

VERMONT Safe Routes to SCHOOL



Lothrop Elementary School

Safe Routes to School Travel Plan

Summer 2014

Prepared with assistance from the VT SRTS Resource Center

SafeRoutesVT.org

CONTENTS

Introduction	4
Team Vision	5
About this Plan.....	6
Travel Plan Context	8
Lothrop Elementary School and Town of pittsford Overview.....	8
Current School Demographics.....	10
Current Student Travel Modes	11
School Arrival and Dismissal Procedures	11
Existing Travel Habits	13
Key Issues.....	14
Travel Plan Recommendations	19
Non-Engineering Travel Plan.....	19
Education Strategies	20
Encouragement Strategies	20
Enforcement Strategies.....	21
Evaluation Strategies	21
Engineering Travel Plan.....	22
Considerations for Design and Funding	23
Appendices	24

INTRODUCTION

The Five E's

SRTS combines many different approaches to make it safer for children to walk and bicycle to school and to increase the number of children doing so.

Engineering strategies create safer environments for walking and bicycling to school through improvements to the infrastructure surrounding schools. These improvements focus on reducing motor vehicle speeds and conflicts with pedestrians and bicyclists, and establishing safer and fully accessible crossings, walkways, trails and bikeways.

Education programs target children, parents, caregivers and neighbors, teaching how to walk and bicycle safely and informing drivers on how to drive more safely around pedestrians and bicyclists. Education programs can also incorporate health and environment messages.

Enforcement strategies increase the safety of children bicycling and walking to school by helping to change unsafe behaviors of drivers, as well as pedestrians and bicyclists. A community approach to enforcement involves students, parents or caregivers, school personnel, crossing guards and law enforcement officers.

Encouragement activities promote walking and bicycling to school to children, parents and community members. Events such as Walk to School Day, contests such as a Frequent Walker/Bicyclist challenge, or on-going programs such as a Walking School Bus or Bicycle Train can promote and encourage walking and bicycling as a popular way to get to school.

Evaluation is an important component of SRTS programs that can be incorporated into each of the other E's. Collecting information before and after program activities or projects are implemented allow communities to track progress and outcomes, and provide information to guide program development.

- Excerpted from "Safe Routes to School: A Transportation Legacy", the report of the National Safe Routes to School Task Force

This Travel Plan represents the work of the Lothrop Elementary School Safe Routes to School Team. Our school believes that creating and maintaining this Travel Plan is a good way to ensure an on-going Safe Routes to School (SRTS) program.



Safe Routes to School programs adopted by schools like ours across the country have been shown to provide a variety of benefits to their communities. A strong SRTS program can help to:

1. Reduce traffic congestion around our school;
2. Reduce costs and need for busing students to school;
3. Increase our student's sense of independence and responsibility;
4. Teach students fundamental lifelong safety skills;
5. Improve our air quality;
6. Create a more physically active population;
7. Strengthen our sense of community and
8. Provide more transportation options for everyone.

The SRTS team at Lothrop Elementary School (LES) consists of parents, teachers and other community stakeholders who have provided input, guidance and oversight in writing our plan.

The ideas and recommendations developed during this process will guide us in creating a well-balanced approach to building our SRTS program at LES. Our school team will use this document as a resource to plan our encouragement, education, engineering, enforcement and evaluation efforts with assistance from the Vermont SRTS Resource Center.

The Vermont Agency of Transportation (VTrans), through the Vermont SRTS Resource Center, has provided technical assistance in producing this plan. With the help of the Resource Center, we have identified infrastructure improvements that would have a positive impact on walking and biking to school. These infrastructure recommendations are considered planning level and will require further engineering analysis to determine feasibility. It is our hope that our recommendations can be the basis for grants and/or improvements initiated by the Town of Pittsford.

Members of the Lothrop Elementary School SRTS Team	
Sara Raabe Principal	Kimberly Griffin Rutland Area Physical Activity Coalition (RAPAC)
Melanie Parker School Nurse	Margaret Dulli VT Dept of Health/School Nurse Liason
John Haverstock Pittsford Town Manager	Thomas 'Hank' Pelkey Select Board Chair
Mike Warfle Pittsford Police Chief	Susan Schreibman Rutland Regional Planning Commission (RRPC)
Randy Adams Recreation Director	Monika Ganguly-Kiefner Rutland Regional Planning Commission (RRPC)

TEAM VISION

The SRTS program at LES aligns with the community's efforts towards promoting active lifestyles through walking, hiking and biking. The SRTS program goals of combining

engineering, education, enforcement, evaluation and encouragement strategies (also known as the Five E's) to improve the safety and health of students who walk and bike to school, fit our school and town values.

