WHEELOCK ELEMENTARY SCHOOL

SAFE ROUTES TO SCHOOL ACTION PLAN

SafeRoutes

September 2015 • Keene, NH

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Acknowledgements

In 2015, Wheelock Elementary School (WES) worked with the Southwest Region Planning Commission (SWRPC) to develop a Safe Routes to School Action Plan. Michelle Tiani, the Physical Education teacher, helped to provide SWRPC staff with locally relevant guidance and input for this Action Plan. SWRPC and WES are grateful for Michelle's contributions to this plan.

Funding for this document was made possible, in part, by the Centers for Disease Control and Prevention through the Partners to Improve Community Health initiative. The views expressed in this document do not necessarily reflect the official policies of the Department of Health and Human Services, nor does the mention of trade names, commercial practices, or organizations imply endorsement by the United States Government.

Southwest Region Planning Commission

WHEELOCK SCHOOL

Healthy MONADNOCK 2020

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INTRODUCTION

The Wheelock Elementary School Safe Routes to School Action Plan was created to identify measures that will improve conditions for walking and biking to school. It includes an evaluation of existing travel conditions, strategies to improve education, encouragement, and enforcement activities, and recommendations for physical improvements, educational programs and community efforts that will encourage walking and biking within a two-mile radius of the school. This document was prepared with input and guidance from Michele Tiani, the Physical Education teacher at Wheelock.

Project Overview

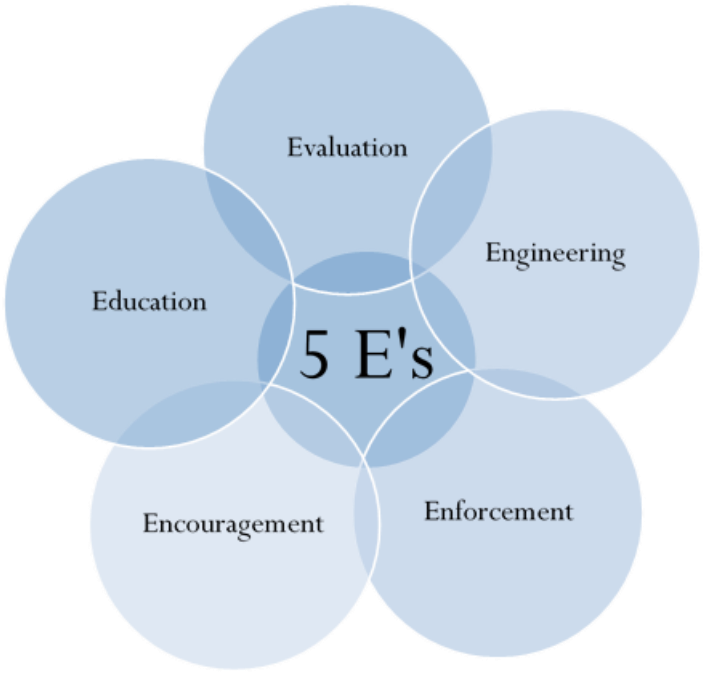
Safe Routes to Schools (SRTS) is a national program focused on improving the health and wellbeing of children by creating safe opportunities to walk and bike to school. SRTS programs examine the conditions around schools and conduct activities to improve safety and accessibility, traffic and air pollution in the vicinity of schools. Communities conducting these programs are encouraged to employ a combination of evaluation, education, encouragement, enforcement and engineering strategies to address the specific needs of their school(s).

This comprehensive approach, called the five (5) E's, is centered on an understanding that the barriers to safe walking and bicycling are both behavioral and physical. Although the focus of this Action Plan is evaluation, each of the 5 E's (described below) is addressed.

- Evaluation involves monitoring and documenting outcomes, attitudes and trends through the collection of data before and after program activities or projects. These activities help track which strategies would be most or least successful and which should be modified for better results.

- Education programs include teaching pedestrian/bicyclist/traffic safety and creating awareness of the benefits and goals of SRTS. Education programs can also incorporate health and environmental considerations associated with walking and bicycling.

Figure 1. The Safe Routes to School 5 E's



- Encouragement activities generate excitement and interest in walking and bicycling. Special events, mileage clubs, contests and ongoing activities all provide ways for parents, caregivers and children to discover or re-discover that walking and bicycling are do-able and fun.

- Enforcement programs are focused on deterring unsafe behaviors of drivers, pedestrians and bicyclists, and encouraging all road users to obey traffic laws and share the road safely.

- Engineering is a broad concept used to describe the design, implementation, and maintenance of traffic control devices or physical measures. These strategies create safer environments for walking and bicycling through improvements to the infrastructure surrounding the schools.

Benefits of Safe Routes to School

Safe Routes to School (SRTS) programs create a safer travel environment near schools and serve to reduce motor vehicle congestion at school drop-off and pick-up areas. Students that choose to walk or bike to school are rewarded with the benefits of a more active lifestyle, as well as the responsibility and independence that comes from being in charge of the way they travel. SRTS programs offer additional benefits to neighborhoods by helping to reduce school-related traffic and provide infrastructure improvements that facilitate walking and bicycling for everyone. Identifying and improving routes for students to safely walk and bicycle to school can also help reduce traffic speeds in neighborhoods, reduce traffic congestion on weekday mornings and afternoons at schools, and decrease auto-related pollution around school environments.

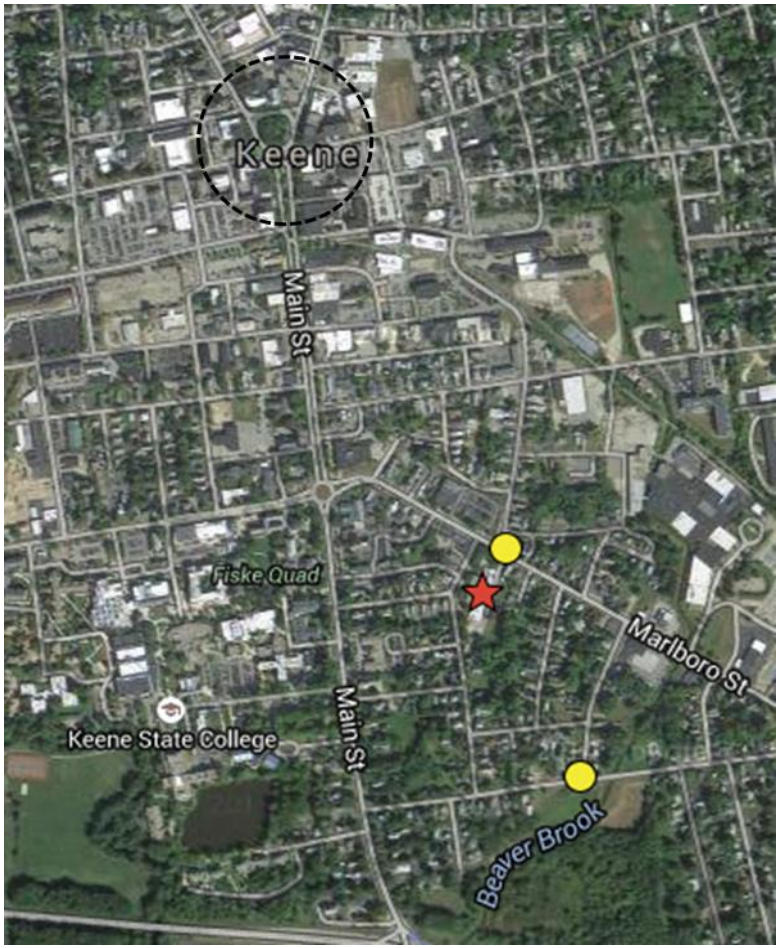
STUDY AREA

Wheelock Elementary School (WES) is located in a residential neighborhood on Adams Street, approximately 0.5 miles from Central Square in Keene, NH and approximately 0.25 miles from Keene State College. Figure 2 shows an aerial view of the school in relation to the crossing guard locations and downtown Keene. The school includes grades Kindergarten through fifth and enrolled 238 students in the 2014-2015 academic school year. Approximately 58% of the student population, or 138 students, lived within a one-mile radius of the school in 2014. Map 1 on the next page displays the extent of the WES study area and the relationship of the school with the surrounding neighborhoods, college, and downtown area.

Primary access to Wheelock Elementary School is from the intersection of Marlboro Street and Adams Street, however the school can also be accessed at the other end of Adams Street from Baker Street. There are two crossing guards; one is located at the intersection of Marlboro St. and Grove St., and one is located at the intersection of Baker St. and Kelleher St.

Figure 3. A close-up aerial view of Wheelock Elementary School.

Figure 2. Aerial images of the school in relation to the surrounding neighborhoods and Central Square in Keene.

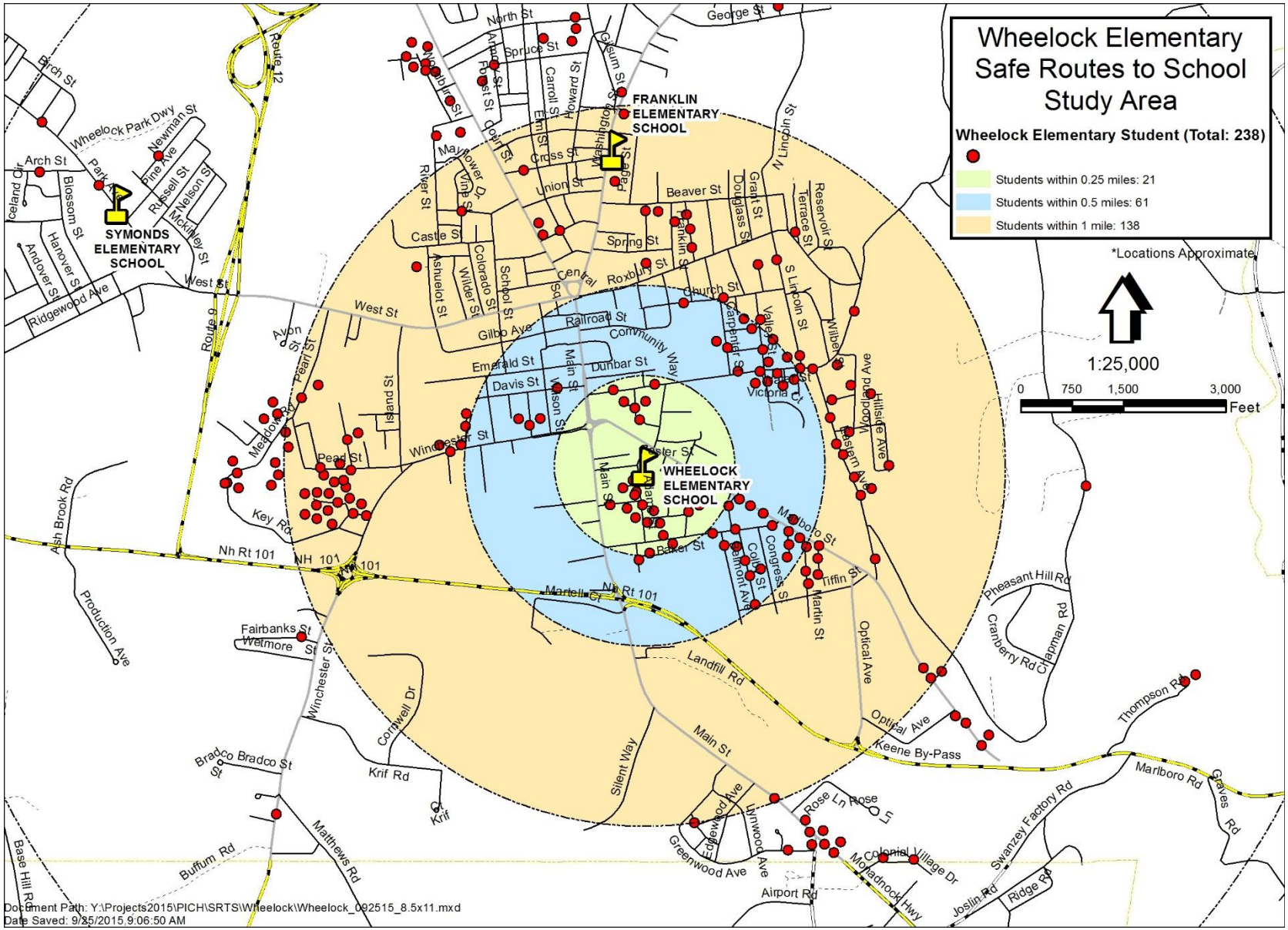


= Location of Wheelock Elementary School

= Crossing guard locations on Marlboro St. and Baker St.

= Location of Central Square in Keene, NH

Map 1. Wheelock Elementary School Study Area.



EVALUATION OF EXISTING TRAVEL CONDITIONS

To better understand existing travel conditions within the study area (see Map 1), SWRPC staff conducted morning and afternoon field studies to review the behaviors and travel patterns of students, buses, and motorists at WES during drop-off and pick-up hours, collected and analyzed traffic speed and volume data, and distributed and analyzed data from a take-home parent survey and an in-class student tally related to student travel modes. A review of these observations and analysis is included in the sections below.

School Arrivals and Departures

School begins at 8:20 am and lets out at 3:00 pm (2:55 pm for Kindergarten). The bus loading and unloading zone is located directly in front of the school on Adam's Street, and bus arrivals are staggered between 8:00 and 8:20 am. As children exit the school bus, they are greeted by a student safety patrol. Students in grades K-2 line up and walk together to the school playground on the corner of Adams St. and Marlboro St., and students in grades 3 – 5 go to the playground behind the school. A few parents were observed using the bus loading and unloading zone to drop off children, despite signs that prohibit use of the bus loading zone for this purpose.

