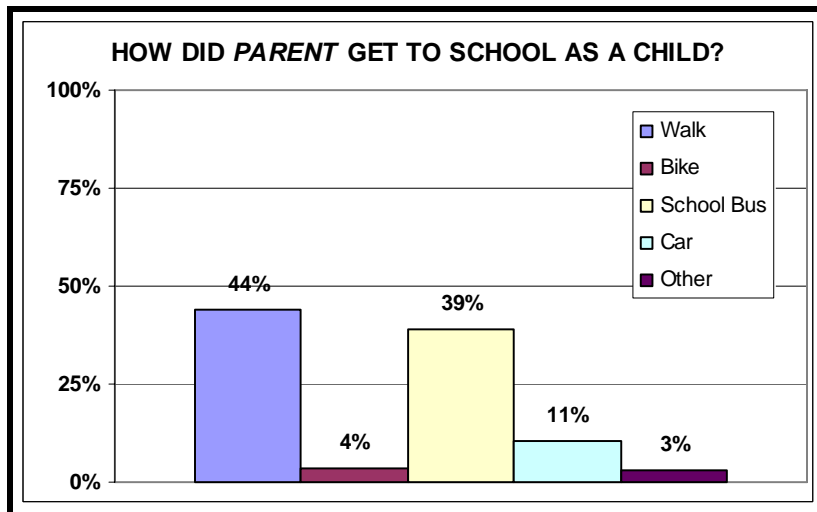




Figure 1-11 indicates that most parents believe that walking and biking to school is dangerous. Parents were asked why they consider this to be true. Twenty nine percent cited traffic concerns (traffic speed, volume), 26% sidewalk conditions (gaps in sidewalk system/sidewalks in disrepair/sidewalks not plowed in winter), 17% cited danger crossing the street (no crossing guard, sight distance), and 10% cited fear of crime, strangers and bullies (Figure 1-12).

Figure 1-11: Is Walking/Biking to School Safe?

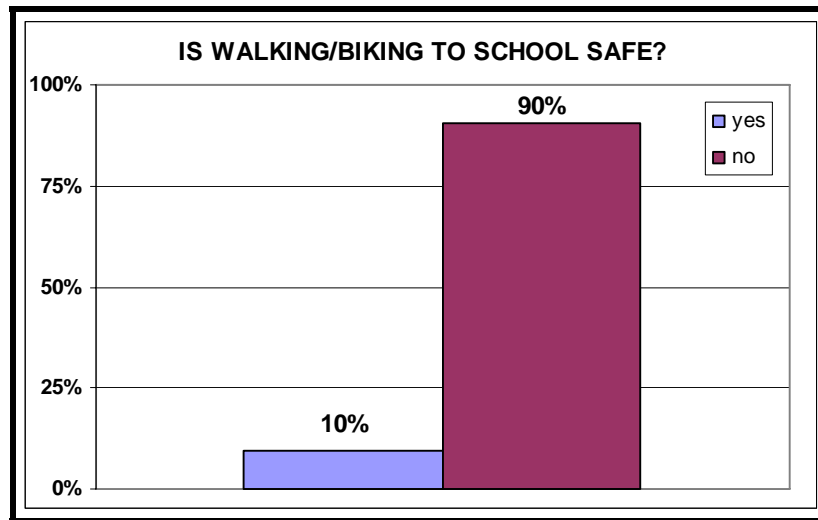
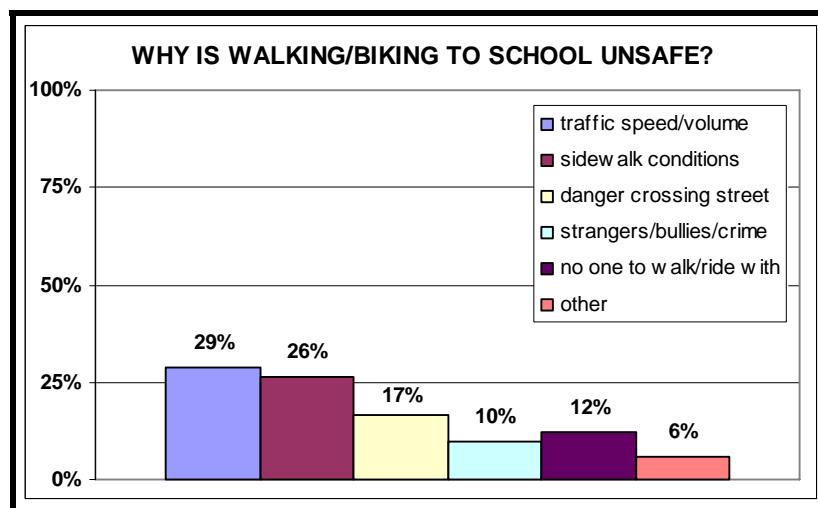


Figure 1-12: Why is Walking/Biking Unsafe?



Even though parents have significant concerns about the safety of walking and biking to school given existing conditions, when asked how they would *like* their children to get to school (in an ideal Nashua), 57% would like them to take the bus and only 6% would prefer to drive them (Figure 1-13). A significant percentage (36%) of parents surveyed said they would prefer their child walk or ride a bike to school. Additionally, 24% of parents said they would allow their child to walk to school if the



route were to be improved, and 36% said they would “maybe” allow them to walk if the route were improved (Figure 1-14). Combined with the fact that 48% of children said they would prefer to walk/bike/skateboard to school, there seems to be an opportunity for increasing the number of students who would travel to school in a non-motorized fashion.

Figure 1-13: In An Ideal Nashua

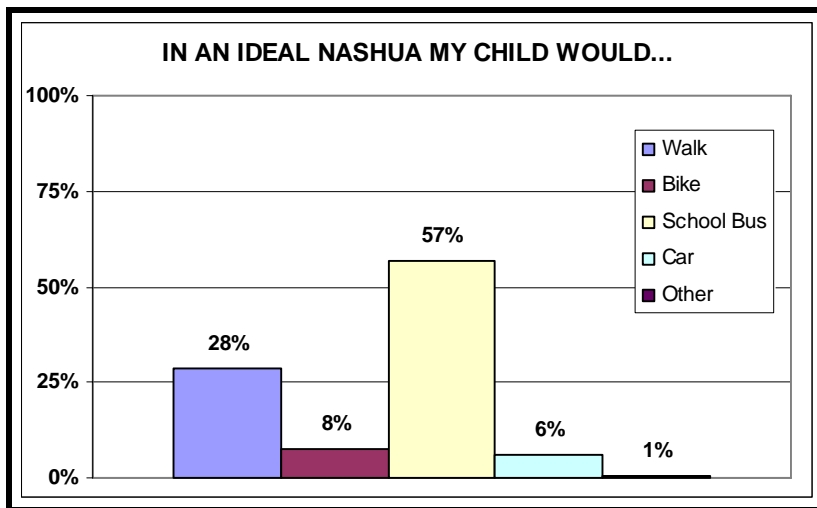
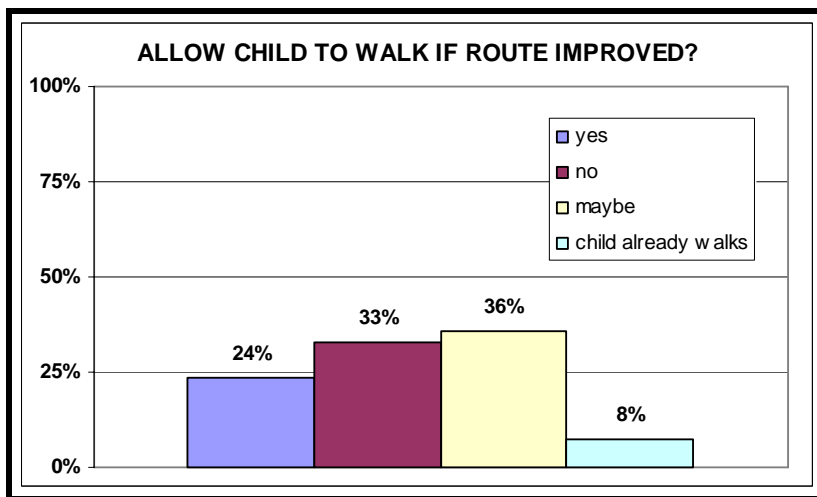


Figure 1-14: Allow Child to Walk/Bike if Route Improved?





Parents were also asked how they feel about the potential developmental health benefits of walking/biking to school. When asked if they agree or disagree that walking/biking helps to increase alertness in school, 42% said they agree or strongly agree and only 15% said they disagree or strongly disagree (Figure 1-15).

When asked if they agree or disagree that walking/biking at an early age helps develop a healthy lifestyle 76% either agree or strongly agree and only 11% disagree or strongly disagree (Figure 1-16).

When asked if they agree or disagree that walking/biking help develop a sense of self-reliance 70% either agree or strongly agree and only 16% disagree or strongly disagree (Figure 1-17).

Figure 1-15: Walking/Biking Helps Increase Alertness?

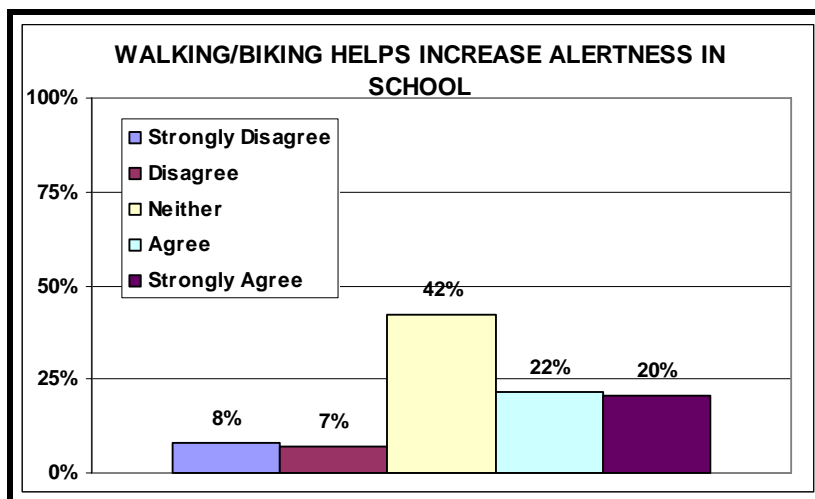


Figure 1-16: Walking/Biking Helps Develop Healthy Lifestyle?