Our vision for LES (and the surrounding town) is:

- To be a school where more students safely bicycle and walk to school;
- To reduce congestion of cars on campus during arrival and dismissal;
- To provide complete and safe routes for bicyclists and pedestrians;
- To build community support and respect of pedestrians and bicyclists both on our roads and on our school grounds;
- To encourage a more physically active student body and
- To involve all generations of residents in active transportation.

This Travel Plan outlines LES's intentions for making walking to and from school more sustainable and safer for students and the community. Through our SRTS program we hope to reach approximately 10% (or 20) of our students walking or biking to school during year one and approximately 15% (or 30) of our students walking or biking to school for year two. We believe this goal is attainable through implementing our Safe Routes to School travel plan.

ABOUT THIS PLAN

Our SRTS team met three times with the VT SRTS Resource Center to develop and adopt this SRTS Travel Plan. Each meeting provided education on the benefits of SRTS and highlighted successful program components and strategies. The "engineering meeting" included a guided walk audit of the areas around our school. We also discussed education, encouragement, enforcement and evaluation strategies which helped identify needed and complementary programs to support proposed engineering strategies.

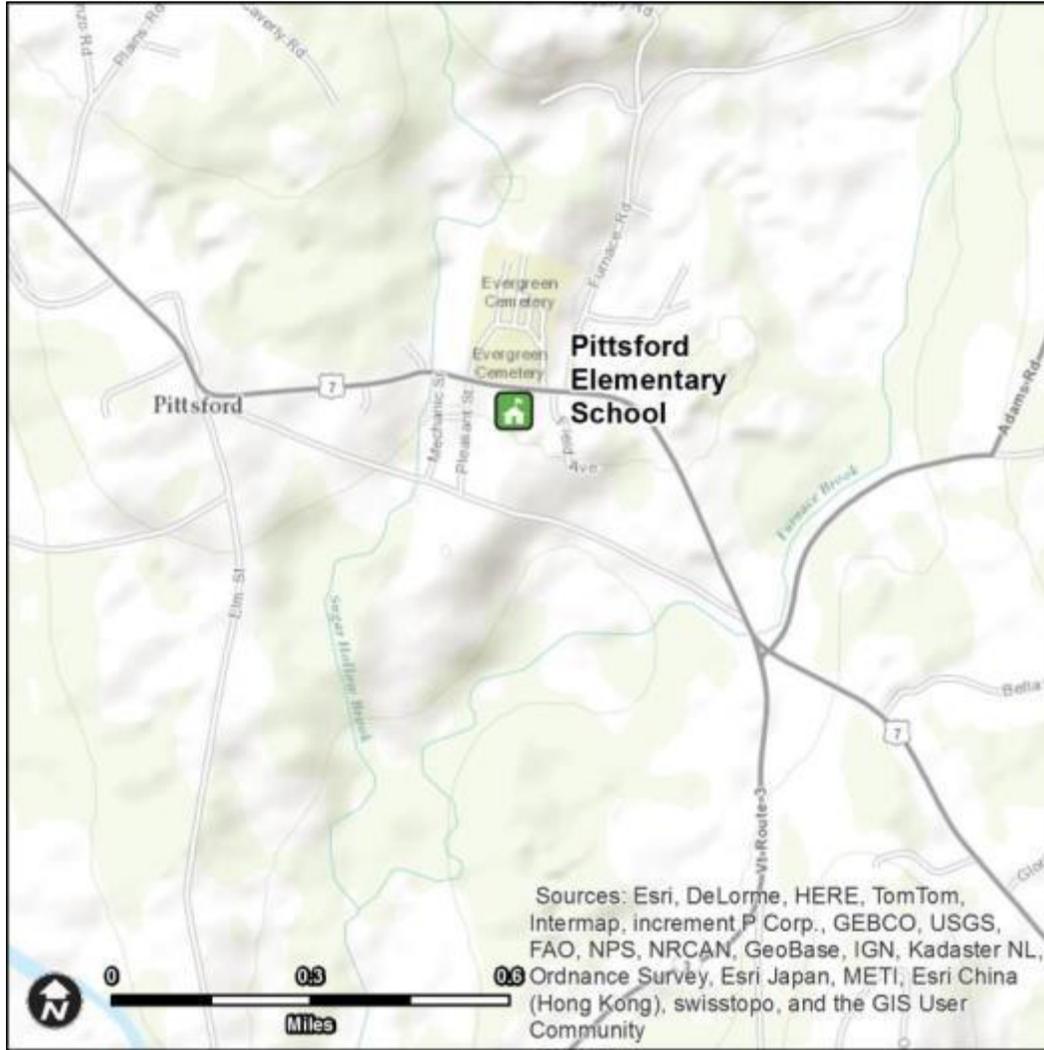
Meeting Date	Content and Outcomes
July 2014	<p>Kick-off Meeting: How the VT SRTS Travel Plan Works</p> <ul style="list-style-type: none"> - Award of the planning assistance grant - Overview of the planning process <p>Engineering Meeting</p> <ul style="list-style-type: none"> - Team visioning - Opportunity and barrier discussions - Walk audit
August 2014	<p>Plan Review</p> <ul style="list-style-type: none"> - Reviewed the draft plan - Identified roles and continued steps for non-engineering recommendations
September 2014	<p>Plan Adoption</p> <ul style="list-style-type: none"> - Adopted Plan - Discussed continuation of non-infrastructure recommendations
October 2014	<p>Plan Presentation</p> <ul style="list-style-type: none"> - Present final plan to School Board and Select Board