There are several parking spaces on Adam's Street in front of the school for parents to use during drop-off and pick-up, however there are not enough spaces to accommodate more than 4-5 cars at a time. As a result, many parents park along Adam's Street or in the Savings Bank of Walpole parking lot and then walk their kids to school the rest of the way. Traffic flow on Adam's Street was congested in both the morning and afternoon, partly due to cars parked along both sides of the roadway which constricted two-way traffic. A few cars were observed speeding in the school zone on Adam's Street.

Adult crossing guards were present at the crossing on Marlboro Street and on Baker Street in both the morning and afternoon. In general, motorists on Marlboro Street did not stop for pedestrians waiting to cross the street unless the crossing guard was present, and several drivers were observed speeding. No pedestrians were observed on Baker Street during the observation period. Cars turning from Grove Street onto Marlboro Street usually pulled up too far before stopping, and as a consequence blocked the crosswalk for pedestrians.

The crossing guard stops traffic on Grove Street to allow a father and his child to cross the street. Cars often blocked this crosswalk by pulling up too far before stopping.

Parent and In-Classroom Surveys

Wheelock Elementary School (WES) and SWRPC staff worked with WES faculty and administration to conduct the National SRTS Parent and In-Classroom Surveys during the second half of the 2014-2015 school year. These surveys helped generate an understanding of the number of students currently biking and walking to school and identified some of the barriers that prevent parents from allowing their children to walk or bike to school.

Parent Survey

A total of 44 households representing 70 students completed the Parent Survey. Of this sample, over half (54%) of parents indicated they are not comfortable with their child walking or biking to school at any age. The remaining parents surveyed were comfortable with their child walking at various different ages ranging from third grade to seventh grade, as shown in Figure 4.

Parents cited numerous factors that influence their decision to either allow or not allow their child to walk/bike to and from school. The two predominant factors influencing parents are the speed of traffic along the route to school and the amount of traffic along the route to school, which were noted by 36% of survey respondents. Other significant factors indicated on the survey included the safety of intersections and crossings, weather or climate, and distance. Table 1 displays the full range of parent responses to this survey question.

Among the parents surveyed, 43% live a mile or less from school. Thirty four percent live between 1 and 2 miles away, 18% live greater than 2 miles away, and 5% of parents were unsure of their distance from school.

A few of the general comments shared by parents on this survey are included on the next page. Many of these parent comments emphasize that parents do not feel comfortable letting a child walk or bike to school alone for various reasons, including distance, weather conditions, safety of intersections, and dangerous people along the route.

Figure 4. Grade at which parents are comfortable allowing their child to walk or bike to/from school.

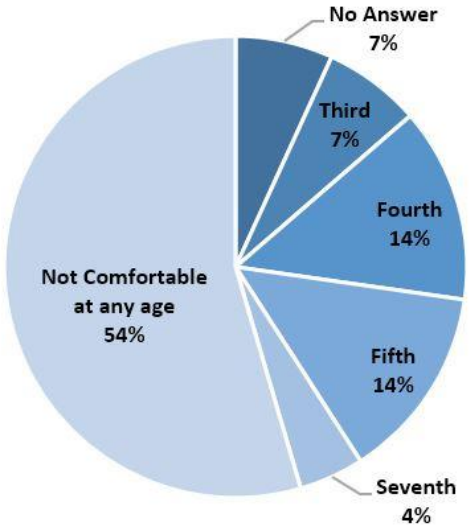


Table 1. Factors influencing decision to allow child to walk/bike to school.

Influencing Factor	% Respondents
Speed of traffic along route	36%
Amount of traffic along route	36%
Safety of intersections and crossings	34%
Weather or climate	34%
Distance	32%
Time	27%
Violence or crime	23%
Adults to walk or bike with	20%
Sidewalks or pathways	20%
Crossing guards	14%
Convenience of driving	11%
Before or after school activities	7%

Walking/Biking Alone

"Would be ok with him walking with a friend, but not alone. Has a younger brother so right now if we walk I am with them. Also street crossing marks are misplaced at Water and Grove. They don't line up with the sidewalk on the other side of the street - confusing."

"Would love to see more children walking and biking to school! If our son had a travel buddy, we (parents) would let him go with friend rather than one of us."

"Having a buddy to bike with would encourage him. Also I have a younger daughter who cannot ride on her own but would like to ride with her brother. Not comfortable making him responsible

Safety Concerns

"Even at an older age it is too dangerous for my child to walk or bike to school... There are hypodermic needles on sidewalks on any given day. And most importantly, cars drive way too fast and drivers do not stop for walkers nor do they ever yield/stop for children. Even when I walk them to school we were almost run over at least 4 times."

"I feel that Water Street is not a safe area for my child to walk or bike alone. I feel that the intersection of Water and Grove is very unsafe. I also don't approve of the bar near the school."

"Our only concern is with him crossing Baker Street. Traffic tends to speed over hill and crosswalk is located at bottom of hill (this includes police cruisers) and this particular crosswalk does not have a crossing guard."

Other Comments & Concerns

"I wish children in younger grades were allowed to bike to school with a responsible adult who would lock the bike at school."

"My children and I often walk to school when it is warmer (hard to do in the winter). As they grow, I am sure they would enjoy biking too, but aftercare doesn't allow for that."

"Adams St. near school is congested. I wish they would use grass area between curb and sidewalk to widen the street. You need the parking on the east side of street, but currently with parked cars, traffic cannot go both ways."

"I think the City and schools did a great job trying to keep up with the weather. I feel it is the college people that cause bottlenecks around the school zone. They don't follow directions.

The Parent Survey was also used as a tool to better understand how many students living within a 2 mile radius of WES currently walk or bike. Table 2 displays the number of students that arrive or depart school via bicycle, carpool, walking, school bus, or parent vehicle as indicated on the Parent Survey. This table also shows the distance of students' homes from the school. All respondents to the parent survey indicated an arrival mode, and 98% of respondents to the parent survey (43 out of 44 households) indicated a departure mode.

According to the parent survey, the predominant arrival mode is parent vehicle (52% of households) followed by the school bus (36% of households). Of the students who arrive in a parent vehicle, about 43.5% live a mile or less from school. In the afternoon, the predominant departure mode is school bus (58% of households) followed by parent vehicle (28% of households). Of the students who depart in a school bus, 52% live a mile or less from school. A small percentage of students walk or bike to school (9% and 2% of households, respectively) and in the afternoon, only one student departs school in a carpool (2% of households).

Table 2. Student mode of travel to and from school based on parent survey.

ARRIVAL MODE	# Students	DEPARTURE MODE	# Students
Bicycle	**1**	**Bicycle**	**1**
Greater than 2.0 mi	1	Greater than 2.0 mi	1
Carpool	**0**	**Carpool**	**1**
		Between 1.0 mi - 2.0 mi	1
Walk	**4**	**Walk**	**4**
Less than 0.25 mi	3	Less than 0.25 mi	2
Between 0.25 mi - 0.5 mi	1	Between 0.25 mi - 0.5 mi	1
		Between 1.0 mi - 2.0 mi	1
School Bus	**16**	**School Bus**	**25**
Between 0.25 mi - 0.5 mi	1	Less than 0.25 mi	2
Between 0.5 mi - 1.0 mi	4	Between 0.25 mi - 0.5 mi	2
Between 1.0 mi - 2.0 mi	8	Between 0.5 mi - 1.0 mi	9
Greater than 2.0 mi	2	Between 1.0 mi - 2.0 mi	7
Don't Know	1	Greater than 2.0 mi	3
		Don't Know	2
Parent Vehicle	**23**	**Parent Vehicle**	**12**
Less than 0.25 mi	1	Between 0.5 mi - 1.0 mi	2
Between 0.25 mi - 0.5 mi	1	Between 1.0 mi - 2.0 mi	6
Between 0.5 mi - 1.0 mi	8	Greater than 2.0 mi	4
Between 1.0 mi - 2.0 mi	7		
Greater than 2.0 mi	5		
Don't Know	1		

In-Classroom Survey

The In-Classroom survey was administered by all classrooms at WES in mid-May 2015. Teachers surveyed students each morning and afternoon for three consecutive days (Tuesday – Thursday) on their mode of arrival to and departure from the school. On average, 70 students shared their arrival modes and 71 shared their departure modes. An average of 8 students arrive to school via walking and depart school on foot, which is roughly 11.5% of total respondents. During the survey period, more students rode the bus in the afternoon than in the morning; in the morning, 27 students (38% of survey respondents) arrived by bus, whereas in the afternoon 37 students (52% of survey respondents) departed by bus. The opposite trend was recorded for students traveling to and from school in a family vehicle;

Table 3. Mode of travel to and from school based on in-classroom survey.

Mode of Travel	Morning/Arrival		Afternoon/Departure	
	Average # of Students	% of Total Respondents	Average # of Students	% of Total Respondents
Walking	8	12%	8	11%
Biking	0	0%	1	1%
Family Vehicle	33	47%	23	32%
Bus	27	38%	37	52%
Carpool	1	1%	2	2%
Transit	0	0%	0	0%
Other	1	1%	1	1%

33 students arrived in a family vehicle whereas 23 departed in a family vehicle (47% and 32% of survey respondents, respectively). An average of 2 students arrived and departed in a carpool over the three days of the survey (about 1.5% of survey respondents).

Traffic Volume and Speeds

To better understand vehicular travel conditions near WES, SWRPC staff conducted traffic volume counts on Adams Street and Elliot Street and conducted turning movement counts for the intersection of Marlboro Street and Adams Street and the intersection of Marlboro Street and Grove Street. Figure 5 identifies the location of the traffic counters. Sites 1-3 (yellow) are the traffic counter sites, and sites 4 and 5 (blue) are where turning movement counts took place. Figure 6 shows average weekday traffic volume in vehicles per day for each of the SWRPC traffic counting sites, and Figure 7 displays the average weekday traffic volume in vehicles per hour at each of the three sites during peak morning and afternoon hours. In general, traffic volumes are higher during peak morning hours when parents are dropping off their children compared to peak afternoon hours when children are getting picked up. This could be due to the fact that fewer children are picked up by their parents than are dropped off in the morning. The higher traffic volumes recorded during peak morning hours could also be due to other factors, such as morning commuter traffic unassociated with WES. The highest traffic volumes were recorded on Adams Street north of Elliot Street, both for the daily average and during peak morning and afternoon hours for the school.

In addition to traffic volume counts, SWRPC staff conducted turning movement counts during peak morning (7:00 – 9:00 a.m.) and afternoon (2:00 – 4:00 p.m.) hours at the intersection of Marlboro Street and Grove Street and the intersection of Marlboro Street and Adams Street (Sites 4 and 5 in Figure 5). The results of the turning movement counts are shown in Figures 8 and 9 on page 11. The yellow arrows indicate the number of vehicles counted and the direction of traffic, including both motor vehicles and bicycles traveling in the vehicle lanes. The black arrows next to the pedestrian symbol indicate the number of pedestrians that were observed crossing the road at that location. Pedestrians may have been counted more than once at the same intersection if they crossed the street at multiple locations. For example, at the intersection of Marlboro Street and Grove Street, there were 20 people who crossed Grove Street at the crosswalk and 16 people who crossed Marlboro Street during the morning hours. However, some of the people who crossed Grove Street may have also crossed Marlboro Street, and were therefor counted twice. The number of bicyclists observed at each intersection in the morning and afternoon peak hours is shown in Table 5. Bicyclists who walked their bikes across the road at a crosswalk were counted as pedestrians, not vehicles. The full traffic study can be found in Appendix D.

Figure 5. Locations of traffic counters (yellow) and turning movement counts (blue).

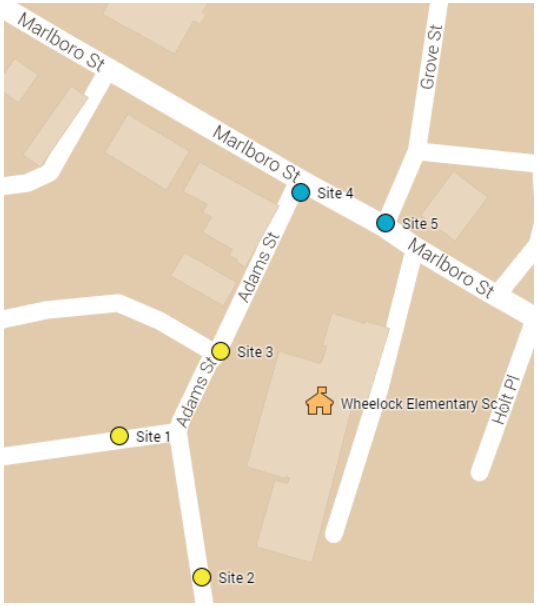


Table 4. Number of bicyclists observed during peak morning and afternoon hours.

# Bicyclists Observed	Marlboro St. & Grove St.	Marlboro St. & Adams St.
Morning (7 – 9 AM)	18	6
Afternoon (2 – 4 PM)	7	6

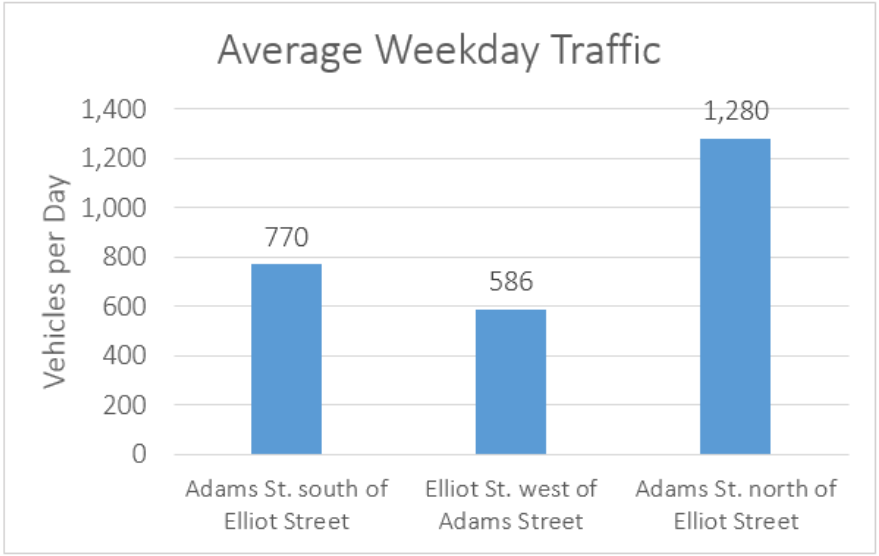


Figure 6. Average weekday traffic at three SWRPC traffic counting sites, in vehicles per day.