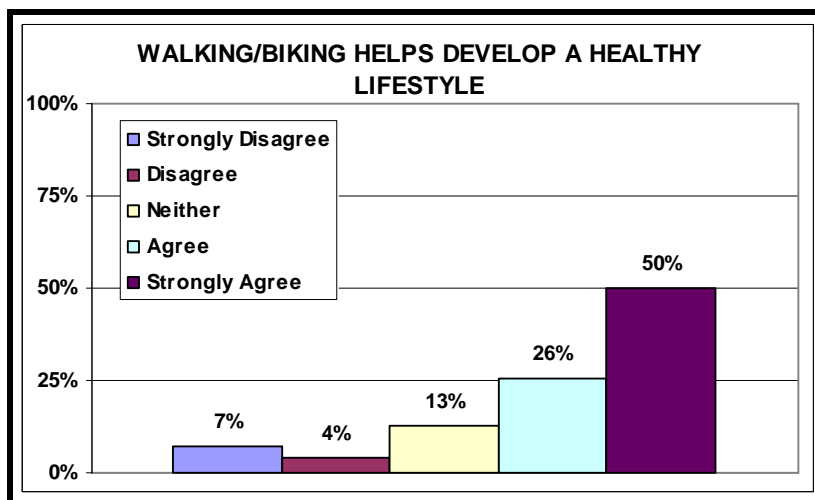
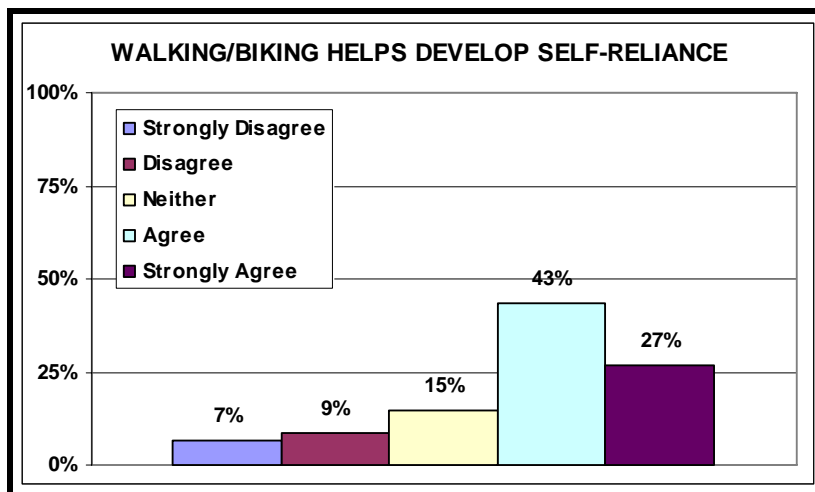




Figure 1-17: Walking/Biking Helps Develop Self-Reliance?



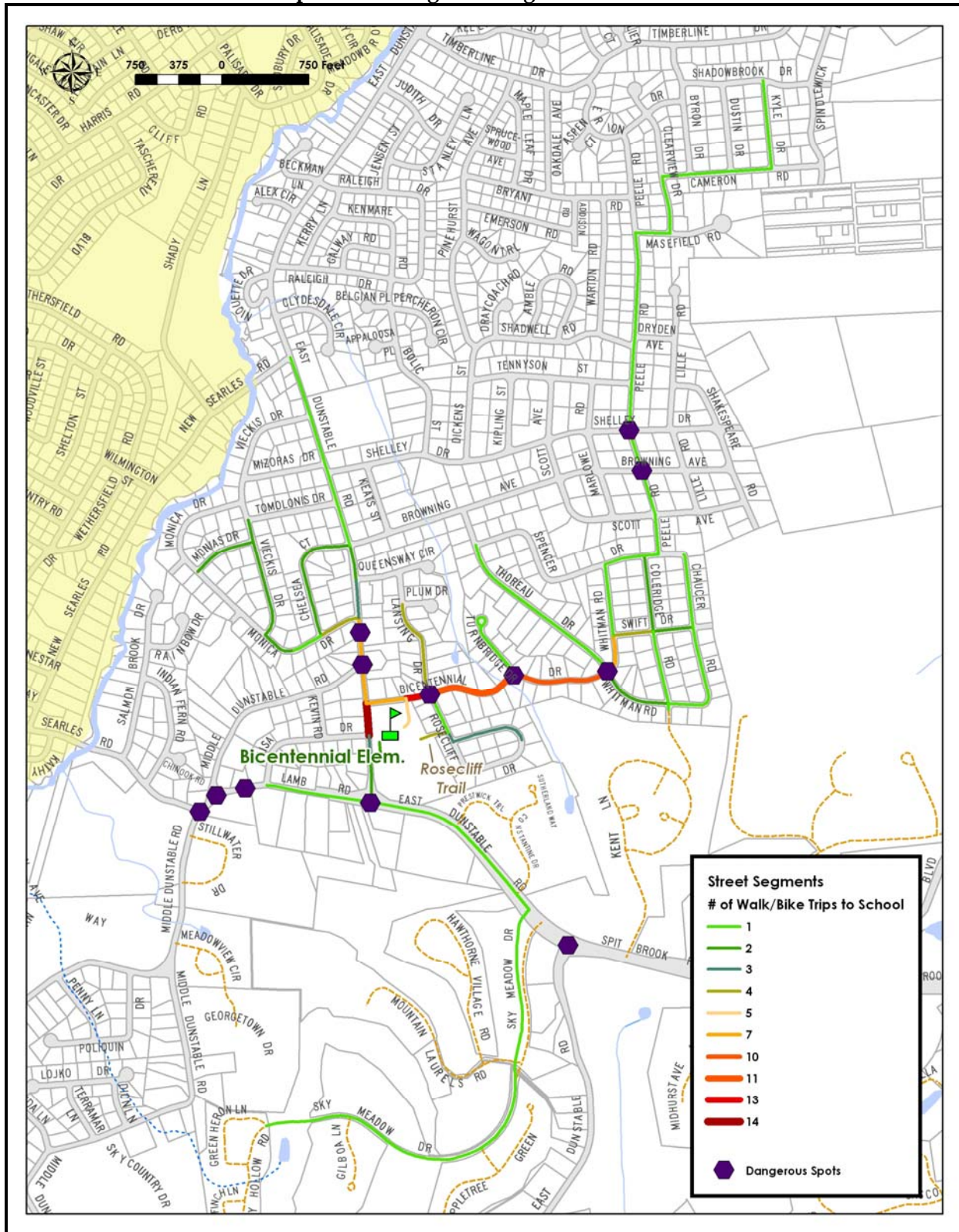
### 3. Routes Used For Travelling to School

Students were given a take-home mapping exercise to work on with their parents. They were asked to draw on the map the route by which they walked or rode their bike to school. Students who were driven or rode the bus to school were also asked to draw their route to school on the map. They were also asked to indicate what they considered dangerous intersections, as well as other dangerous places along the way. Map 1-2 summarizes the most popular routes used by students who walk or ride their bikes. The symbols on the map indicate places that are perceived to be dangerous.

The map indicates that the most common walking route to school is along Bicentennial Street. Children travel along this street from the neighborhood that is to the east/northeast of the school. It can be seen from the map that most of the walkers and bikers enter the school through the main entrance, rather than along the two paths that enter the school grounds from Bicentennial Drive and Rosecliff Drive. It can also be seen that some children walk to school from neighborhoods to the north and west of the school. The map also indicates areas that are perceived to be dangerous. These locations generally coincide with places where children are required to cross the street.