TRAVEL PLAN CONTEXT

LOTHROP ELEMENTARY SCHOOL AND TOWN OF PITTSFORD OVERVIEW

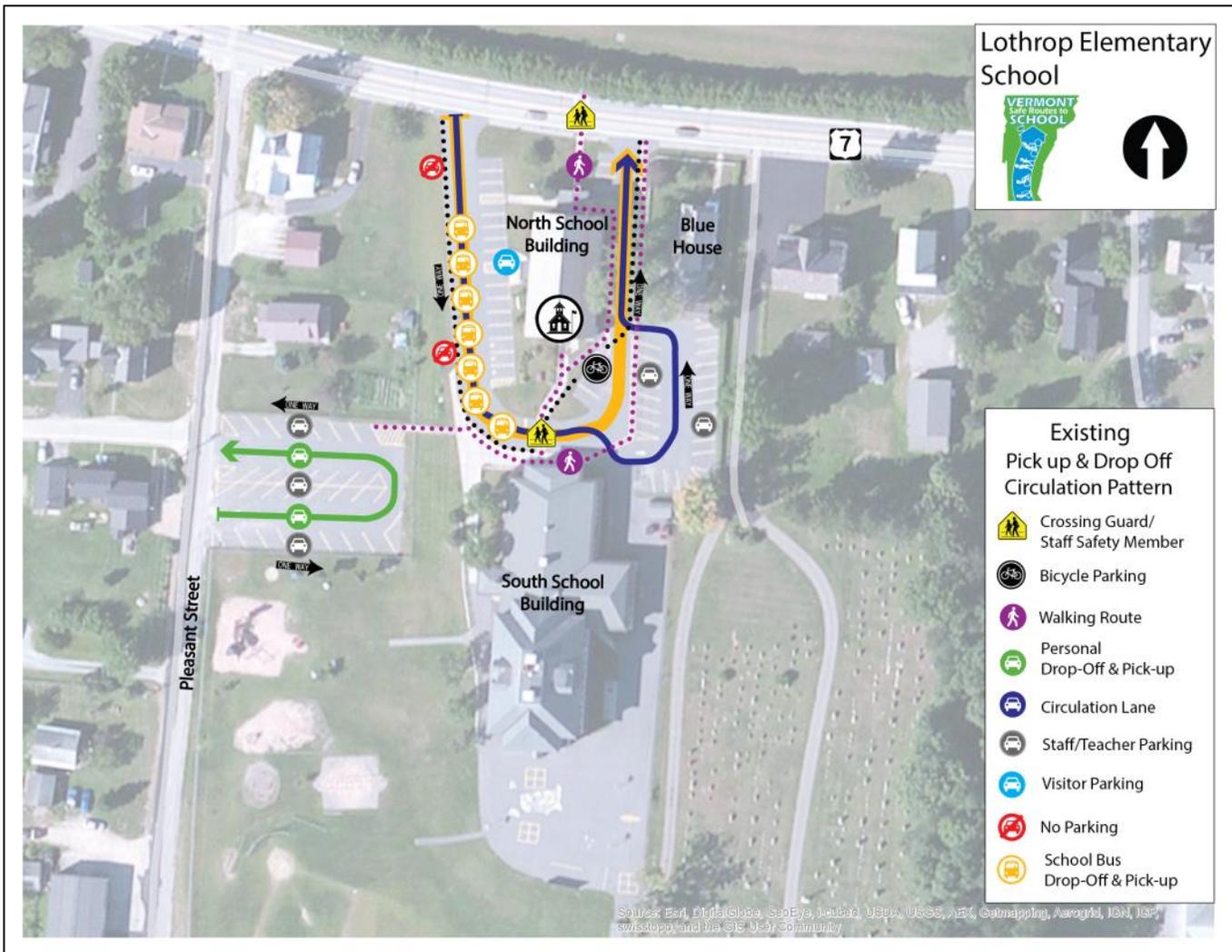
Lothrop Elementary School is located in the Town of Pittsford in Rutland County, Vermont. Pittsford is positioned along the Otter Creek and US Route 7 corridor between Middlebury to the north and Rutland to the south. Pittsford has a population of approximately 3,000 year-round residents.