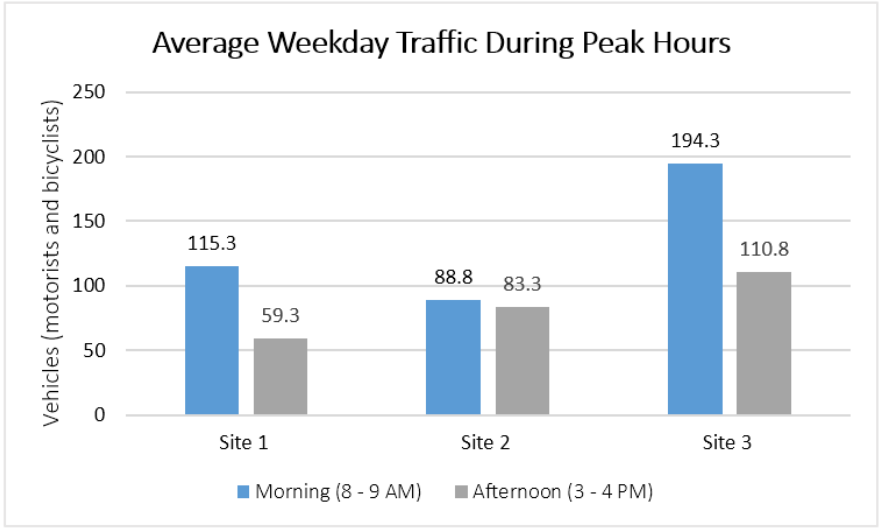


Figure 7. Average weekday traffic volumes during peak morning and afternoon hours at the three traffic counter sites, in vehicles per hour.

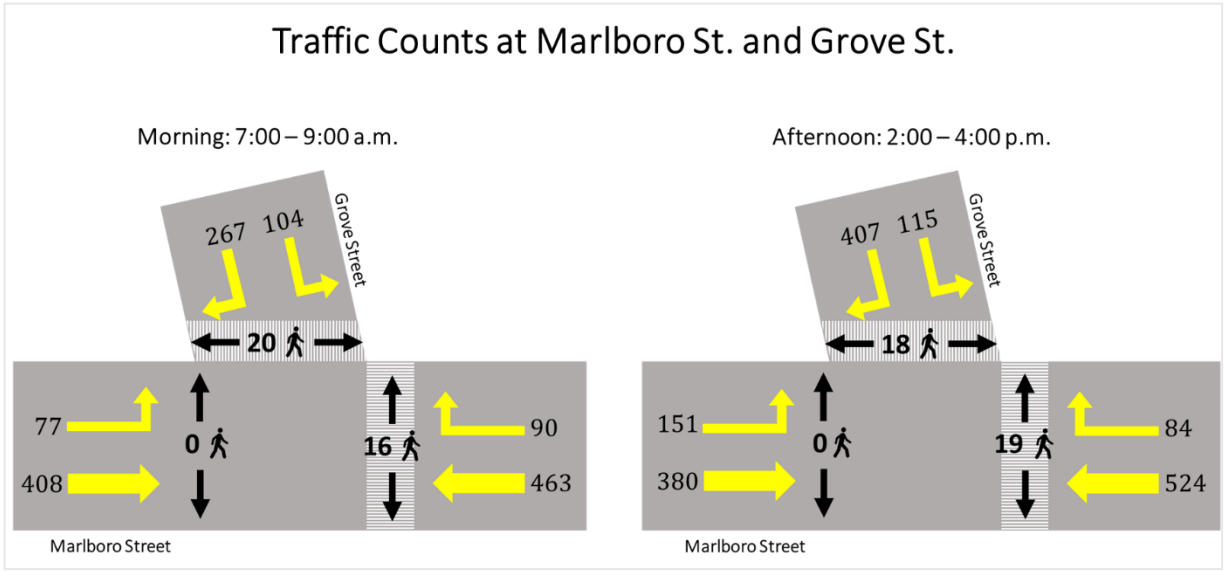


Figure 8. Morning and afternoon turning movement counts at the intersection of Marlboro St. and Grove St. The yellow arrows indicate the direction of vehicles, and the numbers next to the arrows indicate the number of vehicles counted (including motorized vehicles and bicyclists). The number next to the figure of a person indicates the number of pedestrians observed crossing at that location. Counts were conducted on June 3, 2015 by SWRPC staff.

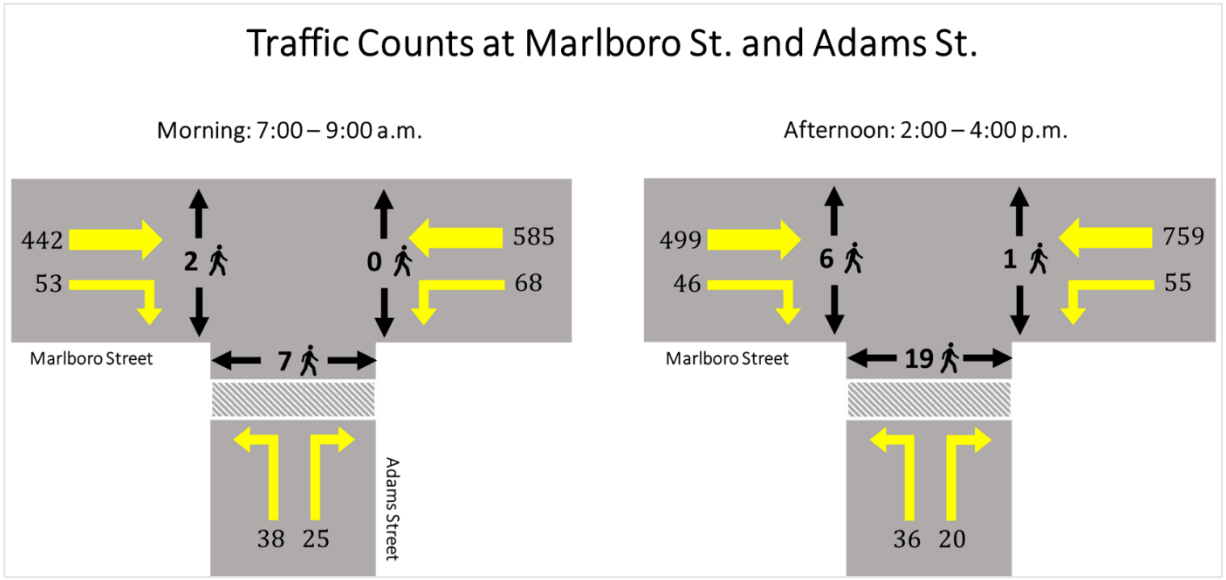


Figure 9. Morning and afternoon turning movement counts at the intersection of Marlboro Street and Adams Street. The yellow arrows indicate the direction of vehicles, and the numbers next to the arrows indicate the number of vehicles counted (including motorized vehicles and bicyclists). The numbers next to the figure of a person indicate the number of pedestrians observed crossing at that location. Counts were conducted on June 3, 2015 by SWRPC staff.

Accident/Crash Data

Between 2004 and 2013, there were 1,299 accidents reported within a 1-mile radius of Wheelock Elementary School (see Map 1 on page 4). During this timeframe, there were a total of 62 pedestrian crashes, most of which occurred on Main Street, West Street and Winchester Street. Twelve pedestrian crashes were reported within a ¼ mile of Wheelock Elementary School. There were a total of 24 accidents reported between 8:00 am – 8:30 am on weekdays, and a total of 63 accidents were reported between 3:00 pm – 3:30 pm on weekdays. Table 5 displays the number of crashes that were reported within a 1-mile radius of Wheelock School by year, Table 6 displays the number of crashes that were reported within a 1-mile radius of WES by day of the week, and Table 7 shows the number of crashes that were reported on selected roads near the school.

Table 5. Number of reported accidents by year in the study area.

Year	# of Crashes
2004	132
2005	104
2006	98
2007	97
2008	99
2009	188
2010	167
2011	98
2012	192
2013	124

Day	# of Reported Crashes
Monday	182
Tuesday	198
Wednesday	182
Thursday	211
Friday	245
Saturday	164
Sunday	116

Table 6. Number of reported accidents by day of the week within the study area.

Table 7. Number of reported accidents for selected streets within the study area.

# Crashes	Marlboro St.	Adams St.	Baker St.	Lower Main St.
Total	41	11	6	68
Bicyclist	0	0	0	1
Pedestrian	0	1	0	3

RECOMMENDATIONS

Education Recommendations

Education is an essential component of improving safe walking and biking conditions. WES should consider using this Action Plan as an opportunity to educate the school community about the benefits of walking and biking to school and on safe travel behavior for students and parents. Recommendations for enhancing education and awareness of the importance of and need for safe walking and bicycling routes to school are described below.

- Share this Action Plan with Faculty, Staff, Parents, and Students of Wheelock Elementary School, as appropriate.
- Share information on student bicycle and pedestrian safety with the WES school community via the school's website, newsletter, and/or other information outlets.
- Offer lessons on pedestrian and bicyclist safety as part of the school curriculum. For resources on safety education, see the National Safe Routes to School Curricula page: http://www.walkbiketoschool.org/keep-going/ongoing-activities/classroom-curricula
- Work with the local police department and/or fire department to hold an annual event for students on bicycle safety and the rules for bicyclists in New Hampshire (i.e. bike rodeo).
- Develop and distribute an easy-to-read map for students and families to use to identify routes in a one-mile radius of the school that are safe for walking and bicycling.

Above: A bike rodeo organized by the Bicycle Coalition of Maine in 2012.

Encouragement Recommendations

Encouragement activities help to generate excitement and interest in walking and bicycling. Special events, mileage clubs, contests and ongoing activities all provide ways for parents and children to discover, or re-discover, the benefits of walking and bicycling to school. Several recommended encouragement activities are listed below.

- **Organize a Walk to School Day and/or Bike to School Day event to promote walking and bicycling to school.** National Walk to School Day occurs the first week of October, and National Bike to School day occurs the first week of May. Tips for organizing a Walk to School Day (or Bike to School Day) event include:

  - Designate an event organizer. This could be a parent, PE teacher, school principal, or local non-profit organization.
  - Try to include all students, including those who live too far to walk, by designating a remote drop-off location (for example, the Keene Recreation Center).
  - Recruit partners and volunteers, such as the police department, parent volunteers, teachers, and school administrators.
  - Promote the event ahead of time with flyers, newsletters, PA announcements, and letters to parents.
  - Contact local media and invite community leaders/local celebrities, such as the mayor or a team mascot, to your event.
  - Take pictures of the event, and celebrate!
  - For more information, guidance, and resources on how to plan a Walk to School Day event, see the Walk to School Day Guide, available at www.walkbiketoschool.org.

Salt Brook Elementary students and parents organized a walking school bus for Walk to School Day in in 2013.

- **Organize a walking school bus with parents and community members.** A walking school bus is a group of children walking to school with one or more adults, and it can be informal (usually organized by parents) or a formal school program. The walking school bus could begin at a central location such as Carpenter Field. Tips for organizing a walking school bus include:

  - Designate a staff member or teacher to coordinate with volunteers and families (if it is a formal school program).
  - Recruit parent volunteers to help supervise children as they walk to school.
  - Have a clearly defined meeting location and schedule.
  - Keep lines of communication open with parents in case the walking school bus is canceled for any reason, such as inclement weather or 2-hour delay.

- **Create a School-wide "mileage club" or run a school-wide "mileage contest."** Children can track their trips individually, or classes can track their miles as a class and compete against other classes. Students or classes are rewarded with recognition, awards, and/or trophies. Tips for organizing a mileage club/contest include:
  - Bring in a local expert, such as Beth Corwin from Symond's Elementary School, to share lessons learned from developing a successful "Walk, Roll, & Ride" program.
  - Identify a program coordinator, such as a PE teacher or another staff member that is enthusiastic about the program.
  - Decide where children can accrue mileage (on the way to school, at home, on the school campus).
  - Create system for logging and tracking mileage or number of times walked / bicycled.
  - Decide on incentives (recognition at school assembly, trophy or other type of award).
  - Seek funding to support the program—materials, awards, prizes, etc.
  - Recognize and reward participation.
  - Track participation.
  - Make changes as needed—the program will change over time to fit the unique needs of your school community.
- Utilize the National Safe Routes to School website (www.saferoutesinfo.org) and the NH DOT SRTS program (www.nh.gov/dot/org/projectdevelopment/planning/srts) as resources to identify ideas and opportunities for additional encouragement activities.

Symonds Elementary School students get their cards punched for the Symonds "Walk, Roll, and Ride" program.

Enforcement Recommendations

The goal of enforcement is to deter unsafe driver behavior as well as unsafe pedestrian and bicyclist behavior. Enforcement strategies encourage all users of the roadway to obey traffic laws and share the road. Enforcement strategies should be implemented in combination with education, encouragement, and engineering strategies to have a maximum impact. Used on its own, enforcement does not usually result in long-term, lasting changes in driver behavior. Recommended enforcement strategies are listed below.