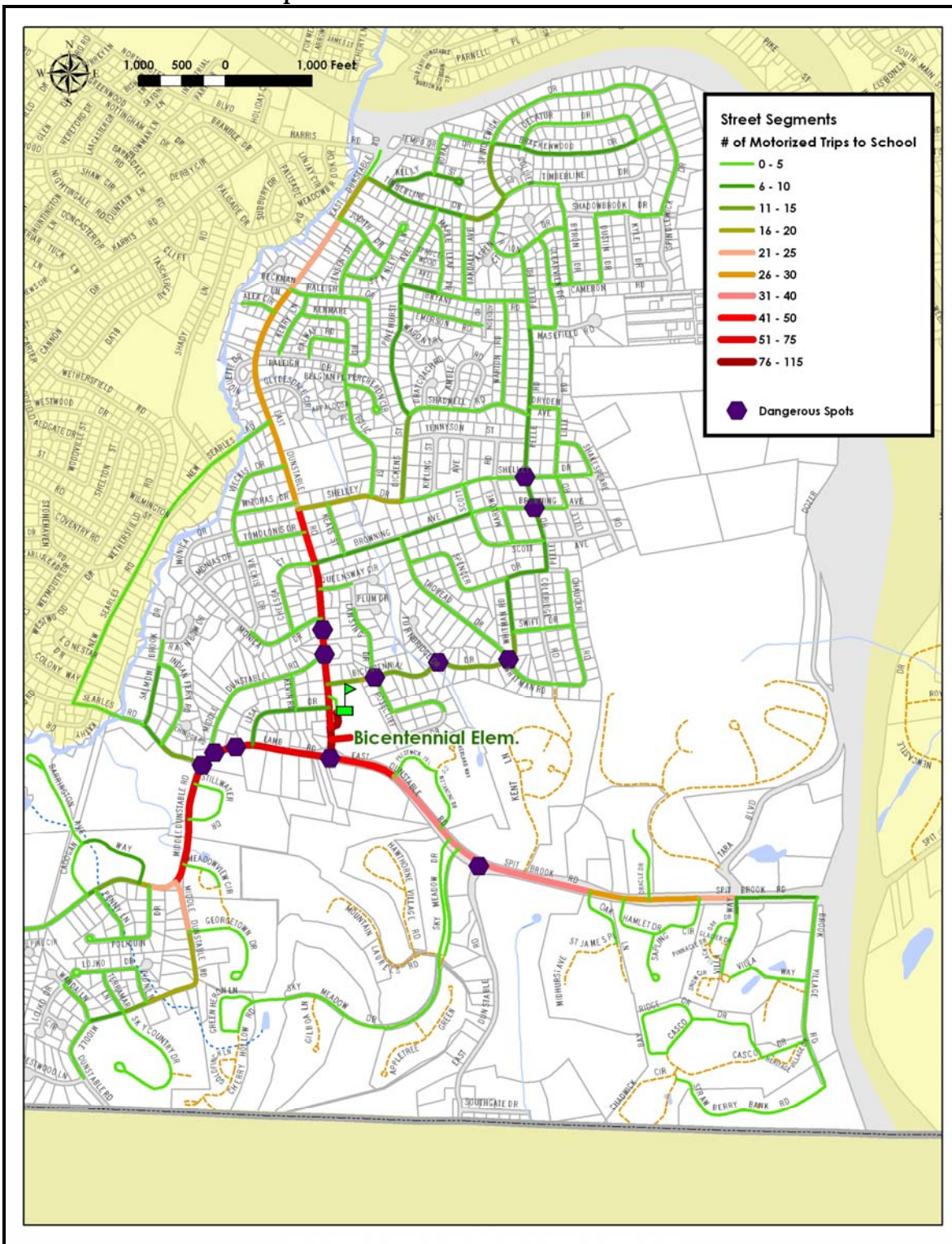
Map 1-2: Walking & Biking Routes to School





Map 1-3 summarizes the routes taken by students who travel to school in motorized vehicles (buses and cars). It can be seen that many children who live within walking distance of the school get to school in a motorized vehicle.

Map 1-3: Motorized Vehicle Routes to School

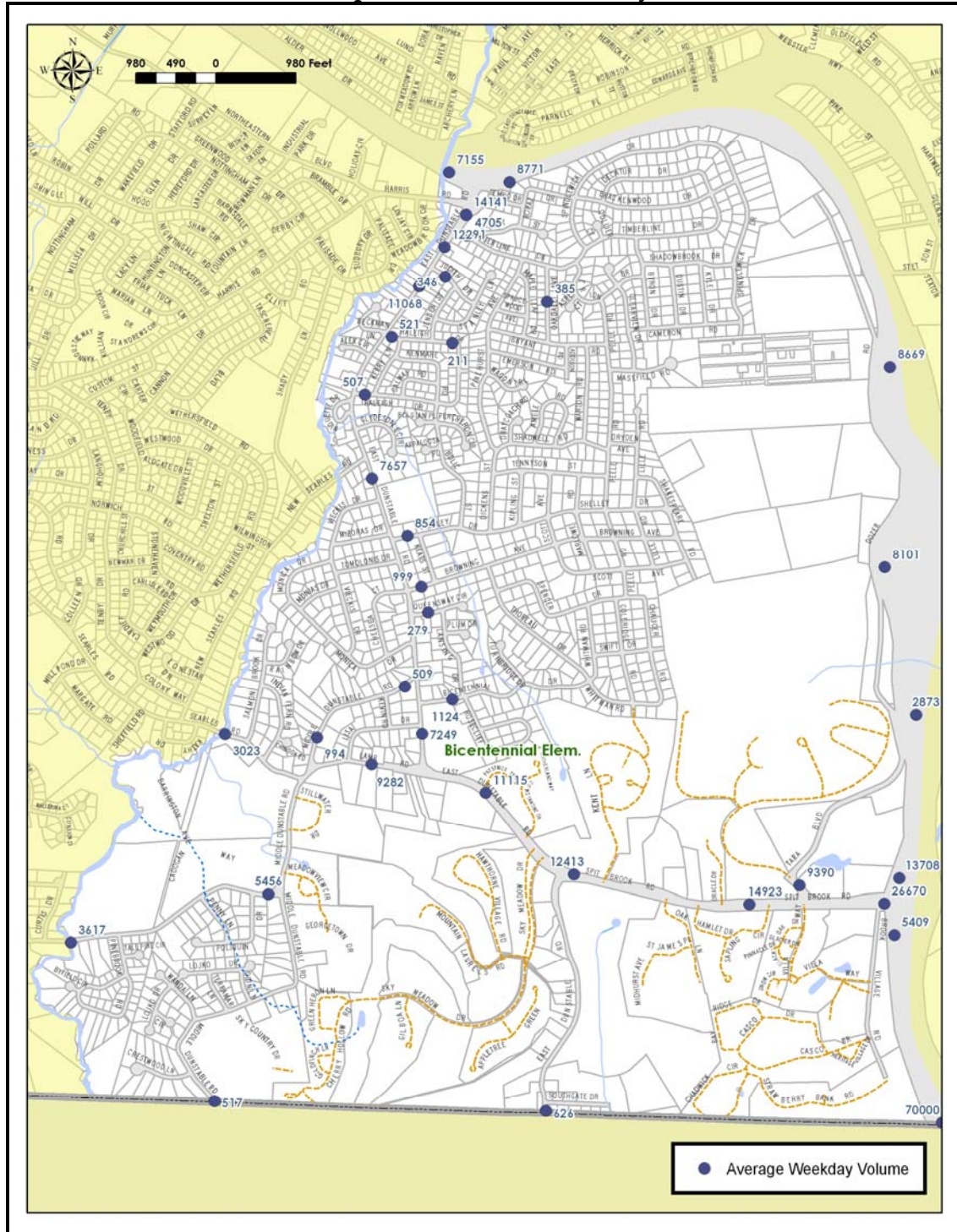




#### 4. Traffic Count History

NRPC maintains a database of 24-hour traffic volume counts throughout the region. The database includes several locations in the vicinity of the school. Map 1-4 documents the locations and the most recently recorded volumes.

Map 1-4: Traffic Count History





## 5. Speed of Motor Vehicles

NRPC staff measured traffic volume and speed of vehicles at one location on East Dunstable Road from Monday, May 11th, through Friday, May 15th, 2009. The posted speed limit for this segment of roadway is 30 mph (the speed limit is 20 mph during school arrival and departure times). The average 24-hour weekday traffic volume at this location is 6,700 vehicles.

The total number of vehicles counted during the 5-day (Monday-Friday) period was 31,353 (Table 1-1). It can be seen in Table 1-1 that 59% (18,486) of all vehicles exceeded the speed limit during this period. Figure 1-18 displays the same information graphically.

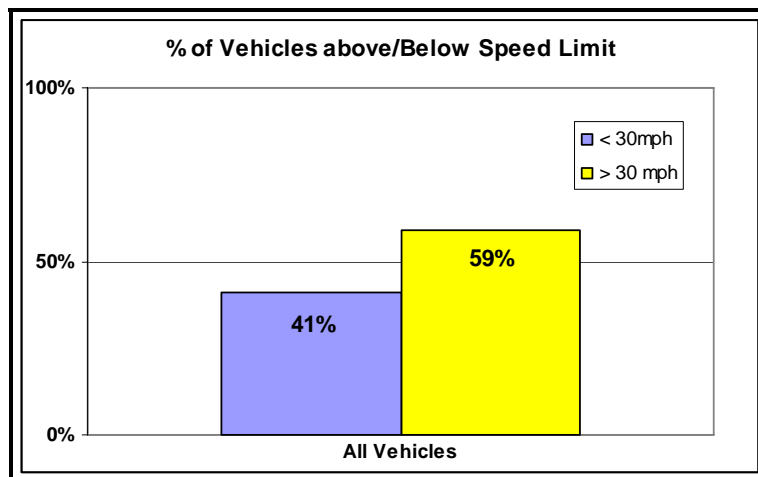
Figure 1-19 shows that almost 57% of the vehicles recorded were traveling between 1 and 10 mph over the speed limit.

There are 3 periods during the day when the “speed limit 20 mph when flashing” sign is activated. Tables 1-2 thru 1-4 and Figures 1-20 thru 1-22 indicate the percentage of vehicles above and below the speed limit during those periods of time. It can be seen that most vehicles do not travel below the 20mph speed limit during the time period when the sign is flashing.