- **Work with local law enforcement to address speeding on Marlboro Street.** The school should set up a meeting with the Keene Police Department to discuss options for traffic calming on Marlboro Street during peak morning and afternoon hours. Potential options may

include increasing patrols during peak morning and afternoon hours when the school speed zone is in effect and/or posting portable speed trailers or active speed monitors that show motorists' speeds as they approach the school crossing.

- **Work with local law enforcement to address dangerous driver behavior on Adams Street.** During field observations, SWRPC staff observed several motorists who sped down the street during peak morning drop-off hours. Also, according to comments from crossing guards and school staff, some drivers will pass busses when they are stopped to drop off or pick up children. The school should consider meeting with the Keene Police Department to discuss options for additional patrols or other measures that could help deter this type of behavior.
- **Work with the City to ensure the continued presence of crossing guards at key intersections.** Adult crossing guards remind drivers that pedestrians are present and help children develop the skills needed to safely cross the street at all times. The school should continue to advocate for crossing guards at the Marlboro Street crossing and, if needed, at the Baker Street crossing.
- **Strictly enforce proper drop-off and pick-up process**. The school should inform and remind parents of the proper drop-off and pick-up process on a regular basis. In addition, the school may want to consider having a staff person direct parents to stay clear of the bus loading and unloading zone during drop-off and pick-up times.

Engineering Recommendations

Engineering is a broad concept used to describe the design, implementation, operation and maintenance of traffic control devices or physical measures, including low-cost as well as high-cost capital measures. Infrastructure such as sidewalks, visible crosswalks, trails/paths, and connectivity between sidewalks and trails/paths creates conditions that improve safety for walking and bicycling in the area surrounding the school. Recommended engineering strategies for Wheelock Elementary School are listed below.

- **Work with the City of Keene to address speeding on Marlboro Street.** In addition to the enforcement recommendations above, the school may want to meet with the City to explore options for traffic calming on Marlboro Street. Potential traffic calming measures could include narrowing traffic lanes, adding curb extensions or a pedestrian refuge island at the school crossing on Marlboro Street, and/or adding in bike lanes (which will narrow travel lanes and create wider turning radii at intersections).
- **Work with the City of Keene to address traffic congestion on Adams Street.** The school may want to meet with the City of Keene to address traffic flow problems on Adams Street, especially during peak morning and afternoon hours. The school should try to include residents in the surrounding neighborhoods in these discussions, as any decisions made will have an impact on residents of Adams Street and smaller neighborhood roads connected to Adams Street.

- **Work with the City of Keene to address speeding on Baker Street.** The school should consider meeting with the City of Keene to discuss options for slowing down traffic on Baker Street. Although no pedestrians were observed by SWRPC staff at the Baker Street crossing, several motorists were observed speeding and talking on their phones. According to student location data, there are over 20 students who live within a 1-mile radius of the school and would have to cross Baker Street in order to walk or bike to school. Traffic speeds and distracted drivers may be a deterrent for these families to allow their children to walk and/or bike to school.

Evaluation Recommendations

Evaluation involves monitoring and documenting outcomes, attitudes and trends through the collection of data before and after program activities or projects. These activities help track which strategies would be most or least successful and which should be modified for better results. As of the time of this writing, Wheelock Elementary School had already collected baseline data on student travel modes to and from school. Moving forward, the school should consider the evaluation recommendations listed below.

- **Conduct walkability audits of walking routes with members of the school community.** The National Safe Routes to School Partnership has created a walkability checklist that parents and students can use to evaluate their walk to school and identify areas that need improvement. This assessment can help alert school and town officials to areas within the community that need attention. The walkability checklist can be found in Appendix E.
- **Administer the "Safe Routes to School Arrival and Departures Tally Sheet" on an annual basis to track trends over time.** The Student arrival and departure tally sheet is simple to administer, and it provides useful data on student travel modes to and from school. By collecting this data on an annual basis, the school will be able to track trends in travel modes over time and adjust education, encouragement, enforcement, and engineering strategies accordingly. A copy of this survey can be found in Appendix C.
- **Administer the "Parent Survey about Walking and Biking to School" on a bi-annual (every two years) basis.** The parent take-home survey provides useful information about parents' safety concerns related to their children walking and biking to school, and it helps to uncover the reasons behind travel behaviors. In order to stay current with the school population, this survey should be administered once every two to three years. A copy of this survey can be found in Appendix B.
- **Update the Safe Routes to School Action Plan every five years.** The data and recommendations outlined in this Action Plan are intended to be used as a starting point for launching a comprehensive Safe Routes to School program. As the program progresses, the Action Plan will need to be updated to include current data and recommendations that fit the needs of the school and community at that time. The school

may want to consider forming a “Safe Routes to School” task force consisting of parents, teachers, and school administration to take this task on.

Community members conduct a walkability audit in Highland Park, Randolph County WV.

FUNDING FOR SAFE ROUTES TO SCHOOLS

Transportation Alternatives Program (TAP)

The Federal Transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21), authorizes the Transportation Alternatives Program (TAP) to provide funding for programs and projects defined as *transportation alternatives*, including safe routes to school projects. The Transportation Alternatives Program is administered in New Hampshire by the State DOT. For information about this program, or to find the TAP application, see the NH DOT website: http://www.nh.gov/dot/org/projectdevelopment/planning/tap/index.htm.

Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU)

While the NHDOT has awarded all of the funds available for infrastructure grants under this old federal transportation law, limited funds are still available for non-infrastructure awards, which include:

- *Startup grants:* awards of up to $5,000 per school that provide seed money to reimburse local sponsors for initial efforts.
- *Travel Plan grants:* awards of up to $15,000 per school to develop a walking and bicycling plan tailored to a specific location.
- *General Non-infrastructure grants:* awards of up to $10,000 for communities that have already initiated SRTS programs or may need more funds than are available under the startup awards.

For more information about SRTS funding through SAFETEA-LU, see the NHDOT Safe Routes to School website: http://www.nh.gov/dot/org/projectdevelopment/planning/srts/index.htm

Healthy Eating Active Living New Hampshire (HEAL NH) Active Transportation Grant

The overall goal of the HEAL Active Transportation Grant Program is to encourage widespread, safe, and responsible use of walking and bicycling as forms of transportation in the Granite State. To learn more about this program, go to www.healnh.org or contact Nik Coates, the Active Living Coordinator for HEAL NH, at ncoates@healthynh.com.

Advocates for Healthy Youth Mini Grant

Advocates for Healthy Youth (AFHY) is a coalition of community partners working to create family, school and community environments where children make healthy food and activity choices. AFHY provides small grants ($200-$1,000) to create or enhance youth programs in Cheshire County that promote healthy activity and nutrition choices. AFHY accepts applications throughout the school year until funds are depleted. Applications are reviewed three times during the year – December 1st, February 1st, and May 1st. For more information or to apply, contact Lauren Bressett at 603-399-4442 or email at llb@unh.edu.

APPENDICES

Appendix A: Wheelock Field Review Summary

Appendix B: National Safe Routes to Schools Parent Survey

Appendix C: National Safe Routes to Schools In-Classroom Student Tally

Appendix D: Wheelock Elementary School Traffic Study

Appendix E: National Safe Routes to Schools Walkability Checklist

Field Review

On April 30, 2015, SWRPC staff visited Wheelock Elementary School during the morning arrival and afternoon departure periods to observe travel patterns of students, vehicles, and buses as well as site characteristics and conditions. The key observations and findings from this field visit are documented below.

The parent drop-off and pick-up location in front of the school has 3 parking spots and one handicapped spot. The car at the end of the line (on the left) is using a "fake" parking space.

PARENT DROP OFF / PICK UP OF CHILDREN

- Parent drop-off for K-5 occurs between 8:00 a.m. and 8:20 a.m.
- Parents entering from Marlboro or Baker and then exiting on Elliot Street seemed to be the predominant drop-off route.
- Parents entering from Baker Street can get stuck behind the school buses.
- There are three parking spots in front of the school on Adams Street where parents can drop off their kids; parents often use "fake" parking spot at end of line as a fourth parking spot (see top picture on right).
- Parents also park on the opposite side of Adams St. and on Elliot St. to drop off their children. Parents who do this walk their children to the school.
- Cars parked along the southern end of Adams Street do not leave enough room for two-way traffic.
- Some parents park in the Savings Bank of Walpole parking lot to drop off their kids and then walk with their kids to the school.
- Adams Street becomes congested during pick up and drop off times.
- Parent drop-off for preschool occurs later and takes place in the bus zone. Preschoolers are handed off by their parents to a staff person who then walks the child to the front door.

Children dropped off by the school bus are greeted by a student safety patrol and escorted to the playground.

BUSES

- The bus zone is directly in front of the main entrance to the school; signs prohibit parking in the bus zone.

- Bus arrivals are staggered between 8:00 and 8:20 a.m.; there are three buses for K-5 in the morning and one bus for preschool. The preschool bus will be gone next year.
- Four student safety patrols were present to walk children in grades K- 2 to the playground on the corner of Adams St. and Marlboro St.
- Children in grades 3-5 exit the bus and go to the larger playground on the south side of the school.
- Parents were observed dropping off their children in the bus zone when buses were not using the space.

Children line up behind the student safety patrol to walk to the playground.

SPEED

- Speed limits in the school zone are posted at 20 mph; during non-school hours speeds are 30 mph.
- *Speeding was observed on Adams Street, Marlboro Street, and on Baker Street during school drop-off and pick-up hours.*
- Speed bumps or other traffic calming devices could be useful for slowing down traffic on Adams Street in the school zone.
- Traffic calming devices such as a speed bump or a sign that shows your speed could be helpful on Baker Street at the bottom of the hill near the bridge over Beaver Brook.

Speed limits in the school zone are posted at 20 miles per hour.

WAYFARING

- There are signs to indicate the bus zone and the parent drop-off and pick-up zone.
- "Yield to pedestrian" markings on the street indicate pedestrian crossings to motorists.
- Yellow pedestrian crossing signs at crosswalks mark pedestrian crossing locations along with white ladder marks in crosswalk.

- There were no wayfaring signs for bicyclists; it is assumed children biking on busier roads such as Marlboro Street would use the sidewalk.

LIGHTING

- There are two pedestrian-scale lights in the front of the school, one by the main entrance and one by the playground for the younger children. Each of these has four light bulbs as pictured to the right.
- There is some lighting along pedestrian routes leading into the school on Marlboro Street and Adams Street.
- According to school staff, lighting is not an issue.

BIKE USE / FACILITIES

- There are two bike racks by the larger playground at Fuller that can accommodate approximately 45 bicycles in their current configuration.
- No bicycles were observed on the bike racks on the day the site was observed. According to school staff, usually there are 3-4 bicycles on the bike racks.
- There are no bike lanes on Marlboro Street, however there are "Sharrows" that indicate motorists should share the road with bicyclists. It is assumed children would ride their bikes on the sidewalk on Marlboro St. due to the high volume of traffic.
- There are no "sharrows" or signs on Adams Street to indicate that motorists should share the road; no shoulders and sidewalks are narrow and bumpy in some locations.

SIDEWALKS

- There are sidewalks on all routes leading into the school (along Adams Street, Baker Street, Marlboro Street, other neighborhoods streets, etc.).
- All sidewalks observed were in good or fair condition. Some sidewalks in the neighborhood streets were bumpy due to roots pushing up, potholes, and wearing away at the edges.

Above: One of two light posts is located in front of the school.

Below: Two large bike racks are located near the playground for older children. No bicycles were observed on the bike racks.

- Sidewalks on Marlboro Street and along the far side of Adams Street near Penuche's bar are concrete. Most other sidewalks are asphalt.
- One sidewalk on Baker Street ends abruptly just past the bridge over Beaver Brook.

Right: This picture shows the sidewalk on the eastern side of Adams Street.
Left (top & bottom): These pictures show the sidewalk directly in front of the school.

CROSSINGS

CROSSING GUARDS

- There are two crossing guards, one at the intersection of Marlboro Street and Grove Street and one at the intersection of Baker Street and Kelleher Street.
- Each crossing guard has a yellow safety vest and a hand-held stop sign for stopping traffic.
- The crossing guards are on duty from 8:00 to 8:20 a.m. in the morning and 3:00 to 3:20 p.m. in the afternoon.

MARLBORO ST. CROSSING

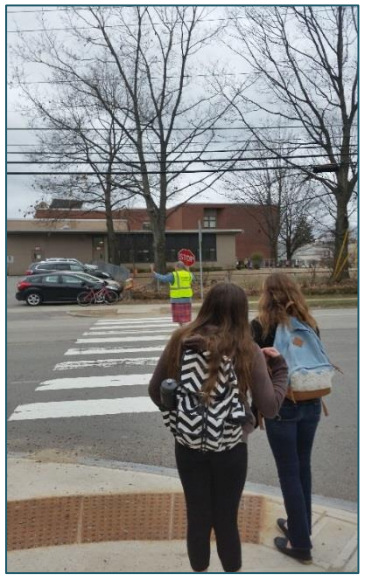
- There are two crosswalks at this intersection, one that crosses Grove Street and one that crosses Marlboro Street.
- In general, motorists on Marlboro Street did not stop for pedestrians waiting to cross the street unless the crossing guard was present.
- Drivers were observed speeding and acting impatient on Marlboro Street.
- Cars turning from Grove Street onto Marlboro Street often pulled up too far and would block the Grove Street crosswalk for pedestrians (see picture on right).

The crossing guard stops traffic on Grove Street to allow a father and his child to cross from the Savings Bank of Walpole parking lot over to the school. Cars often blocked this crosswalk by pulling up too far before stopping.

- Some parents who parked in the bank parking lot crossed diagonally from the corner of the parking lot over to the school instead of using the marked crosswalks.
- The crossing guard stopped traffic to allow buses to turn from Grove Street onto Marlboro Street.

BAKER STREET CROSSING

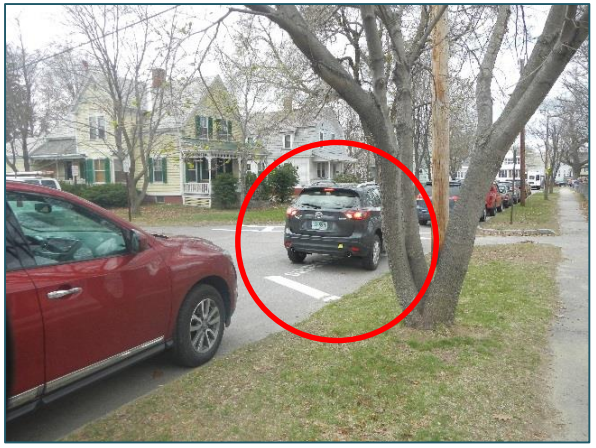
- The crossing on Baker Street is located at the intersection of Baker St. and Kelleher St.
- Cars coming down Baker Street tend to speed, especially if they are coming down the hill.
- Several motorists were observed talking on their cell phones while driving.
- According to the crossing guard, there used to be a sign that displayed motorists' speeds as they came over the hill. This was helpful for slowing down traffic, but it has since been removed.
- No pedestrians were observed crossing the crosswalk.



Top Left: The crossing guard at Baker Street leaves her post at 3:20 p.m.
Bottom Left: A parent crosses Grove Street with his children.
Right: Two children wait for traffic to stop before crossing Marlboro Street.

DRIVER BEHAVIOR

- Drivers were observed speeding on Adams Street in the school zone in both the morning and the afternoon.
- Parents often used illegal parking spots due to the lack of available on-street parking near the school (see picture on right)
- Some parents were observed in the bus zone during pick-up and drop-off times.
- Several parents attempted to avoid Adams Street altogether by parking on Elliot Street, Marlboro Street, or in the Savings Bank of Walpole parking lot.
- According to school staff, some motorists will illegally pass school buses when their lights are flashing. This behavior was not directly observed.



This picture shows a car parked in a "No Parking" zone. During pick up and drop off times, almost all of the on-street parking was in use.

POLICIES

- Only children in the 4th or 5th grade are allowed to ride their bikes to school unaccompanied.
- All children must wear helmets when riding bikes.
- The school does not offer helmets or bike locks for children to borrow when riding bikes to school.
- Children cannot ride their bikes to school after the first frost of the year or before the start of April vacation.
- It is a policy of the Keene School District that children cannot be outside when the temperature is 15 degrees or below. On days when temperature are below 15 degrees, children play inside before school starts.
- Children who live within the walking limits to the school, which is defined as a half mile for grades K-3 and one mile for grades 4-5, do not get bus service.

Parking in the school parking lot is limited to staff and faculty only. School staff members who do not have a parking space must use on-street parking.

OTHER NOTES

- Parking is a challenge for school staff, and there is no place for parents to park other than on the street.

Parent Survey About Walking and Biking to School

Dear Parent or Caregiver,

Your child's school wants to learn your thoughts about children walking and biking to school. This survey will take about 5 - 10 minutes to complete. We ask that each family complete only one survey per school your children attend. If more than one child from a school brings a survey home, please fill out the survey for the child with the next birthday from today's date.

After you have completed this survey, send it back to the school with your child or give it to the teacher. Your responses will be kept confidential and neither your name nor your child's name will be associated with any results.

Thank you for participating in this survey!

+ CAPITAL LETTERS ONLY – BLUE OR BLACK INK ONLY +

School Name:

1. What is the grade of the child who brought home this survey? ☐☐ Grade (PK,K,1,2,3…)

2. Is the child who brought home this survey male or female? ☐ Male ☐ Female

3. How many children do you have in Kindergarten through 8th grade? ☐☐

4. What is the street intersection nearest your home? (Provide the names of two intersecting streets)

and

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box.

5. How far does your child live from school?

- ☐ Less than ¼ mile
- ☐ ¼ mile up to ½ mile
- ☐ ½ mile up to 1 mile
- ☐ 1 mile up to 2 miles
- ☐ More than 2 miles
- ☐ Don't know

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box. +

6. On most days, how does your child arrive and leave for school? (Select one choice per column, mark box with X)

Arrive at school	**Leave from school**
☐ Walk	☐ Walk
☐ Bike	☐ Bike
☐ School Bus	☐ School Bus
☐ Family vehicle (only children in your family)	☐ Family vehicle (only children in your family)
☐ Carpool (Children from other families)	☐ Carpool (Children from other families)
☐ Transit (city bus, subway, etc.)	☐ Transit (city bus, subway, etc.)
☐ Other (skateboard, scooter, inline skates, etc.)	☐ Other (skateboard, scooter, inline skates, etc.)

+ Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box +

7. How long does it normally take your child to get to/from school? (Select one choice per column, mark box with X)

Travel time to school	**Travel time from school**
☐ Less than 5 minutes	☐ Less than 5 minutes
☐ 5 – 10 minutes	☐ 5 – 10 minutes
☐ 11 – 20 minutes	☐ 11 – 20 minutes
☐ More than 20 minutes	☐ More than 20 minutes
☐ Don't know / Not sure	☐ Don't know / Not sure

+ +

8. Has your child asked you for permission to walk or bike to/from school in the last year? ☐ Yes ☐ No

9. At what grade would you allow your child to walk or bike to/from school without an adult?

(Select a grade between PK,K,1,2,3…) ☐☐ grade **(or)** ☐ I would not feel comfortable at any grade

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box

10. What of the following issues affected your decision to allow, or not allow, your child to walk or bike to/from school? (Select ALL that apply)

11. Would you probably let your child walk or bike to/from school if this problem were changed or improved? (Select one choice per line, mark box with X)

	My child already walks or bikes to/from school		
☐ Distance	☐ Yes	☐ No	☐ Not Sure
☐ Convenience of driving	☐ Yes	☐ No	☐ Not Sure
☐ Time	☐ Yes	☐ No	☐ Not Sure
☐ Child's before or after-school activities	☐ Yes	☐ No	☐ Not Sure
☐ Speed of traffic along route	☐ Yes	☐ No	☐ Not Sure
☐ Amount of traffic along route	☐ Yes	☐ No	☐ Not Sure
☐ Adults to walk or bike with	☐ Yes	☐ No	☐ Not Sure
☐ Sidewalks or pathways	☐ Yes	☐ No	☐ Not Sure
☐ Safety of intersections and crossings	☐ Yes	☐ No	☐ Not Sure
☐ Crossing guards	☐ Yes	☐ No	☐ Not Sure
☐ Violence or crime	☐ Yes	☐ No	☐ Not Sure
☐ Weather or climate	☐ Yes	☐ No	☐ Not Sure

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box

12. In your opinion, how much does your child's school encourage or discourage walking and biking to/from school?

☐ Strongly Encourages ☐ Encourages ☐ Neither ☐ Discourages ☐ Strongly Discourages

13. How much fun is walking or biking to/from school for your child?

☐ Very Fun ☐ Fun ☐ Neutral ☐ Boring ☐ Very Boring

14. How healthy is walking or biking to/from school for your child?

☐ Very Healthy ☐ Healthy ☐ Neutral ☐ Unhealthy ☐ Very Unhealthy

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box

15. What is the highest grade or year of school you completed?

☐ Grades 1 through 8 (Elementary)
☐ Grades 9 through 11 (Some high school)
☐ Grade 12 or GED (High school graduate)
☐ College 1 to 3 years (Some college or technical school)
☐ College 4 years or more (College graduate)
☐ Prefer not to answer

16. Please provide any additional comments below.

Safe Routes to School Students Arrival and Departure Tally Sheet

CAPITAL LETTERS ONLY – BLUE OR BLACK INK ONLY

School Name:

Teacher's First Name:

Teacher's Last Name:

Grade: (PK,K,1,2,3...) 0 2

Monday's Date (Week count was conducted) M M D D Y Y Y Y

Number of Students Enrolled in Class: 1 5

- Please conduct these counts **on two of the following three days Tuesday, Wednesday, or Thursday. (Three days would provide better data if counted)**
- **Please do not conduct these counts on Mondays or Fridays.**
- Before asking your students to raise their hands, please read through all possible answer choices so they will know their choices. Each Student may only answer once.
- Ask your students as a group the question "**How did you arrive at school today?**"
- Then, reread each answer choice and record the number of students that raised their hands for each. **Place just one character or number in each box.**
- Follow the same procedure for the question **"How do you plan to leave for home after school?"**
- You can conduct the counts once per day but during the count please ask students both the school arrival and departure questions.
- Please conduct this count regardless of weather conditions (i.e., ask these questions on rainy days, too).

Step 1.
Fill in the weather conditions and number of students in each class

Step 2.
AM – "**How did you arrive at school today?**" Record the number of hands for each answer.
PM – "**How do you plan to leave for home after school?**" Record the number of hands for each answer.

Key	Weather	Student Tally	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
	S= sunny R= rainy O=overcast SN=snow	Number in class when count made	-	-	-	Only with Children from your family	Riding with children from other families	City bus, subway, etc.	Skate-board, scooter, etc.
Sample AM	S N	2 0	2	3	8	3		3	1
Sample PM	R	1 9	3	3	8	1	2	2	
Tues. AM									
Tues. PM									
Wed. AM									
Wed. PM									
Thurs. AM									
Thurs. PM									

Please list any disruptions to these counts or any unusual travel conditions to/from the school on the days of the tally.

Wheelock Elementary School

Traffic Studies

The preparation of this document has been financed in part through grant[s] from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation, under the State Planning and Research Program, Section of Title 23, U.S. Code. The contents of this report do not necessarily reflect the official views or policy of the U.S. Department of Transportation.

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U.S. Department of Transportation
Federal Highway Administration

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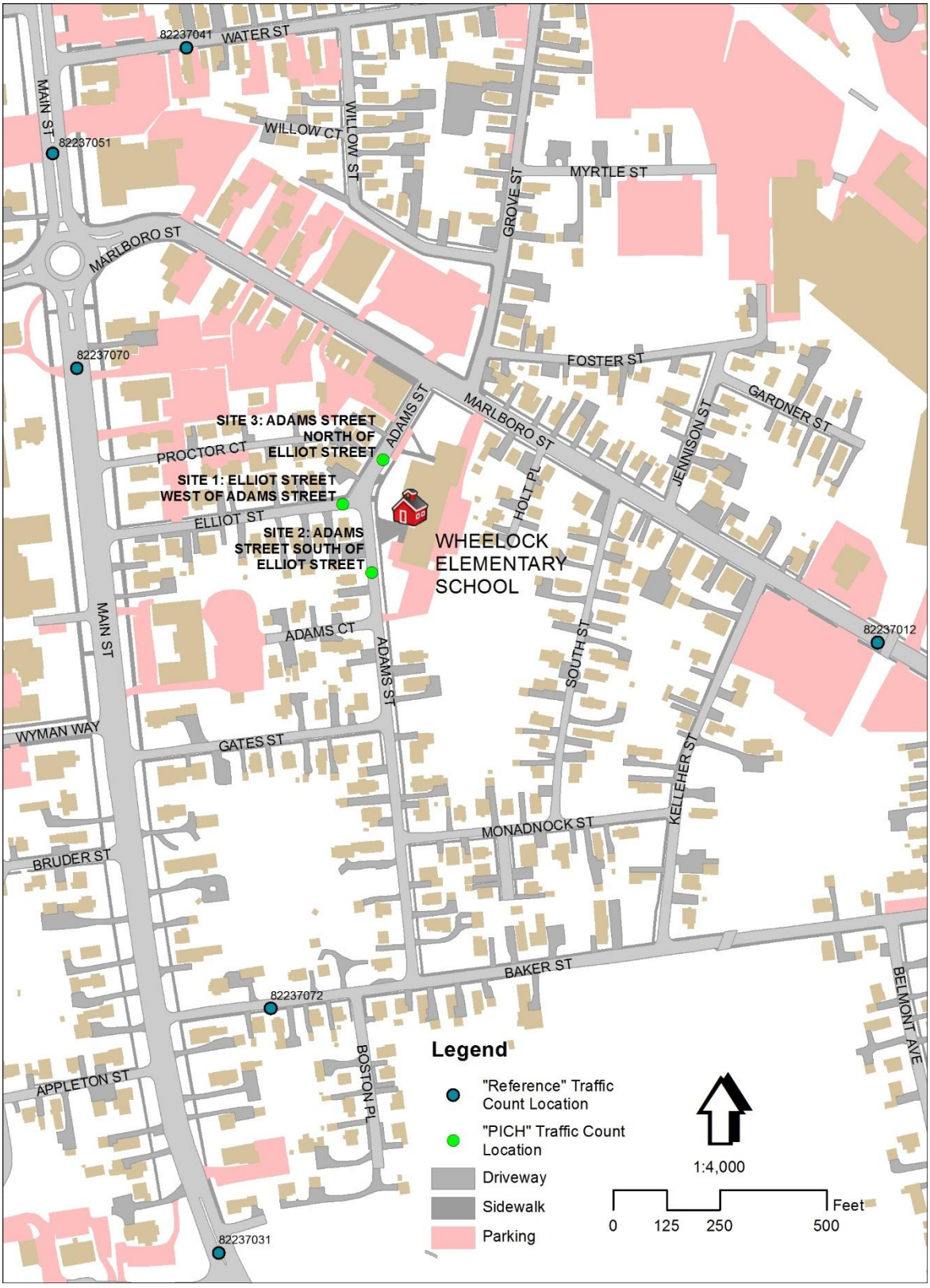
Site Map

Figure 1 – Site Map



Summary

Figure 2 – "PICH" average traffic volume (vehicles per day)