**Table 1-1**  
**Vehicles vs. Speed Limit**  
**East Dunstable Road North of Lisa Drive**

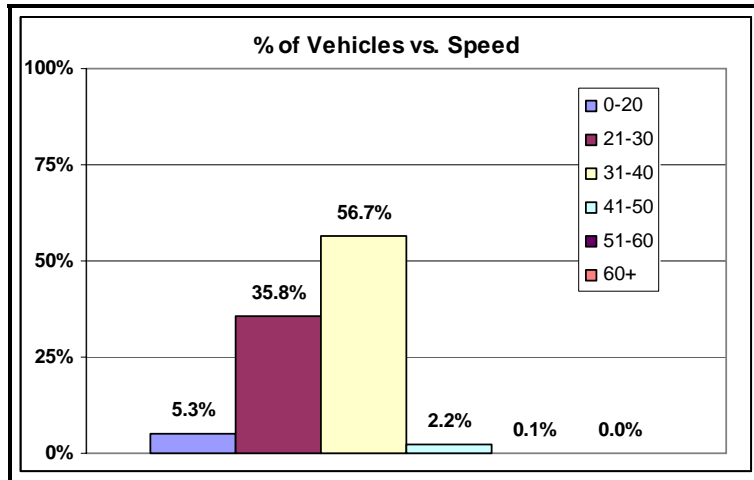
| Speed (mph) | # of Vehicles | % of Total |
|-------------|---------------|------------|
| < 30 MPH    | 12,867        | 41%        |
| > 30 MPH    | 18,486        | 59%        |
| Total       | 31,353        | 100%       |

**Figure 1-18**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles Above/Below Speed Limit**





**Figure 1-19**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles vs. Speed**

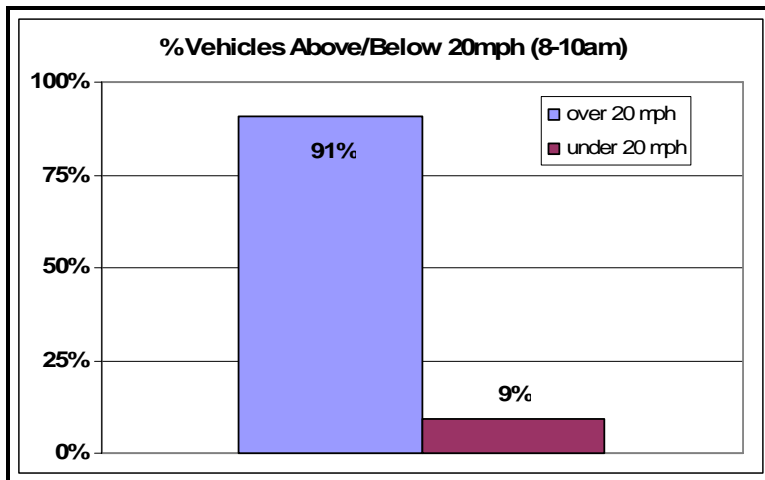




**Table 1-2**  
**East Dunstable Road North of Lisa Drive**  
**% Vehicles vs. 20mph (8-10am)**

| Speed (mph) | % of Vehicles Over Limit |
|-------------|--------------------------|
| < 20 MPH    | 9%                       |
| > 20 MPH    | 91%                      |
| Total       | 100%                     |

**Figure 1-20**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles vs. 20mph (8-10am)**

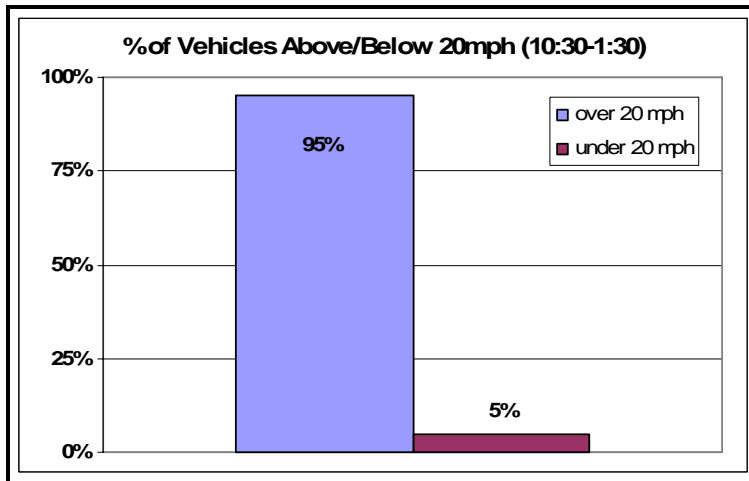




**Table 1-3**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles vs. 20mph (10:30a m-1:30pm)**

| Speed (mph) | % of Vehicles Over Limit |
|-------------|--------------------------|
| < 20 MPH    | 5%                       |
| > 20 MPH    | 95%                      |
| Total       | 100%                     |

**Figure 1-21**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles vs. 20mph (10:30am-1:30pm)**

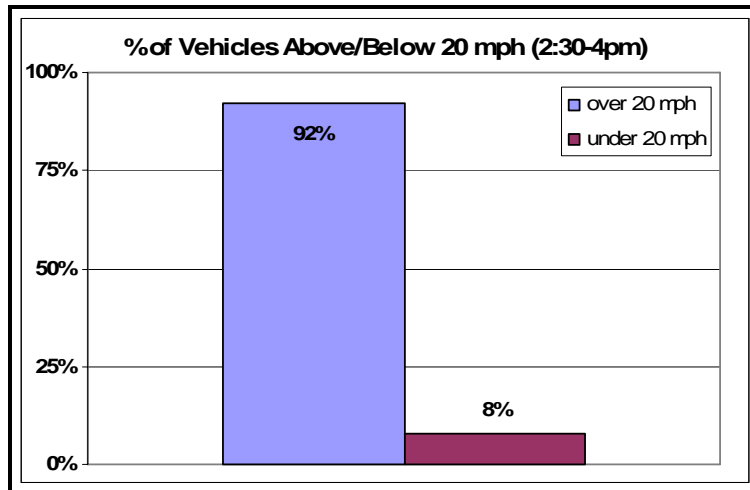




**Table 1-4**  
**Vehicles vs. 20mph Speed Limit**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles vs. 20mph (2:30-4pm)**

| Speed (mph) | % of Vehicles Over Limit |
|-------------|--------------------------|
| < 20 MPH    | 8%                       |
| > 20 MPH    | 92%                      |
| Total       | 100%                     |

**Figure 1-22**  
**East Dunstable Road North of Lisa Drive**  
**% of Vehicles vs. 20mph (2:30-4pm)**





## 6. Accident History

NRPC obtained traffic accident data from the City of Nashua Police Department. During the period from 2006-2009 there was one reported motor vehicle-pedestrian accident in the vicinity of the school. This accident occurred at East Dunstable and Lisa Drive in the spring of 2009. The conditions at the time included darkness (evening), rain and rain-slicked road. The adult pedestrian sustained a broken leg, laceration to the head and broken vertebrae. The driver of the vehicle was uninjured.

## 7. Sidewalk Inventory

NRPC staff conducted a field survey of all sidewalks within the Bicentennial Elementary School neighborhood. Staff "located" each sidewalk using Geographic Positioning System (GPS) equipment, and then developed a map using Geographic Information System (GIS) software (Map 1-5). NRPC also used information from the City of Nashua GIS sidewalk shapefile.

### Inventory Parameters

A sidewalk inventory "data dictionary" was developed for the GPS for this project. The data dictionary includes parameters normally used for sidewalk inventory. The overall condition of each sidewalk segment was determined using the following parameters:

- Sidewalk surface (Asphalt, concrete, etc)
- Condition of sidewalk surface (surface cracking, drainage, roots)
- Width of the sidewalk (visual estimate of the segment, wheelchair friendly)
- Obstructions (utility poles, vegetation, signs)
- Ramps at intersections (smooth wheelchair transition from sidewalk to road pavement)
- Crosswalks (presence of crosswalk, condition of paint, signalized pedestrian crossings)
- Sight distance
- Gaps in the sidewalk network

### Field Observations

#### i. Surface Material

The type of material and the width of any space between the road and sidewalk (buffer) were noted.

- Sidewalks in the vicinity of the school are made of asphalt. Many are curbed and have grass buffers of varying widths.

#### ii. Surface Condition

- The overall condition of the sidewalk surface was rated good, fair or poor. Three criteria were used: cracking, roughness (bumps, depressions), and loose aggregate (sand, stone, trash). Sidewalks in the vicinity of the school are in generally good condition for walking but not for skating or the use of baby carriages and scooters.

#### iii. Width

The American with Disabilities Act (ADA) requires that sidewalks be at least 5 feet in width and be handicap accessible at intersections. No sidewalks in the study area averaged less than 4 feet and some averaged 5 feet in width.



**iv. Obstructions**

There were several instances of overgrown vegetation blocking the sidewalk but most sidewalks in the study area were free of obstructions.

**v. Ramps at Intersections**

All intersections with sidewalks were observed for ramps that allow handicapped persons smooth access between the sidewalk and the road.

- All sidewalks had adequate ramps.



**vi. Crosswalks**

All of the crosswalks in the vicinity of the school averaged 8 feet wide and were painted on the pavement. Several had a faux-brick (pressed) painted surface and others had a smooth painted surface. The painted areas are slippery, especially when wet. All of the crosswalks need to be more visible.

There were crosswalks at the following locations:

- At intersection of East Dunstable Road and Lisa Drive; provides connection from Lisa Drive, across East Dunstable Road, to sidewalk in front of the school.
- Across all three school driveways along East Dunstable Road.
- At intersection of East Dunstable and Middle Dunstable Roads; two crosswalks provide connection from end of sidewalk on east side of East Dunstable to the beginning of sidewalk on the west side of East Dunstable Road.
- At intersection of East Dunstable Roads and Queensway Circle; provides connection from Queensway Circle, across East Dunstable Road to sidewalk on other side.
- At intersection of East Dunstable and Browning Avenue; provides connection from Browning Avenue, across East Dunstable Road.
- Crossing Rosecliff Drive at intersection with Bicentennial Drive.
- Crossing Bicentennial Drive from Rosecliff to Lansing.