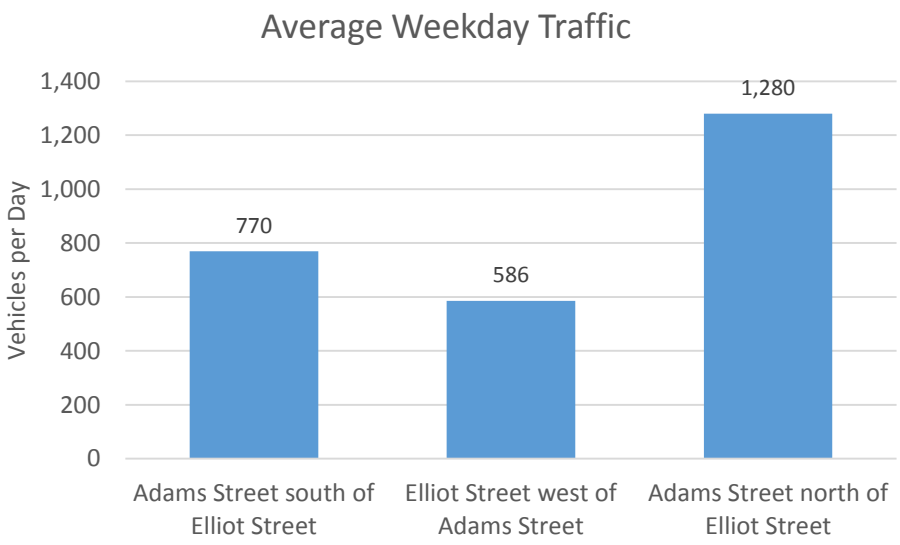
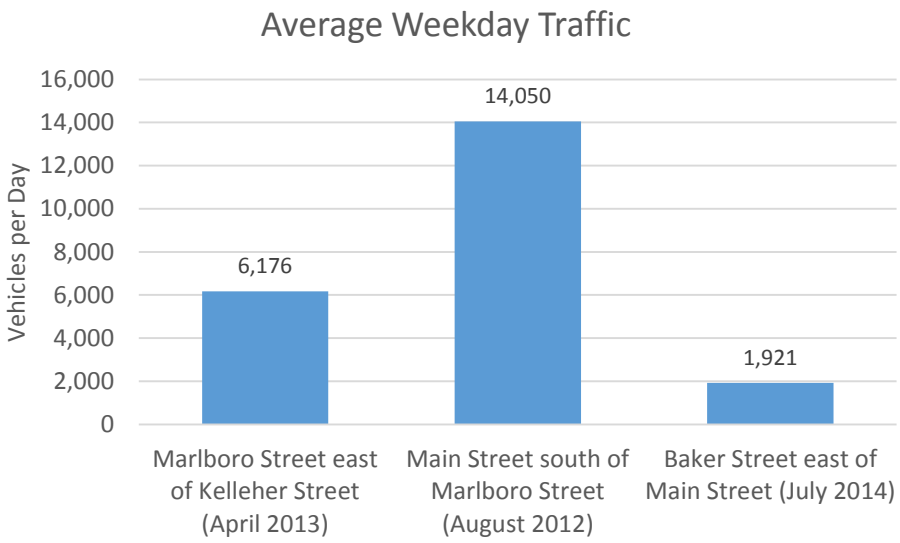


Figure 3 – "Reference" average traffic volume (vehicles per day)



Traffic Counts

Site 1: Elliot Street west of Adams Street

60-Minute Drops

Peak hour **bold**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
	18 May	19 May	20 May	21 May	22 May	23 May	24 May	1 - 5	1 - 7
Hour									
0000-0100	*	0	1	1	8	*	*	2.3	2.3
0100-0200	*	3	5	7	6	*	*	4.5	4.5
0200-0300	*	0	3	1	1	*	*	1.0	1.0
0300-0400	*	0	0	1	2	*	*	0.8	0.8
0400-0500	*	0	2	0	0	*	*	0.5	0.5
0500-0600	*	0	5	1	2	*	*	2.0	2.0
0600-0700	*	6	9	11	6	*	*	7.8	7.8
0700-0800	*	21	15	23	24	*	*	20.5	20.5
0800-0900	*	**117**	**108**	**115**	124	*	*	**115.3**	**115.3**
0900-1000	*	23	20	32	25	*	*	24.8	24.8
1000-1100	*	29	33	20	*	*	*	26.3	26.3
1100-1200	*	55	71	36	*	*	*	53.3	53.3
1200-1300	*	18	**63**	36	*	*	*	38.0	38.0
1300-1400	*	26	36	17	*	*	*	25.3	25.3
1400-1500	54	40	57	58	*	*	*	51.8	51.8
1500-1600	54	**54**	57	**74**	*	*	*	**59.3**	**59.3**
1600-1700	29	34	17	28	*	*	*	26.5	26.5
1700-1800	30	34	26	24	*	*	*	28.0	28.0
1800-1900	19	21	22	25	*	*	*	21.5	21.5
1900-2000	29	28	19	25	*	*	*	25.3	25.3
2000-2100	26	14	20	25	*	*	*	20.5	20.5
2100-2200	11	12	22	14	*	*	*	14.3	14.3
2200-2300	11	6	16	20	*	*	*	12.8	12.8
2300-2400	4	7	4	4	*	*	*	4.0	4.0
Totals									
0700-1900	*	470	521	485	*	*	*	490.5	490.5
0600-2200	*	529	590	559	*	*	*	558.3	558.3
0600-0000	*	541	610	582	*	*	*	575.0	575.0
0000-0000	*	544	625	592	*	*	*	586.0	586.0
AM Peak	*	0800	0800	0800	*	*	*		
	*	117	108	115	*	*	*		
PM Peak	*	1500	1200	1500	*	*	*		
	*	54	63	74	*	*	*		

*** - No data.**

15-Minute Drops

Peak hour red

* Monday, May 18, 2015=265 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**54**	**54**	**29**	**30**	**19**	**29**	**26**	**11**	**11**	**4**
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	29	7	11	12	8	6	1	5	3	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	9	9	8	2	9	8	0	1	1	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	9	7	7	3	7	3	7	2	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	7	6	4	3	6	10	3	4	0	0

* Tuesday, May 19, 2015=544, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
0	**3**	**0**	**0**	**0**	**0**	**6**	**21**	**117**	**23**	**29**	**55**	**18**	**26**	**40**	**54**	**34**	**34**	**21**	**28**	**14**	**12**	**6**	**7**
0	0	0	0	0	0	0	4	**31**	7	3	9	3	10	5	**35**	17	5	4	8	7	6	2	0	0
0	3	0	0	0	0	6	2	**50**	6	11	14	6	5	7	**9**	8	4	11	5	1	5	4	4	1
0	0	0	0	0	0	0	5	**18**	5	12	17	5	6	**7**	4	3	14	3	7	5	1	0	3	0
0	0	0	0	0	0	0	11	**20**	6	3	16	4	5	**21**	7	7	12	4	9	1	0	0	0	0

AM Peak 0800 - 0900 (117), AM PHF=0.59 PM Peak 1430 - 1530 (71), PM PHF=0.51

* Wednesday, May 20, 2015=625, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
1	**5**	**3**	**0**	**2**	**5**	**9**	**15**	**108**	**20**	**33**	**71**	**63**	**36**	**57**	**57**	**17**	**26**	**22**	**19**	**20**	**22**	**16**	**4**
0	3	0	0	0	0	0	3	**30**	1	9	14	15	13	7	**25**	5	3	3	9	2	11	5	2	0
1	1	3	0	0	0	0	2	**45**	10	14	24	23	7	7	**15**	3	4	2	9	6	6	8	2	0
0	1	0	0	0	3	4	4	**17**	3	3	12	9	10	**16**	5	8	12	8	0	10	3	1	0	0
0	0	0	0	2	3	5	7	**16**	6	8	21	16	6	**28**	14	2	8	10	1	3	3	2	0	1

AM Peak 0800 - 0900 (108), AM PHF=0.60 PM Peak 1430 - 1530 (82), PM PHF=0.75

* Thursday, May 21, 2015=592, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
1	**7**	**1**	**1**	**0**	**1**	**11**	**23**	**115**	**32**	**20**	**36**	**36**	**17**	**58**	**74**	**28**	**24**	**25**	**25**	**25**	**14**	**20**	**4**
0	5	0	0	0	0	0	5	**38**	11	13	1	10	2	6	**44**	10	8	6	8	10	6	7	4	2
0	2	0	1	0	0	0	2	**44**	8	1	18	5	4	**14**	11	3	5	3	5	5	4	2	0	2
0	0	1	0	0	0	8	6	**22**	9	3	8	11	7	**16**	11	9	2	8	7	2	5	3	0	1
1	0	0	0	0	1	3	11	**12**	5	3	10	11	5	**23**	8	7	10	8	6	9	0	8	0	3

AM Peak 0800 - 0900 (115), AM PHF=0.66 PM Peak 1415 - 1515 (96), PM PHF=0.55

* Friday, May 22, 2015=197 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
8	**6**	**1**	**2**	**0**	**2**	**6**	**24**	**124**	**25**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	0	1	1	0	0	0	3	33	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	1	0	1	0	0	0	2	51	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	4	0	0	0	0	4	5	25	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	1	0	0	0	2	2	14	15	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Site 2: Adams Street south of Elliot Street

60-Minute Drops

Peak hour **bold**

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
	18 May	19 May	20 May	21 May	22 May	23 May	24 May	1 - 5	1 - 7
Hour									
0000-0100	*	2	3	2	6	*	*	3.3	3.3
0100-0200	*	0	3	3	6	*	*	3.0	3.0
0200-0300	*	2	5	2	4	*	*	3.3	3.3
0300-0400	*	0	0	0	3	*	*	0.8	0.8
0400-0500	*	0	1	0	0	*	*	0.3	0.3
0500-0600	*	9	5	5	9	*	*	7.0	7.0
0600-0700	*	16	16	15	13	*	*	14.5	14.5
0700-0800	*	44	27	35	30	*	*	33.8	33.8
0800-0900	*	**84**	**97**	**82**	95	*	*	**88.8**	**88.8**
0900-1000	*	31	23	24	35	*	*	28.0	28.0
1000-1100	*	39	37	25	*	*	*	33.3	33.3
1100-1200	*	57	45	46	*	*	*	49.0	49.0
1200-1300	*	44	38	44	*	*	*	41.3	41.3
1300-1400	*	50	38	45	*	*	*	43.3	43.3
1400-1500	63	59	70	66	*	*	*	64.3	64.3
1500-1600	59	**116**	**92**	67	*	*	*	**83.3**	**83.3**
1600-1700	60	79	46	52	*	*	*	59.0	59.0
1700-1800	44	59	52	**68**	*	*	*	55.0	55.0
1800-1900	43	43	35	41	*	*	*	40.3	40.3
1900-2000	42	33	41	39	*	*	*	38.5	38.5
2000-2100	37	30	27	24	*	*	*	29.0	29.0
2100-2200	15	16	23	31	*	*	*	20.8	20.8
2200-2300	10	17	22	16	*	*	*	16.3	16.3
2300-2400	13	13	14	16	*	*	*	13.8	13.8
Totals									
0700-1900	*	702	598	592	*	*	*	619.3	619.3
0600-2200	*	796	704	699	*	*	*	722.0	722.0
0600-0000	*	826	740	731	*	*	*	752.0	752.0
0000-0000	*	839	757	743	*	*	*	769.5	769.5
AM Peak	*	0800	0800	0800	*	*	*		
	*	84	97	82	*	*	*		
PM Peak	*	1500	1500	1700	*	*	*		
	*	116	92	68	*	*	*		

*** - No data.**

15-Minute Drops

Peak hour red

* Monday, May 18, 2015=386 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**63**	**59**	**60**	**44**	**43**	**42**	**37**	**15**	**10**	**13**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	21	13	13	14	8	7	2	5	4	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	18	11	9	11	13	17	3	3	4	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	14	16	12	11	10	9	4	0	3	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	7	20	10	7	11	4	6	2	2	0

* Tuesday, May 19, 2015=839, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	**0**	**2**	**0**	**0**	**9**	**16**	**44**	**84**	**31**	**39**	**57**	**44**	**50**	**59**	**116**	**79**	**59**	**43**	**33**	**30**	**16**	**17**	**13**	
0	0	0	0	0	0	1	6	**17**	7	10	20	11	10	10	**27**	24	12	18	8	11	5	6	2	0
2	0	0	0	0	2	1	14	**42**	12	4	8	14	11	20	**23**	22	20	11	10	3	6	3	4	1
0	0	0	0	0	2	6	8	**19**	10	16	11	8	10	8	**26**	13	11	10	7	7	4	3	5	1
0	0	2	0	0	5	8	**17**	6	3	10	19	11	19	22	**41**	21	16	4	9	9	1	5	2	1

AM Peak 0745 - 0845 (94), AM PHF=0.56 PM Peak 1500 - 1600 (116), PM PHF=0.71

* Wednesday, May 20, 2015=757, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
3	**3**	**5**	**0**	**1**	**5**	**16**	**27**	**97**	**23**	**37**	**45**	**38**	**38**	**70**	**92**	**46**	**52**	**35**	**41**	**27**	**23**	**22**	**14**	
0	2	0	0	1	0	1	6	**22**	3	10	15	9	12	10	**22**	9	16	13	15	4	7	3	3	0
1	0	1	0	0	1	0	5	**46**	8	5	7	11	4	13	**27**	11	15	8	12	9	2	5	8	0
1	0	2	0	0	1	6	7	**20**	6	9	9	9	7	**22**	17	16	10	6	9	6	6	6	1	2
1	1	2	0	0	3	9	9	**9**	6	13	15	10	15	**26**	27	10	12	9	5	8	8	8	2	0