**vii. Sight Distance**

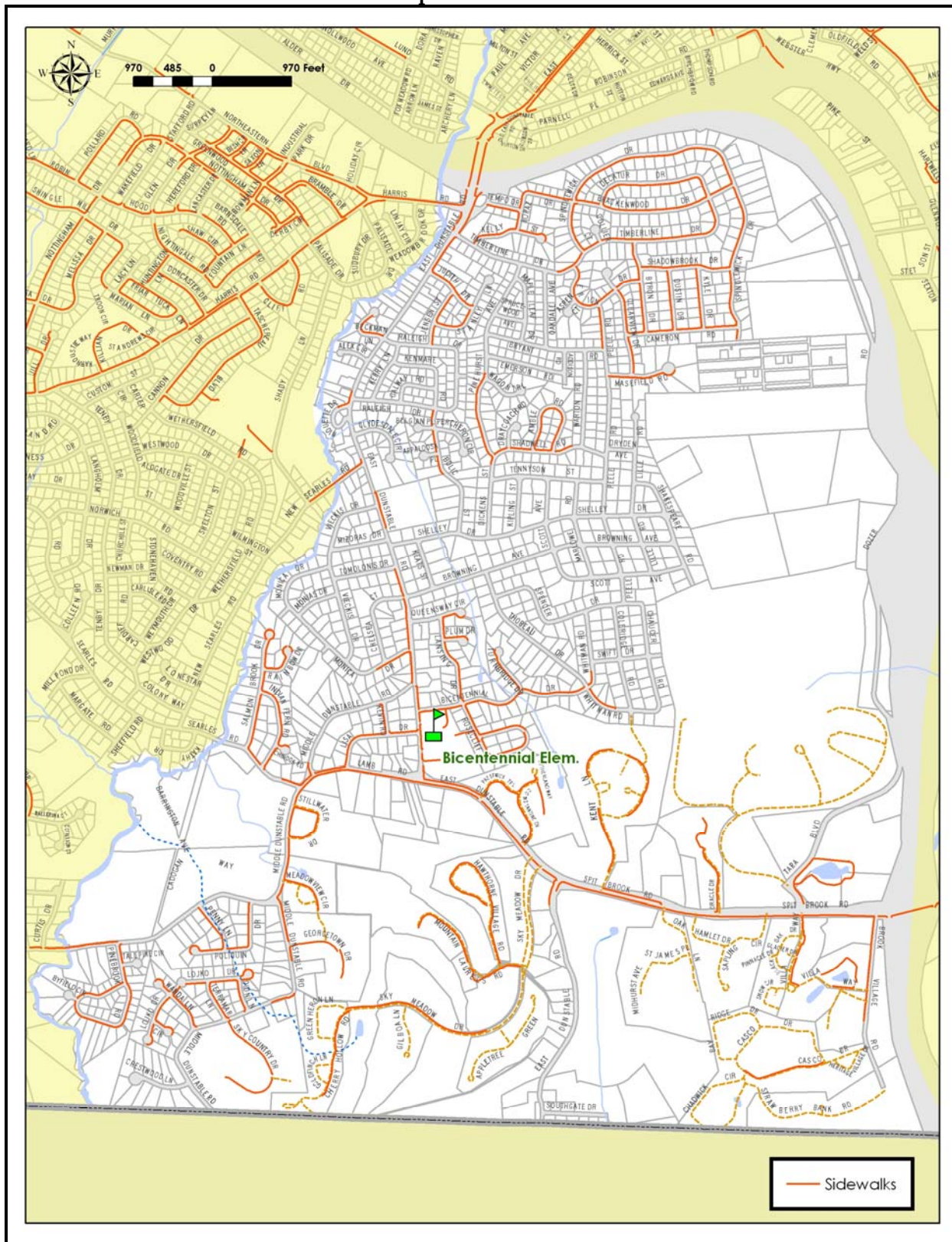
Sight distance was considered fair overall. The crosswalks along East Dunstable Road north of the school had very poor visibility.

**viii. Gaps in the Sidewalk System**

Map 1-5 indicates the location of existing sidewalks as well as areas where sidewalks do not exist. The connectivity of the sidewalk system would be improved if with paths between Shelly Drive and Browning Avenue, Browning Avenue and Queensway Drive and Prestwick Place and the southeast edge of campus.



Map 1-5: Sidewalks





## F. KEY ISSUES

The key issues identified in the course of this study include:

- *Traffic conditions along East Dunstable Road.* There is a significant volume (approximately 7,000 vehicles per day) of motor vehicle traffic along East Dunstable Road, with several crosswalks which create conflict points between pedestrians and motor vehicles. The motor vehicle speed data that was collected by NRPC indicates some evidence of speeding. There are also segments of the road where sight distance is limited.

Additionally, the sidewalk on the west side of East Dunstable between Middle Dunstable Road and Tomolonis Drive is set back from the street. In between the street and the sidewalk there is a stone wall and various types of vegetation.

The fact that the sidewalk is separated from the street by the stone wall and vegetation provides a protective physical barrier between motor vehicles and pedestrians using the sidewalk. However, the vegetation is overgrown and could potentially provide a place for strangers and bullies to congregate.

Also, the sidewalk shifts from one side of the street to the other at Middle Dunstable and ends at Tomolonis Drive. The crosswalk at Queensway Circle is not well marked and it is in an area of limited sight distance.

- *Traffic conditions along Middle Dunstable Road near Lamb Road and Lisa Drive.* There is also significant traffic volume and limited sight distance in this section of the study area. The average daily volume of traffic along this segment of roadway is approximately 9,000 vehicles.
- *Sidewalk connectivity.* More children from the neighborhoods to the north of the school (and east of East Dunstable Road) would walk if there were a convenient connection between Browning Avenue and Queensway Circle. Currently, when anyone walking in a southerly direction from the area near Bolic Street arrives at Shelley, they have to walk west towards East Dunstable or east to Scott Avenue. This deters walkers and bikers because it adds time and distance to the trip, as well as danger crossing East Dunstable.

Pedestrians then head west towards East Dunstable can choose to turn left on Keats Street to Browning Avenue. When they reach the intersection of Keats and Browning the only realistic choice is to turn right towards East Dunstable where they again are faced with crossing a significant barrier.

A solution would be to develop a path between Browning Avenue and Queensway Circle. Pedestrians could then connect with Lansing Drive and directly to the school, thereby avoiding any contact with East Dunstable Road.

- *Rosecliff Trail.* This is a short trail through the woods that connects Rosecliff Drive with the east side of the school yard. The trail is windy, uneven and has poor drainage. Funding to repair the trail was secured in Round 2 of the Safe Routes program. The City of Nashua Public Works Department has begun preliminary work on this project and it is expected that work will be completed on this important project in Fall 2009.
- *Greenleaf Trail.* The students who live on Prestwick Trail and Constantine Drive in the Greenleaf condominium development would potentially benefit from a path directly to the southeast corner of the schoolyard. Under existing conditions, walkers must travel approximately ¼ mile along busy East Dunstable Road to get to the front entrance of the school. A path from Prestwick trail would eliminate the need to walk along a busy street and would reduce the length of the trip to less than a tenth of a mile.



- *Designated Safe Routes.* There are no officially designated “Safe Routes” to School in the study area.
- *Sidewalk conditions.* There are numerous cracks and bumps that make it difficult for smaller children to walk, skate or use scooters. These conditions also make it difficult for parents to push very small in strollers, resulting in a general feeling that the neighborhoods around the school are not as walkable as they could be.
- *Signage on Bicentennial Drive.* This is the most popular street for walkers and there are approximately 1,000 vehicles per day that travel along this street. It has been noted that there are no speed limit signs in the vicinity of the school zone.
- *Crosswalk at Bicentennial Drive and Turnbridge Drive.* Map 1-2 indicates that Bicentennial Drive is the most popular walking and biking route for students. The sidewalk shifts from the south side of Bicentennial Drive to the north side at this intersection. This intersection is at the bottom of a hill and traffic tends to pick up speed on the way down. There is no crosswalk at this location.
- *Stop signs at intersection of Bicentennial/Lansing/Rosecliff Drive.* This is a 4-way intersection with a significant volume of motor vehicle and pedestrian traffic. At the present time there are only stop signs on Rosecliff and Lansing. This results in west bound traffic on Bicentennial drive that speeds through the intersection. The steering committee suggested that the possibility of creating a 4-way stop controlled intersection should be studied.
- *Clearing sidewalks of snow.* The policy of the Nashua DPW is to clear snow from all sidewalks within 1,000 feet of the front door of a school as soon as possible. However, sidewalks are not always cleared of snow in a timely fashion. The City has recently reviewed this program and is in the process of purchasing new equipment to aid in this effort.
- *Childrens desire to walk or bike to school.* When given the choice, 48% of children surveyed indicate a desire to travel to school in some non-motorized fashion. Currently, only about 10% of students walk or bike to school, mostly because their parents won’t let them.
- *Worries about children’s safety while traveling to school in an unsupervised fashion.* Around 56% of parents say that they drive their kids to school because of some safety concern (busy streets, sidewalk conditions, dangerous crossings). When asked, 60% said they would either let their child walk to school, or would consider it if conditions along the various routes were improved.
- *Motor vehicle congestion during drop off and pick up times.* NRPC staff observed considerable automobile congestion during the morning and afternoon arrival and departure times. The students driven to school (non school bus) drop off area is in the southside parking lot. This lot has only one entrance and one exit. Traffic backup pushes vehicles back onto East Dunstable Road effecting non-school traffic flow. In addition vehicles “trapped” in the parking lot during this time are forced to wait until the drop off period ends (approximately 20 minutes) or attempt to exit through the entrance. This situation repeats itself in the afternoon at dismissal time. A similar situation also occurs in the westside (front) parking loop. One-way traffic must flow through one entrance lane and out one exit lane. Morning drop off includes pre-k, kindergarten and busses. Parking is confined during the pre-k and kindergarten drop off and while it is not impossible to travel through this area pedestrian traffic and vehicle traffic are dense. Immediately after pre-k and kindergarten drop off busses arrive and park two abreast making all other vehicle movement impossible. This situation repeats itself in the afternoon at dismissal time. While the situation was handled fairly well by school staff many “close calls” between pedestrian and vehicles were observed.
- *Access to school busses.* Parents clearly consider the trip to school via school bus to be inherently safer than walking or biking. In fact, nearly 57% would like their children to travel to school on



the bus. The reason that more kids don't take the bus is because school policy requires children who ride the bus to live more than a mile from school.

## G. BARRIERS TO CHANGE

Parents clearly prefer that their children get to school in a supervised fashion, either in the family car or on the bus. This is generally due to safety concerns. In order to achieve the goal of increasing biking and walking amongst children at the school it will be necessary to convince parents that their children will be able to do so safely. School administration and teachers generally seem willing to promote increased biking and walking of students, but translating this willingness into policies and programs will require a significant effort. Physical improvements to streets and sidewalks in the neighborhood will require coordination with the City Division of Public Works and to a lesser extent the Community Development Division. The individuals in these departments have historically shown the highest level of dedication to public safety and well being. However, the traditional sources of funding for physical improvements to City infrastructure are limited at this time. It will therefore require creativity in order to attract adequate revenue to accomplish the tasks at hand. The NHDOT Safe Routes to School funding program is a potential source of funding for improvements suggested in this report.