AM Peak 0800 - 0900 (97), AM PHF=0.52 PM Peak 1430 - 1530 (96), PM PHF=0.90

* Thursday, May 21, 2015=743, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	**3**	**2**	**0**	**0**	**5**	**15**	**35**	**82**	**24**	**25**	**46**	**44**	**45**	**66**	**67**	**52**	**68**	**41**	**39**	**24**	**31**	**16**	**16**	
0	1	1	0	0	0	1	2	**25**	5	5	4	6	14	11	**18**	13	20	10	13	10	5	3	6	0
0	1	0	0	0	1	2	10	**32**	9	3	16	9	10	11	**20**	12	13	10	9	8	13	6	2	3
2	0	1	0	0	1	5	9	**13**	6	3	13	11	12	**21**	12	13	15	11	9	4	6	3	5	2
0	1	0	0	0	3	7	**14**	12	4	14	14	18	9	**23**	18	14	21	10	9	2	7	4	3	1

AM Peak 0745 - 0845 (84), AM PHF=0.65 PM Peak 1430 - 1530 (82), PM PHF=0.89

* Friday, May 22, 2015=201 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
6	**6**	**4**	**3**	**0**	**9**	**13**	**30**	**95**	**35**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
0	2	2	1	0	2	3	3	33	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	2	1	2	0	4	0	4	40	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2	1	0	0	0	2	10	10	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	0	0	0	0	3	8	14	13	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Site 3: Adams Street north of Elliot Street

60-Minute Drops

Peak hour **bold**

Hour	Mon 18 May	Tue 19 May	Wed 20 May	Thu 21 May	Fri 22 May	Sat 23 May	Sun 24 May	Averages 1 - 5	Averages 1 - 7
0000-0100	*	2	11	6	12	*	*	7.0	7.0
0100-0200	*	2	8	13	13	*	*	8.8	8.8
0200-0300	*	2	6	1	5	*	*	3.5	3.5
0300-0400	*	1	0	1	3	*	*	1.0	1.0
0400-0500	*	0	2	3	0	*	*	1.0	1.0
0500-0600	*	11	9	7	12	*	*	9.3	9.3
0600-0700	*	30	26	23	23	*	*	24.8	24.8
0700-0800	*	59	53	56	40	*	*	51.5	51.5
0800-0900	*	**179**	**243**	**194**	164	*	*	**194.3**	**194.3**
0900-1000	*	51	46	47	*	*	*	48.0	48.0
1000-1100	*	43	64	42	*	*	*	48.7	48.7
1100-1200	*	105	130	72	*	*	*	102.0	102.0
1200-1300	*	62	88	63	*	*	*	70.7	70.7
1300-1400	*	76	64	56	*	*	*	65.0	65.0
1400-1500	*	113	**156**	103	*	*	*	**123.3**	**123.3**
1500-1600	82	**140**	114	**110**	*	*	*	110.8	110.8
1600-1700	66	90	79	62	*	*	*	73.8	73.8
1700-1800	59	84	109	74	*	*	*	81.0	81.0
1800-1900	60	66	75	77	*	*	*	68.8	68.8
1900-2000	62	42	61	57	*	*	*	55.0	55.0
2000-2100	54	37	51	53	*	*	*	48.5	48.5
2100-2200	20	34	36	47	*	*	*	34.0	34.0
2200-2300	18	28	35	33	*	*	*	28.3	28.3
2300-2400	18	24	16	28	*	*	*	21.5	21.5
Totals									
0700-1900	*	1064	1218	954	*	*	*	1037.7	1037.7
0600-2200	*	1206	1391	1134	*	*	*	1199.9	1199.9
0600-0000	*	1257	1442	1195	*	*	*	1249.7	1249.7
0000-0000	*	1275	1477	1224	*	*	*	1280.2	1280.2
AM Peak	*	0800	0800	0800	*	*	*		
	*	179	243	194	*	*	*		
PM Peak	*	1500	1400	1500	*	*	*		
	*	140	156	110	*	*	*		

*** - No data.**

15-Minute Drops

Peak hour red

* Monday, May 18, 2015=437 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**82**	**66**	**59**	**60**	**62**	**54**	**20**	**18**	**18**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	15	19	19	9	17	3	9	6	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	9	15	16	15	17	4	3	7	2
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	23	14	15	24	9	7	1	3	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	20	12	11	14	12	6	6	2	0

* Tuesday, May 19, 2015=1275, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	**2**	**2**	**1**	**0**	**11**	**30**	**59**	**179**	**51**	**43**	**105**	**62**	**76**	**113**	**140**	**90**	**84**	**66**	**42**	**37**	**34**	**28**	**24**	
0	0	0	1	0	0	3	9	**68**	17	10	37	20	19	11	**55**	18	14	27	8	16	8	8	5	0
2	2	0	0	0	3	10	19	**62**	11	14	19	16	16	**36**	21	26	19	17	10	3	14	5	8	4
0	0	0	0	0	2	7	12	**32**	14	11	17	11	16	**23**	28	19	21	13	10	11	9	11	9	6
0	0	2	0	0	6	10	**20**	17	10	8	33	16	25	**44**	36	28	30	10	15	8	3	4	3	1

AM Peak 0745 - 0845 (182), AM PHF=0.67 PM Peak 1415 - 1515 (157), PM PHF=0.71

* Wednesday, May 20, 2015=1477, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
11	**8**	**6**	**0**	**2**	**9**	**26**	**53**	**243**	**46**	**64**	**130**	**88**	**64**	**156**	**114**	**79**	**109**	**75**	**61**	**51**	**36**	**35**	**16**	
0	5	0	0	1	0	5	7	**71**	5	15	44	14	11	16	**43**	16	24	22	22	7	13	7	4	0
4	2	2	0	0	2	0	7	**101**	18	13	32	25	21	**23**	20	13	26	16	18	16	6	13	9	0
6	0	2	0	0	2	9	18	**46**	10	16	24	22	14	**46**	21	34	26	16	14	18	10	6	1	3
1	1	3	0	1	5	12	21	**25**	14	20	30	28	19	**72**	30	17	34	21	8	11	8	10	2	3

AM Peak 0800 - 0900 (243), AM PHF=0.60 PM Peak 1415 - 1515 (184), PM PHF=0.64

* Thursday, May 21, 2015=1224, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
6	**13**	**1**	**1**	**3**	**7**	**23**	**56**	**194**	**47**	**42**	**72**	**63**	**56**	**103**	**110**	**62**	**74**	**77**	**57**	**53**	**47**	**33**	**28**	
0	2	1	0	0	0	1	6	**66**	11	10	13	11	15	14	**41**	16	26	17	19	24	6	8	10	3
0	2	0	1	3	1	1	9	**86**	14	4	25	11	10	24	**27**	14	13	17	13	12	19	6	2	3
3	0	0	0	0	1	10	13	**24**	10	6	15	15	20	**22**	20	15	13	24	13	8	9	10	12	2
3	9	0	0	0	5	11	**28**	19	13	22	20	27	11	**44**	23	18	22	20	12	9	13	10	5	4

AM Peak 0745 - 0845 (204), AM PHF=0.60 PM Peak 1430 - 1530 (133), PM PHF=0.76

* Friday, May 22, 2015=270 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
12	**13**	**5**	**3**	**0**	**12**	**23**	**40**	**164**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
3	2	3	0	0	2	4	4	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	4	1	1	0	5	1	7	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	6	1	2	0	0	8	6	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	1	0	0	0	5	11	23																	

Turning Movement Studies

Marlboro Street at Grove Street

Date: 6/3/15

All vehicles and bikes (using travel lane)

Figure 4 – Variable Width Plot: Marlboro Street at Grove Street (7 a.m. to 9 a.m.)

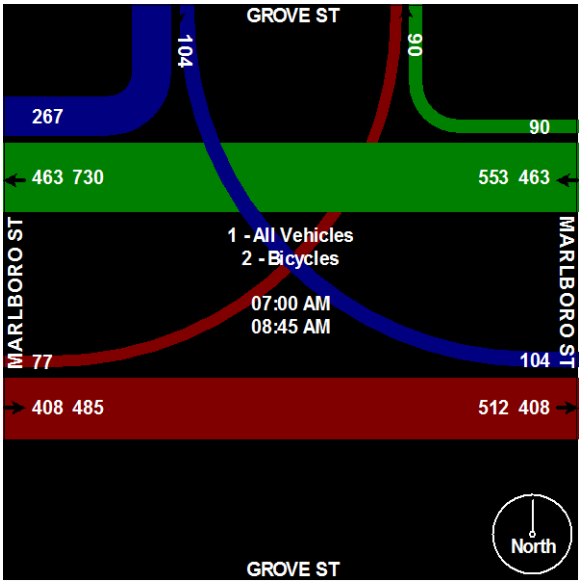


Figure 5 - Variable Width Plot: Marlboro Street at Grove Street (2 p.m. to 4 p.m.)

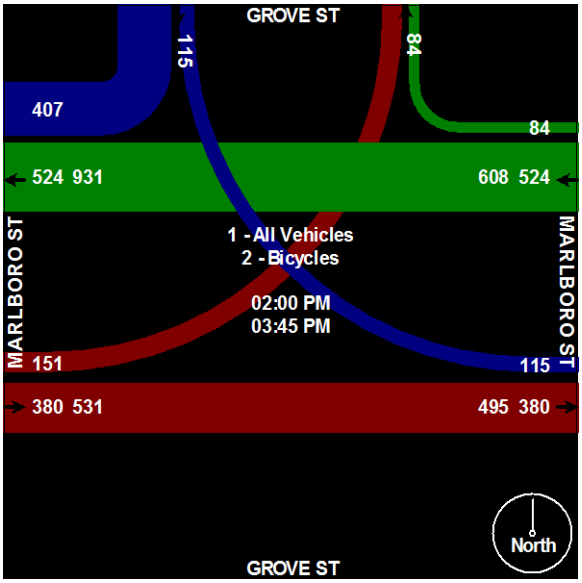


Figure 7 – Marlboro Street at Adams Street (7 a.m. to 9 a.m.)

Groups Printed- All Vehicles

	GROVE ST From North					MARLBORO ST From East						MARLBORO ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
07:00 AM	28	0	13	2	43	8	41	0	0	49	0	0	29	3	0	32	124
07:15 AM	19	0	6	2	27	8	44	0	0	52	0	0	39	15	0	54	133
07:30 AM	38	0	14	2	54	14	57	0	0	71	0	0	41	5	0	46	171
07:45 AM	44	0	15	3	62	10	81	0	3	94	0	0	55	5	0	60	216
Total	129	0	48	9	186	40	223	0	3	266	0	0	164	28	0	192	644
08:00 AM	41	0	17	11	69	9	43	0	13	65	0	0	65	6	0	71	205
08:15 AM	31	0	12	0	43	15	65	0	0	80	0	0	59	16	0	75	198
08:30 AM	36	0	8	0	44	11	64	0	0	75	0	0	52	11	0	63	182
08:45 AM	30	0	19	0	49	15	57	0	0	72	0	0	61	16	0	77	198
Total	138	0	56	11	205	50	229	0	13	292	0	0	237	49	0	286	783
Grand Total	267	0	104	20	391	90	452	0	16	558	0	0	401	77	0	478	1427
Apprch %	68.3	0.0	26.6	5.1		16.1	81.0	0.0	2.9			0.0	83.9	16.1	0.0		
Total %	18.7	0.0	7.3	1.4	27.4	6.3	31.7	0.0	1.1	39.1	0.0	0.0	28.1	5.4	0.0	33.5	

Figure 6 - Marlboro Street at Adams Street (2 p.m. to 4 p.m.)

Groups Printed- All Vehicles

	GROVE ST From North					MARLBORO ST From East						MARLBORO ST From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
02:00 PM	50	0	6	2	58	9	53	0	0	62	0	0	45	16	0	61	181
02:15 PM	35	0	13	2	50	8	52	0	2	62	0	0	38	12	0	50	162
02:30 PM	41	0	21	2	64	10	65	0	0	75	0	0	46	14	0	60	199
02:45 PM	59	0	18	2	79	4	65	0	1	70	0	0	44	15	0	59	208
Total	185	0	58	8	251	31	235	0	3	269	0	0	173	57	0	230	750
03:00 PM	54	0	6	9	69	12	83	0	14	109	0	0	46	27	0	73	251
03:15 PM	49	0	16	1	66	17	61	0	1	79	0	0	60	21	0	81	226
03:30 PM	69	0	20	0	89	13	74	0	1	88	0	0	52	28	0	80	257
03:45 PM	50	0	14	0	64	10	70	0	0	80	0	0	46	18	0	64	208
Total	222	0	56	10	288	52	288	0	16	356	0	0	204	94	0	298	942
Grand Total	407	0	114	18	539	83	523	0	19	625	0	0	377	151	0	528	1692
Apprch %	75.5	0.0	21.2	3.3		13.3	83.7	0.0	3.0			0.0	71.4	28.6	0.0		
Total %	24.1	0.0	6.7	1.1	31.9	4.9	30.9	0.0	1.1	36.9	0.0	0.0	22.3	8.9	0.0	31.2	

Marlboro Street at Adams Street

Date: 6/3/15

All vehicles and bikes (using travel lane)

Figure 8 - Variable Width Plot: Marlboro Street at Adams Street (7 a.m. to 9 a.m.)

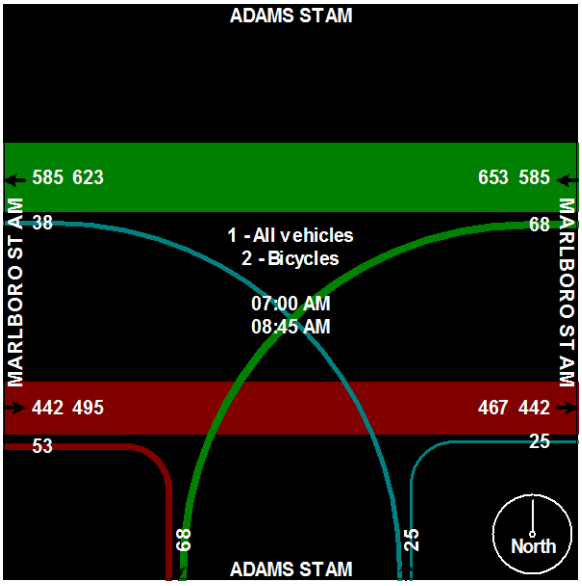


Figure 9 - Variable Width Plot: Marlboro Street at Adams Street (2 p.m. to 4 p.m.)

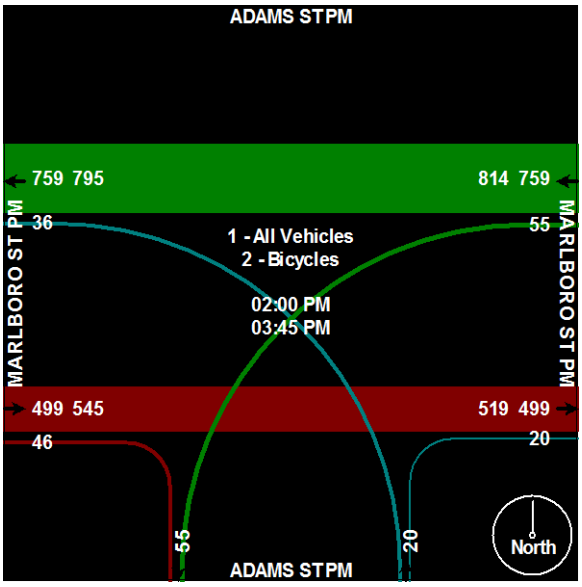


Figure 10 - Marlboro Street at Adams Street (7 a.m. to 9 a.m.)

Groups Printed- All vehicles

		MARLBORO ST AM From East					ADAMS ST AM From South					MARLBORO ST AM From West					
Start Time	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	61	2	0	63	0	0	0	2	2	1	32	0	0	33	98
07:15 AM	0	0	55	5	0	60	0	0	1	0	1	3	53	0	0	56	117
07:30 AM	0	0	81	6	0	87	3	0	1	1	5	1	41	0	1	43	135
07:45 AM	0	0	111	7	0	118	1	0	0	0	1	4	62	0	0	66	185
Total	0	0	308	20	0	328	4	0	2	3	9	9	188	0	1	198	535
08:00 AM	0	0	56	13	0	69	6	0	9	2	17	17	62	0	0	79	165
08:15 AM	0	0	71	15	0	86	9	0	14	2	25	14	60	0	1	75	186
08:30 AM	0	0	80	12	0	92	4	0	9	0	13	9	56	0	0	65	170
08:45 AM	0	0	67	8	0	75	1	0	4	0	5	3	74	0	0	77	157
Total	0	0	274	48	0	322	20	0	36	4	60	43	252	0	1	296	678
Grand Total	0	0	582	68	0	650	24	0	38	7	69	52	440	0	2	494	1213
Apprch %		0.0	89.5	10.5	0.0		34.8	0.0	55.1	10.1		10.5	89.1	0.0	0.4		
Total %	0.0	0.0	48.0	5.6	0.0	53.6	2.0	0.0	3.1	0.6	5.7	4.3	36.3	0.0	0.2	40.7	

Figure 11 - Marlboro Street at Adams Street (2 p.m. to 4 p.m.)

Groups Printed- All Vehicles

		MARLBORO ST PM From East					ADAMS ST PM From South					MARLBORO ST PM From West					
Start Time	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
02:00 PM	0	0	79	8	0	87	2	0	4	0	6	4	59	0	0	63	156
02:15 PM	0	0	73	6	0	79	0	0	2	0	2	4	48	0	0	52	133
02:30 PM	0	0	84	10	0	94	3	0	6	9	18	9	58	0	3	70	182
02:45 PM	0	0	100	10	0	110	2	0	6	5	13	9	58	0	0	67	190
Total	0	0	336	34	0	370	7	0	18	14	39	26	223	0	3	252	661
03:00 PM	0	0	118	4	0	122	7	0	8	5	20	6	62	0	3	71	213
03:15 PM	0	0	97	5	0	102	2	0	3	0	5	5	81	0	0	86	193
03:30 PM	0	0	109	8	1	118	2	0	5	0	7	4	73	0	0	77	202
03:45 PM	0	0	95	4	0	99	1	0	2	0	3	5	59	0	0	64	166
Total	0	0	419	21	1	441	12	0	18	5	35	20	275	0	3	298	774
Grand Total	0	0	755	55	1	811	19	0	36	19	74	46	498	0	6	550	1435
Apprch %		0.0	93.1	6.8	0.1		25.7	0.0	48.6	25.7		8.4	90.5	0.0	1.1		
Total %	0.0	0.0	52.6	3.8	0.1	56.5	1.3	0.0	2.5	1.3	5.2	3.2	34.7	0.0	0.4	38.3	

Walkability Checklist

How walkable is your community?

Take a walk with a child and decide for yourselves.

Everyone benefits from walking. These benefits include: improved fitness, cleaner air, reduced risks of certain health problems, and a greater sense of community. But walking needs to be safe and easy. Take a walk with your child and use this checklist to decide if your neighborhood is a friendly place to walk. Take heart if you find problems, there are ways you can make things better.

Getting started:

First, you'll need to pick a place to walk, like the route to school, a friend's house or just somewhere fun to go.

The second step involves the checklist. Read over the checklist before you go, and as you walk, note the locations of things you would like to change. At the end of your walk, give each question a rating. Then add up the numbers to see how you rated your walk overall.

After you've rated your walk and identified any problem areas, the next step is to figure out what you can do to improve your community's score. You'll find both immediate answers and long-term solutions under "Improving Your Community's Score..." on the third page.

SafeRoutes
National Center for Safe Routes to School

Pedestrian and Bicycle Information Center

U.S. Department of Transportation

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk _____

_____

Rating Scale:

1	2	3	4	5	6
awful	many problems	some problems	good	very good	excellent

1. Did you have room to walk?

☐ Yes ☐ Some problems:

- ☐ Sidewalks or paths started and stopped
- ☐ Sidewalks were broken or cracked
- ☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)
1 2 3 4 5 6

_____

_____

2. Was it easy to cross streets?

☐ Yes ☐ Some problems:

- ☐ Road was too wide
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☐ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☐ Needed curb ramps or ramps needed repair
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)
1 2 3 4 5 6

_____

_____

3. Did drivers behave well?

☐ Yes ☐ Some problems: Drivers...

- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☐ Drove too fast
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)
1 2 3 4 5 6

_____

_____

4. Was it easy to follow safety rules? Could you and your child...

☐ Yes	☐ No	Cross at crosswalks or where you could see and be seen by drivers?
☐ Yes	☐ No	Stop and look left, right and then left again before crossing streets?
☐ Yes	☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
☐ Yes	☐ No	Cross with the light?

Locations of problems: _____

Rating: (circle one)
1 2 3 4 5 6

_____

_____

5. Was your walk pleasant?

☐ Yes ☐ Some unpleasant things:

- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people
- ☐ Not well lighted
- ☐ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)
1 2 3 4 5 6

_____

_____

How does your neighborhood stack up? Add up your ratings and decide.

1. _____
2. _____
3. _____
4. _____
5. _____

Total _____

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

Now that you know the problems,
you can find the answers.

Improving your community's score...

	What you and your child can do immediately	What you and your community can do with more time
1. Did you have room to walk? Sidewalks or paths started and stopped Sidewalks broken or cracked Sidewalks blocked No sidewalks, paths or shoulders Too much traffic	• pick another route for now • tell local traffic engineering or public works department about specific problems and provide a copy of the checklist	• speak up at board meetings • write or petition city for walkways and gather neighborhood signatures • make media aware of problem • work with a local transportation engineer to develop a plan for a safe walking route
2. Was it easy to cross streets? Road too wide Traffic signals made us wait too long or did not give us enough time to cross Crosswalks/traffic signals needed View of traffic blocked by parked cars, trees, or plants Needed curb ramps or ramps needed repair	• pick another route for now • share problems and checklist with local traffic engineering or public works department • trim your trees or bushes that block the street and ask your neighbors to do the same • leave nice notes on problem cars asking owners not to park there	• push for crosswalks/signals/ parking changes/curb ramps at city meetings • report to traffic engineer where parked cars are safety hazards • report illegally parked cars to the police • request that the public works department trim trees or plants • make media aware of problem
3. Did drivers behave well? Backed without looking Did not yield Turned into walkers Drove too fast Sped up to make traffic lights or drove through red lights	• pick another route for now • set an example: slow down and be considerate of others • encourage your neighbors to do the same • report unsafe driving to the police	• petition for more enforcement • request protected turns • ask city planners and traffic engineers for traffic calming ideas • ask schools about getting crossing guards at key locations • organize a neighborhood speed watch program
4. Could you follow safety rules? Cross at crosswalks or where you could see and be seen Stop and look left, right, left before crossing Walk on sidewalks or shoulders facing traffic Cross with the light	• educate yourself and your child about safe walking • organize parents in your neighborhood to walk children to school	• encourage schools to teach walking safely • help schools start safe walking programs • encourage corporate support for flex schedules so parents can walk children to school
5. Was your walk pleasant? Needs grass, flowers, trees Scary dogs Scary people Not well lit Dirty, litter Lots of traffic	• point out areas to avoid to your child; agree on safe routes • ask neighbors to keep dogs leashed or fenced • report scary dogs to the animal control department • report scary people to the police • report lighting needs to the police or appropriate public works department • take a walk wih a trash bag • plant trees, flowers in your yard • select alternative route with less traffic	• request increased police enforcement • start a crime watch program in your neighborhood • organize a community clean-up day • sponsor a neighborhood beautification or tree-planting day • begin an adopt-a-street program • initiate support to provide routes with less traffic to schools in your community (reduced traffic during am and pm school commute times)
A Quick Health Check Could not go as far or as fast as we wanted Were tired, short of breath or had sore feet or muscles Was the sun really hot? Was it hot and hazy?	• start with short walks and work up to 30 minutes of walking most days • invite a friend or child along • walk along shaded routes where possible • use sunscreen of SPF 15 or higher, wear a hat and sunglasses • try not to walk during the hottest time of day	• get media to do a story about the health benefits of walking • call parks and recreation department about community walks • encourage corporate support for employee walking programs • plant shade trees along routes • have a sun safety seminar for kids • have kids learn about unhealthy ozone days and the Air Quality Index (AQI)

Need some guidance?
These resources might help...

Great Resources

WALKING INFORMATION

Pedestrian and Bicycle Information Center (PBIC)
UNC Highway Safety Research Center
730 Airport Road , Suite 300
Campus Box 3430
Chapel Hill, NC
27599-3430
Phone: (919) 962-2202
www.pedbikeinfo.org
www.walkinginfo.org

National Center for
Safe Routes to School
730 Martin Luther
King, Jr. Blvd., Suite 300
Campus Box 3430
Chapel Hill, NC 27599-3430
Toll-free 1-866-610-SRTS
www.saferoutesinfo.org

National Center for Bicycling and Walking
Campaign to Make America Walkable
1506 21st Street, NW
Suite 200
Washington, DC 20036
Phone: (800) 760-NBPC
www.bikefed.org

WALK TO SCHOOL DAY WEB SITES

USA event: www.walktoschool-usa.org
International: www.iwalktoschool.org

STREET DESIGN AND TRAFFIC CALMING

Federal Highway Administration
Pedestrian and Bicycle Safety Research Program
HSR - 20
6300 Georgetown Pike
McLean,VA 22101
www.fhwa.dot.gov/environment/bikeped/index.htm

Institute of Transportation Engineers
www.ite.org

Surface Transportation Policy Project
www.transact.org

Transportation for Livable Communities
www.tlcnetwork.org

WALKING COALITIONS

America Walks
P.O. Box 29103
Portland, Oregon 97210
Phone: (503) 222-1077
www.americawalks.org

PEDESTRIAN SAFETY

National Highway Traffic Safety Administration
Traffic Safety Programs
400 Seventh Street, SW
Washington, DC 20590
Phone: (202) 662-0600
www.nhtsa.dot.gov/people/injury/pedbimot/ped

SAFE KIDS Worldwide
1301 Pennsylvania Ave. NW
Suite 1000
Washington, DC 20004
Phone: (202) 662-0600
Fax: (202) 393-2072
www.safekids.org

WALKING AND HEALTH

US Environmental Protection Agency
Office of Children's Health Protection (MC 1107A)
Washington, DC 20460
Phone: 202-564-2188
Fax: 202-564-2733
www.epa.gov/children/
www.epa.gov/airnow/
www.epa.gov/air/urbanair/ozone/what.html
www.epa.gov/sunwise/uvindex.html
www.epa.gov/otaq/transp/comchoic/ccweb.htm

President's Task Force on Environmental Health Risks and
Safety Risks to Children
www.childrenshealth.gov

Centers for Disease Control and Prevention
Division of Nutrition and Physical Activity
Phone: (888) 232-4674
www.cdc.gov/nccdphp/dnpa/readyset
www.cdc.gov/nccdphp/dnpa/kidswalk/index.htm

Prevention Magazine
33 East Minor Street
Emmaus, PA 18098
www.itsallaboutprevention.com

Shape Up America!
6707 Democracy Boulevard
Suite 306
Bethesda, MD 20817
www.shapeup.org

ACCESSIBLE SIDEWALKS

US Access Board
1331 F Street, NW
Suite 1000
Washington, DC 20004-1111
Phone: (800) 872-2253;
(800) 993-2822 (TTY)
www.access-board.gov