## H. OPPORTUNITIES

Students expressed a desire to travel to school by walking, biking or some other means of non-motorized travel. This is a likely indicator that students would be interested in programs and curriculum that promote biking and walking.

It was also observed that the school administration, staff and teachers are highly dedicated public servants working towards the goal of providing the best education they can to the students in their care. Their comments show their understanding that kids who get plenty of exercise are happier and more willing to learn than kids who do not exercise. It is therefore likely that administration, staff and teachers will be willing to support the recommendations in this report.

Securing funding for the improvements to City infrastructure that have been identified in this study may prove difficult. However, as noted earlier, the City of Nashua employs staff members who have expressed a strong desire to improve conditions for bicycling and walking in the neighborhood.

## I. THE 5 E'S

The "5E's" are an important component of the Safe Routes to School Program. Communities use many different approaches to make it safer for children to walk and bicycle to school and to increase the number of children who do so. Programs use a combination of education, encouragement, enforcement and engineering activities to help achieve their goals. Another important element is evaluation, which is incorporated into each of these areas<sup>1</sup>. The following is an explanation of the 5E's.

### Education

Education activities target parents, neighbors and other drivers in the community to remind them to yield to pedestrians, to drive safely and to take other actions to make it safer for pedestrians and bicyclists. Parents serve as role models for their children and play an important role in teaching them

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<sup>1</sup> Description of the 5Es provided by the National Center for Safe Routes to School.  
<http://www.saferoutesinfo.org/index.cfm>



pedestrian and bicycle safety. Education activities also teach students how to walk and bicycle safely and the benefits of doing so.

### **Encouragement**

Encouragement strategies generate excitement about walking and bicycling safely to school. Children, parents, teachers, school administrators and others can all be involved in special events like International Walk to School Day and ongoing activities like walking school buses. Encouragement strategies can often be started relatively easily with little cost and a focus on fun.

### **Enforcement**

Enforcement activities by police can help to change unsafe behaviors of drivers, bicyclists and pedestrians. They can increase driver awareness of laws, and they also can improve driver behavior by reducing speeds and increasing yielding to pedestrians. In addition, enforcement activities teach pedestrians and bicyclists to walk and bicycle safely and to pay attention to their environment. Enforcement, however, doesn't just involve police officers; many different community members take part in making sure everyone follows the rules, including students, parents, school personnel and adult school crossing guards.

### **Engineering**

Engineering addresses the built environment with tools that can be used to create safe places to walk or bicycle and can also influence the way people behave. Transportation engineers, city planners, and architects use methods to create safer settings for walking and bicycling while recognizing that a roadway needs to safely accommodate all modes of transportation. Such improvements can include maintenance and operational measures as well as construction projects with a range of costs. When such projects are properly implemented, they may not only improve safety for children, but they also may encourage more walking and bicycling by the general public.

### **Evaluation**

Evaluation is used to determine if the aims of the strategies are being met and to assure that resources are directed towards efforts that show the greatest likelihood of success.

## **J. RECOMMENDATIONS**

The following recommendations resulted from surveys of students and parents, and discussions with school administration, teachers, and City of Nashua Divisions of Public Works and Community Development. The recommendations are grouped into three broad areas.

The first has to do with the Bicentennial Safe Routes to School Steering Committee. The steering committee will be responsible for guiding the implementation of most of the recommendations of this study.

The second set of recommendations is about the physical improvements that need to be made to the streets and sidewalks in the Bicentennial neighborhood. The steering committee will implement these recommendations by consulting and coordinating with the SAU and those departments of the City who are responsible for physical improvements to the infrastructure.

The third set of recommendations has to do with encouragement, education and enforcement policies and programs that will encourage bicycling and walking.

All of these recommendations are listed in the Bicentennial Safe Routes Action Plan that can be found later in this report.



## 1. Bicentennial Safe Routes to School Steering Committee

The steering committee will provide the leadership and structure that will be necessary to implement the Action Plan.

- The committee already exists and includes parents, teachers and school administration.
- It is important that the steering committee continue to be made up of individuals who are committed to making the decisions that will benefit the Bicentennial Elementary School community and Safe Routes Program.
- The committee will oversee implementation of the Action Plan that appears at the end of this report.

## 2. Engineering/Safety Measures

The following recommendations will help to enhance the bicycle and pedestrian friendliness of the Bicentennial neighborhood through physical improvements to the streets and sidewalks. These recommendations will also improve safety and therefore encourage parents to consider allowing their children to bike or walk to school more often.

### a. Traffic Calming Measures

- Implement traffic calming measures along East Dunstable Road and elsewhere in study area through improved signage and pavement markings (all signage and pavement markings should conform to the Manual of Uniform Traffic Control Devices [MUTCD]):
  - Signage in the school zone should be upgraded and should be as brightly painted as allowable;
  - The City of Nashua should review its school zone pavement marking policy to insure that it provides the best protection for pedestrians in the school zone.
  - The use of school zone advance warning/reduced speed school zone signage should be considered.
  - Crosswalks should be marked with the brightest material allowable and should also include a supplemental crosswalk device (a portable "people in crosswalk" sign);
  - A speed feedback radar sign should be installed on East Dunstable Road north of the intersection with Middle Dunstable Road that will notify southbound motorists of their speed and the school zone speed limit.

### b. Increase Connectivity of Sidewalk System

- Investigate the possibility of developing a pedestrian path that connects Browning Avenue with Queensway Circle near Lansing Drive. This will create a connection that will allow pedestrians to avoid walking along and crossing East Dunstable Road. It will also create a more direct link between the school and neighborhoods to the north of the school.
- Investigate the possibility of developing a pedestrian path that will connect the Greenleaf Condominium neighborhood to the southeast corner of the schoolyard. This will reduce the length of trip for pedestrians travelling to the school and it will also eliminate the need to walk along a busy segment of East Dunstable Road. Pedestrians from other neighborhoods to the east of Greenleaf will also benefit from this trail.
- Continuous sidewalks with associated bike lane shoulders should be added to East Dunstable Road, beginning at Spit Brook Road and extending north of the school for one mile.
- *There is currently no right of way available for these suggested paths.* Right of way would need to be acquired from private residential home owners.

### c. Increase Pedestrian Visibility

- Clear and thin brush along the sidewalk on East Dunstable Road (between Middle Dunstable and Tomolonis Dr). This will create better visibility of pedestrians along this segment of



sidewalk and roadway. The stone wall should remain to protect pedestrians from motor vehicles

- d. Identify/Designate Safe Routes
  - There are no officially designated “Safe Routes” to School in the study area.
  - The most common walking/biking routes that children are currently taking to school should be enhanced with pavement markings, brush clearing, etc as noted in this section.
  - Signage should be installed along the designated routes to indicate that those routes are “Safe Routes”.
  - There should be outreach to the community, including those without school age children, in the vicinity of the school. The objective should be to develop a program where children who are on designated Safe Routes are never out of the line of sight of a responsible individual.
- e. Re-build Rosecliff Trail.
  - The funding for this project was secured in a previous round of Safe Routes funding. The City of Nashua has begun preliminary design.
- f. Sidewalk Conditions.
  - Sidewalks that are cracked and uneven should be upgraded to ADA specifications. Funding for these upgrades should be sought in a future round of Safe Routes funding.
- g. Signage along Bicentennial Drive
  - This is the most popular route for walkers and there are approximately 1,000 vehicles per day that travel along this route. There are no speed limit signs in the vicinity of the school. Signage should be upgraded in this area with the cooperation and input from the City Traffic Department.
  - Funding should be sought in a future round of Safe Routes funding.
- h. Crosswalk at Turnbridge Drive and Bicentennial Drive.
  - The sidewalk shifts from one side of Bicentennial to the other at this intersection. A crosswalk should be installed with the cooperation of the City of Nashua Traffic Department. Funding for this project should be sought in a future round of Safe Routes funding.
- i. Stop Signs at intersection of Bicentennial, Rosecliff and Lansing Drives.
  - This is a 4-way intersection along the most popular walking route as well as a segment of roadway with 1,000 vehicles per day. Currently there are stop signs on the Rosecliff and Lansing approaches. The City should consider making this a 4-way stop controlled intersection. This would require legislation by the City.
- j. Clear Sidewalks of Snow
  - The snow clearing policy of the City of Nashua is to clear all sidewalks within 1,000 feet of the front door of a school as soon as possible after a storm. This is not always done in a timely fashion. The steering committee should work with the city to identify a way to improve clearing of snow from sidewalks. The City has recently reviewed this program and is in the process of purchasing four additional pieces of equipment to aid in this effort.
- k. Redesign of parking lot/drop-off areas.
  - Construction of an isolated visitor parking drive aisle to eliminate existing vehicle/bus conflicts.
  - Construction of a pedestrian refuge/safety island between bus lane and visitor parking area.



- Reinforcement of one-way traffic circulation patterns in vicinity of bus pick-up/drop-off lane, visitor parking area and faculty/staff parking area including student drop-off loop
- Renovation of existing sidewalks for full compliance with ADA and improved connectivity with existing public sidewalks along East Dunstable Road

### 3. Education, Encouragement and Enforcement Measures

The following recommendations will help provide a balanced approach (beyond physical improvements to the roads and sidewalks) to the goals of this plan by providing a strong educational element as well as promoting biking and walking as a fun, healthy and safe way to get to school.

- a. Educate students about lawful and responsible bicycling and walking.
  - Develop a classroom curriculum,
  - Sponsor a safety fair or bike rodeo during bike and walk to school week each October.
- b. Encourage children to walk or bike to and from school. Encouragement efforts can take the form of events, promotions and programs. These efforts can serve to re-inspire kids who are already interested in biking and walking, as well as encourage new participants.
  - National bike to school day takes place every year on the first Wednesday in October. Bicentennial School should develop its own bike and walk to school day to coincide with the national event. Thereafter, there should be a bike and walk to school day each month.
  - A “walking bus” program should be developed. A walking bus is where a group of children walk to school by a predetermined route with two parent volunteers. This will give parents the opportunity to share responsibility on a rotating basis. Since the surveys showed that parents want their kids to travel to school in a supervised fashion, this program will address those concerns.
  - Recruit parents to assist in managing the morning and afternoon congestion period one day per week. They may serve as traffic monitors, crossing guards and take traffic counts. This calls attention to the issues that occur during the time students are dropped off and picked up, parents invest in the process, and drivers and students are educated about safe drop-off and pick-up procedures.
  - Identify and promote the best and safest ways to walk or ride bikes to school. Signs, posters and “trail days” can be encouraged to draw attention to the recommended routes.
  - Develop programs that children can buy into and have fun participating in. For example, a program called “It all adds up to clean air” could be developed. Kids would document how much air pollution they are preventing by not travelling to school in a motor vehicle. If developed in lesson plan format, this could help the school meet state and federal performance standards.
  - Develop a worksheet that will track and record walking and biking activities. Children could be rewarded for reaching certain goals. For example, a prize for walking to school 3 times in one week.
  - Develop specific safety initiatives such as a “Watch for Bikes” campaign. This program offers decals that can be attached to side view mirrors that remind drivers to look behind them before opening a car door or pulling away from the curb.
- c. Assuming that bicycling and walking increase as a result of the Safe Routes program, children, parents and motorists in the Bicentennial community will benefit from increased awareness and enforcement of bicycle and pedestrian-related rules and regulations. Increased awareness of these rules and regulations will lead to better compliance among bicyclists, pedestrians and motorists. Police and community enforcement programs should be developed and include the following ideas:



- Enlist the help of the Police Department to aggressively enforce traffic and parking laws (including warnings and citations) during the first two weeks of school each fall, and also develop a strategy for enforcement during the rest of the year.
- The Nashua Police Department has expressed an interest in developing a pilot program that will identify strategies for improving pedestrian and motorist compliance with rules of the road. This program will identify innovative ways that enforcement can be used to encourage safe travel of motorists and pedestrians. The program will also identify methods for documenting the enforcement methods that will be used and documenting the effectiveness of the programs.
- Enlist the help of the Police Department to provide safety talks at a bike rodeo during bike and walk to school day.
- Work with Police Department to review and modify youthful violator procedures. For youngsters, crashes between bicycles and motor vehicles most often result from young cyclists violation of basic traffic laws. However, since they have not taken driver training, they seldom know how the traffic system works. As a result, ticketing young children is an unnecessarily harsh approach to handling their violations.
- Work with police department to review and modify procedures for handling bicycle theft and assault on bicyclists. Bicyclists fall prey to certain characteristic types of crimes.
- The City of Nashua Police Department has a mountain bike patrol. Mountain bike patrols should be coordinated with the time periods when kids are going to and from school.

## K. ACTION PLAN

The recommendations that have been identified in this study will combine to create a system of policies, programs and physical improvements that will encourage increased bicycling and walking among the students at Bicentennial School. In order for the goals of this study to be achieved, an Action Plan is necessary. The action plan is an implementation strategy which assumes that the proposed recommendations can be achieved in three phases; short-term (less than 6 months), mid-term (6 months -2 years), long-term (greater than 2 years).

The Action Plan lists the recommendations as they appear in the text of this plan, and assigns each recommendation to a particular phase in the implementation strategy. The recommendations build on each other to bring about the changes that are necessary to increase the level of bicycling and walking to the school. The Action Plan appears at the end of this report.

**Recommendation:** Use the Action Plan to coordinate implementation of the recommendations in this study.



| <b>ACTION PLAN</b>   |   |                               |
|--|---|-------------------------------|
| <b>Recommendation</b>  | <b>Comment</b>  | <b>Target Date</b>            |
| <b>Parents, Community, School Administration</b>   |   |                               |
| <b>1</b>   |   |                               |
| <ul style="list-style-type: none"> <li>Enhance the Bicentennial School Safe Routes Steering Committee</li> </ul>   | Steering committee must involve parents, teachers, school staff and administration. | Short term                    |
| <ul style="list-style-type: none"> <li>Steering committee will oversee implementation of the Action Plan</li> </ul>  |   | Short term then on-going      |
| <b>Physical Improvement Measures</b>   |   |                               |
| <b>2</b>   |   |                               |
| <ul style="list-style-type: none"> <li>Implement traffic calming measures through improved signage and pavement markings</li> </ul>                                  | Examples are listed in <b>Section J.2.a.</b> of this study                          | Short term                    |
| <ul style="list-style-type: none"> <li>Increase Connectivity of Sidewalk System</li> </ul>   | Examples are listed in <b>Section J.2.b.</b> of this study                          |                               |
|  |   | Feasibility study: Short-term |
|  |   | Construction: Mid-long term   |
| <ul style="list-style-type: none"> <li>Increase Pedestrian Visibility Along East Dunstable Road</li> </ul>   | Specifics are listed in <b>Section J.2.c.</b> of this study                         | Short term                    |
| <ul style="list-style-type: none"> <li>Designate specific "Safe Routes"</li> </ul>   | Specifics are listed in <b>Section J.2.d.</b> of this study                         | Short term                    |
| <ul style="list-style-type: none"> <li>Rebuild Rosecliff Trail</li> </ul>  | Specifics are listed in <b>Section J.2.d.</b> of this study                         | Short term                    |
| <ul style="list-style-type: none"> <li>Sidewalk Conditions</li> </ul>  | Specifics are listed in <b>Section J.2.e.</b> of this study                         | Short term                    |
|  |   | Apply for funding: Short term |
|  |   | Construction: Mid term        |
| <ul style="list-style-type: none"> <li>Signage along Bicentennial Drive</li> </ul>   | Specifics are listed in <b>Section J.2.f.</b> of this study                         | Short term                    |
|  |   | Apply for funding: Short term |
|  |   | Install: Mid term             |
| <ul style="list-style-type: none"> <li>Crosswalk @ Bicentennial Drive &amp; Turnbridge Drive</li> </ul>  | Specifics are listed in <b>Section J.2.g.</b> of this study                         | Short term                    |
|  |   | Apply for funding: Short term |
|  |   | Install: Mid term             |
| <ul style="list-style-type: none"> <li>Stop signs at Bicentennial/Rosecliff/Lansing</li> </ul>   | Specifics are listed in <b>Section J.2.h.</b> of this study                         | Short term                    |
|  |   | Apply for funding: Short term |
|  |   | Install: Mid term             |
| <ul style="list-style-type: none"> <li>Snow should be cleared from sidewalks in a more timely fashion. DPW policy is to clear snow as quickly as possible</li> </ul> | Work with DPW to clarify policy and strategies for clearing sidewalks more quickly  | Short-term                    |
| <ul style="list-style-type: none"> <li>Re-design parking lot drop off near cafeteria</li> </ul>  | Work with plant operations to facilitate this                                       | Short-term                    |
| <ul style="list-style-type: none"> <li>Re-design parking lot drop off at front of school</li> </ul>  | Work with plant operations to facilitate this                                       | Short-term                    |



| <b>ACTION PLAN</b>  |  |                        |
|---|--|------------------------|
| <b>Recommendation</b>   | <b>Comment</b>   | <b>Target Date</b>     |
| <b>3</b><br><u><b>Education, Encouragement and Enforcement Measures</b></u><br>Teach youngsters important bicycling skills.   | Studies have shown that children's mistakes tend to involve a limited set of basic errors and these errors can be corrected through education. | Mid-term, then ongoing |
| <ul style="list-style-type: none"> <li>- develop a classroom curriculum,</li> <li>- sponsor a bike rodeo during bike/walk to school week.</li> </ul>                                  |  |                        |
| <ul style="list-style-type: none"> <li>Promote a bike-to-school day and week (October)</li> </ul>   | Should coincide with national bike to school day/week/month  | Short-term             |
| <ul style="list-style-type: none"> <li>Designate specific "Safe Routes"</li> </ul>  | Specifics are listed in <b>Section J.2.d.</b> of this study.   | Short-term             |
| <ul style="list-style-type: none"> <li>Develop a "Walking Bus" program.</li> </ul>  | Gives parents the opportunity to share responsibility on a rotating basis.   | Short-term             |
| <ul style="list-style-type: none"> <li>Recruit parents to assist in managing the morning and afternoon congestion period one day per week.</li> </ul>                                 | Parents may serve as traffic monitors, crossing guards and take traffic counts   | Mid-term               |
| <ul style="list-style-type: none"> <li>Identify and promote the best and safest way to walk or ride bikes to school</li> </ul>  | Develop a map of the routes  | Mid-term               |
| <ul style="list-style-type: none"> <li>Develop programs that children can buy into &amp; have fun participating in.</li> </ul>  | Example: "It all adds up to clean air"   | Short-mid term         |
| <ul style="list-style-type: none"> <li>Develop a worksheet that will track and record walking and biking activities.</li> </ul>   | Children could be rewarded for reaching certain goals. For example, a prize for walking to school 3 times in one week.                         | Mid-term               |
| <ul style="list-style-type: none"> <li>Develop specific safety initiatives such as a "Watch for Bikes" campaign.</li> </ul>   | Decals on side view mirrors that remind motorists to look before opening car door or pulling away from the curb.                               | Mid-term               |
| <ul style="list-style-type: none"> <li>Enlist the help of the Police Department to aggressively enforce traffic and parking laws during 1<sup>st</sup> two weeks of school</li> </ul> | Develop strategy for enforcement the rest of the year  | Mid-term               |
| <ul style="list-style-type: none"> <li>Enlist the help of the Police Department to provide safety talks at a bike rodeo</li> </ul>  | Could be scheduled during bike and walk to school day in October   | Short-term             |
| <ul style="list-style-type: none"> <li>Work with Police Department to review and modify youthful violator procedures</li> </ul>   | Children have not taken drivers training courses & therefore seldom know how the traffic system works  | Short-term             |
| <ul style="list-style-type: none"> <li>Work with police department to review and modify procedures for handling bicycle theft and assault on bicyclists</li> </ul>                    |  | Short-term             |

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December 2009

## APPENDIX A STEERING COMMITTEE

| <b>NAME</b>       | <b>AFFILIATION</b>  |
|-------------------|---|
| Marc Beaulieu     | Co-PTO President/Parent   |
| Sue Murphy        | Co-PTO President/Parent   |
| Marianne O'Connor | School Guidance Counselor   |
| Kyle Langille     | Principal   |
| Elizabeth Allen   | Assistant Principal   |
| Tom Guilfoil      | Parent  |
| Robert Mondt      | Parent  |
| Stacy Hynes       | Nashua School District - Director, Grants & Community Development |
| Jeanne Walker     | Nashua Department of Public Works - Deputy Manager of Engineering |
| Shawn Smith       | Nashua School District - Plant Operations Director                |
| Ed Lecius         | Nashua Police Department - Community Policing Director            |
| Lucy St. John     | City of Nashua - Deputy Planning Manager                          |
| Matt Waitkins     | Nashua Regional Planning Commission - Transportation Planner      |

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## APPENDIX B STUDENT SURVEYS

**Question 1: HOW DO YOU GET TO SCHOOL?**

|                     |     |       |
|---------------------|-----|-------|
| Walk                | 23  | 8.3%  |
| Bike                | 4   | 1.4%  |
| School Bus          | 150 | 54.0% |
| Car                 | 99  | 35.6% |
| Other non-motorized | 1   | 0.4%  |
| Other               | 1   | 0.4%  |
| Total               | 278 |       |

**QUESTION 2: HOW WOULD YOU MOST LIKE TO GET TO SCHOOL?**

|                     |     |       |
|---------------------|-----|-------|
| Walk                | 40  | 14.4% |
| Bike                | 61  | 21.9% |
| School Bus          | 78  | 28.1% |
| Car                 | 66  | 23.7% |
| Other non-motorized | 32  | 11.5% |
| Other               | 8   | 2.9%  |
| Total               | 285 |       |

**QUESTION 3: HOW DO YOU GET HOME SCHOOL?**

|                     |     |       |
|---------------------|-----|-------|
| Walk                | 29  | 10.7% |
| Bike                | 1   | 0.4%  |
| School Bus          | 167 | 61.4% |
| Car                 | 72  | 26.5% |
| Other non-motorized | 2   | 0.7%  |
| Other               | 1   | 0.4%  |
| Total               | 272 |       |

**QUESTION 4: HOW WOULD YOU MOST LIKE TO GET HOME SCHOOL?**

|                     |     |       |
|---------------------|-----|-------|
| Walk                | 42  | 15.1% |
| Bike                | 52  | 18.6% |
| School Bus          | 94  | 33.7% |
| Car                 | 54  | 19.4% |
| Other non-motorized | 29  | 10.4% |
| Other               | 8   | 2.9%  |
| Total               | 279 |       |

**QUESTION 5: HOW SAFE DO YOU THINK YOUR TRIP TO SCHOOL IS?**

|           |     |       |
|-----------|-----|-------|
| Very safe | 157 | 62.1% |
| OK        | 92  | 36.4% |
| Dangerous | 4   | 1.6%  |
| Total     | 253 |       |

**QUESTION 6: WHAT WOULD MAKE BIKING/WALKING TO SCHOOL BETTER?**

|                        |     |       |
|------------------------|-----|-------|
| Companion to walk with | 146 | 19.6% |
| Less cars              | 67  | 9.0%  |
| Continuous sidewalks   | 78  | 10.5% |



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|                             |     |       |
|-----------------------------|-----|-------|
| No strangers/bullies        | 147 | 19.7% |
| Safe crossings              | 106 | 14.2% |
| Snow removed form sidewalks | 88  | 11.8% |
| Bike Racks                  | 28  | 3.8%  |
| Other                       | 85  | 11.4% |
| Total                       | 745 |       |

**QUESTION 7: HOW DO YOU FEEL ABOUT WALKING?**

|  |             |     |          |     |
|--|-------------|-----|----------|-----|
|  | fun         | 140 | Boring   | 52  |
|  | Safe        | 119 | Not Safe | 44  |
|  | Not healthy | 2   | healthy  | 166 |
|  | cool        | 107 | Not cool | 38  |

**QUESTION 8: HOW DO YOU FEEL ABOUT BIKING?**

|  |             |     |          |     |
|--|-------------|-----|----------|-----|
|  | fun         | 184 | Boring   | 13  |
|  | Safe        | 97  | Not Safe | 58  |
|  | Not healthy | 4   | healthy  | 146 |
|  | cool        | 107 | Not cool | 38  |

**QUESTION 8: HOW OFTEN DO YOU PLAY SPORTS/EXERCISE WHEN NOT @ SCHOOL**

|  |                  |     |     |
|--|------------------|-----|-----|
|  | Almost every day | 167 | 66% |
|  | Twice per week   | 54  | 21% |
|  | Once per seek    | 28  | 11% |
|  | never            | 5   | 2%  |
|  | Total            | 254 |     |



## APPENDIX C PARENT SURVEYS

**Question 1: HOW DOES CHILD GET TO SCHOOL?**

|              |            |       |
|--------------|------------|-------|
| Walk         | 39         | 10.1% |
| Bike         | 7          | 1.8%  |
| School Bus   | 197        | 51.2% |
| Car          | 137        | 35.6% |
| Other        | 5          | 1.3%  |
| <b>Total</b> | <b>385</b> |       |

**QUESTION 2: HOW DOES CHILD GET HOME IN THE AFTERNOON?**

|              |            |       |
|--------------|------------|-------|
| Walk         | 40         | 10.5% |
| Bike         | 7          | 1.8%  |
| School Bus   | 198        | 52.0% |
| Car          | 120        | 31.5% |
| Other        | 16         | 4.2%  |
| <b>Total</b> | <b>381</b> |       |

**QUESTION 3: HOW DID PARENT GET TO SCHOOL WHEN IN ELEMENTARY SCHOOL?**

|              |            |       |
|--------------|------------|-------|
| Walk         | 121        | 43.8% |
| Bike         | 10         | 3.6%  |
| School Bus   | 108        | 39.1% |
| Car          | 29         | 10.5% |
| Other        | 8          | 2.9%  |
| <b>Total</b> | <b>276</b> |       |

**QUESTION 4: IN AN IDEAL NASHUA HOW WOULD YOUR CHILD GET TO SCHOOL?**

|              |            |       |
|--------------|------------|-------|
| Walk         | 77         | 28.4% |
| Bike         | 21         | 7.7%  |
| School Bus   | 154        | 56.8% |
| Car          | 17         | 6.3%  |
| Other        | 2          | 0.7%  |
| <b>Total</b> | <b>271</b> |       |

**QUESTION 5: IS WALKING/BIKING TO SCHOOL SAFE?**

|              |            |     |
|--------------|------------|-----|
| Yes          | 23         | 10% |
| No           | 215        | 90% |
| <b>Total</b> | <b>238</b> |     |

**QUESTION 6: WHY IS BIKING/WALKING TO SCHOOL UNSAFE?**

|                          |            |       |
|--------------------------|------------|-------|
| Traffic speed/volume     | 207        | 29.0% |
| Sidewalk conditions      | 189        | 26.5% |
| Danger crossing street   | 119        | 16.7% |
| Strangers/bullies/crime  | 71         | 9.9%  |
| No one to walk/bike with | 86         | 12.0% |
| Other                    | 42         | 5.9%  |
| <b>Total</b>             | <b>714</b> |       |



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**QUESTION 7: WALKING/BIKING TO SCHOOL INCREASES ALERTNESS:**

|                   |            |       |
|-------------------|------------|-------|
| Strongly Disagree | 18         | 8.2%  |
| Disagree          | 16         | 7.3%  |
| Neither           | 93         | 42.3% |
| Agree             | 48         | 21.8% |
| Strongly Agree    | 45         | 20.5% |
| <b>TOTAL</b>      | <b>220</b> |       |

**QUESTION 8: WALKING/BIKING TO SCHOOL DEVELOPS A HEALTHY LIFESTYLE:**

|                   |     |       |
|-------------------|-----|-------|
| Strongly Disagree | 16  | 7.3%  |
| Disagree          | 9   | 4.1%  |
| Neither           | 28  | 12.8% |
| Agree             | 56  | 25.6% |
| Strongly Agree    | 110 | 50.2% |
| <b>TOTAL</b>      |     |       |

**QUESTION 9: WALKING/BIKING TO SCHOOL DEVELOPS SELF RELIANCE**

|                   |            |       |
|-------------------|------------|-------|
| Strongly Disagree | 15         | 6.8%  |
| Disagree          | 19         | 8.6%  |
| Neither           | 33         | 14.9% |
| Agree             | 96         | 43.2% |
| Strongly Agree    | 59         | 26.5% |
| <b>TOTAL</b>      | <b>222</b> |       |

**QUESTION 10: IF ROUTE WERE IMPROVED WOULD YOU CONSIDER ALLOWING YOUR CHILD TO WALK/BIKE TO SCHOOL?**

|               |            |       |
|---------------|------------|-------|
| Yes           | 56         | 23.6% |
| No            | 78         | 32.9% |
| Maybe         | 85         | 35.9% |
| Already walks | 18         | 7.6%  |
| <b>Total</b>  | <b>237</b> |       |