Lothrop Elementary School is located on US Route 7 - a principal arterial on a state highway. The posted speed limit on US Route 7 is 50 MPH outside the town limits, 35 MPH through town and 25 MPH within the delineated school zone. The school zone is signed with school warning signage and yellow flashing school zone beacons.



The school campus is composed of three detached buildings- the north building consists of the cafeteria and gymnasium, the south building which includes classrooms and school administrative offices and the blue house that provides additional office space and room for the afterschool program. The three school buildings are separated by a one-way school driveway and connected with a marked crosswalk that is stop-controlled. The school driveway provides direct access to and from US Route 7 and connections to the internal parking lot areas.

The SRTS program at LES is a key component in the school’s efforts to improve the health of its students and community as well as to increase awareness and safety of bicycles and pedestrians within town.



LES circulation map.

The Pittsford Town Plan adopted by the Select Board in December 2012, was developed to provide a framework and guidance for the community. The vision and goals for the future transportation investments in the Town of Pittsford align with increasing pedestrian and bicycle infrastructure in order to increase transportation options for the community, economic prosperity and vitality.

Several years ago, the State of Vermont passed Complete Streets legislation which took effect July 1, 2011. Complete Streets policies ensure that state and local transportation agencies consider all users in the design and operation of the right of way to make roads safer and more accessible for everyone regardless of age or ability. Complete Streets policies, working in tandem with the SRTS travel plan, will help to define Pittsford as a walkable, bikeable and sustainable community.

CURRENT SCHOOL DEMOGRAPHICS

Lothrop Elementary School serves the Town of Pittsford and has approximately 200 students enrolled for the 2014-2015 school year. Our school serves grades K-6. The Lothrop Elementary School provides busing to all enrolled students.

Demographic	Count	Percentage of student body
Free/Reduced Lunch	94	47%
Students with Disabilities	29	15%
Limited English proficient students	0	0%
Distance From School		
Students living within 1/4 mile of school	13	6%
Students living within 1/2 mile of school	29	15%
Students living within 1 mile of school	51	27%
Students living within 2 miles of school	176	93%
Students in grades K-3	114	58%
Students in grades 4-6	83	42%

Note: 12 student addresses were unable to be located because they are associated with a P.O. Box address.

To further identify and study where students are traveling from to get to school, student households were mapped utilizing household addresses excluding identity. The Lothrop Elementary Student Locator Map covers a two-mile radius as it relates to potential walkers' and

bicyclists’ actual measured distance from households to the elementary school. The Lothrop Elementary Student Locator Map is included in **Appendix D**.

CURRENT STUDENT TRAVEL MODES

Travel Mode	Walk	Bike	School Bus	Family Vehicle	Carpool	Public Transit	Other
Number of Students (AM)	7%	0.3%	52%	41%	0%	0%	0%
Number of Students (PM)	4%	0.3%	63%	26%	0%	0%	7%

Note: Data based on SRTS Student Tally Report administered over a two day time period in June 2014.

SCHOOL ARRIVAL AND DISMISSAL PROCEDURES

Lothrop Elementary School relies on policies, practices and support activities to ensure a safe and orderly process for arrival and dismissal, regardless of how students travel to school. Parents are reminded of these procedures in the student handbook and in monthly newsletters that are mailed to students’ homes.

The school day begins at LES at 8:00 AM and ends at 2:45 PM.

Students walking, biking and travelling by car arrive staggered before school starts – typically between 7:30 AM and 8:00 AM. A staff crossing guard is positioned on US Route



Pittsford summer campers cross US Route 7 to access the Pittsford Recreation Area.

7 in front of the school from 7:20 AM to 8:00 AM. There is supervision on the playground and breakfast served starting at 7:40 AM and students may start entering the classrooms beginning at 7:55 AM.

During the hours of 7:30 AM – 8:00 AM and 2:30 PM – 3:00 PM, the west and east school driveway loop is reserved for buses only and is currently signed to inform road users of these restricted access times. School bus transportation is provided by the Rutland Northeast Supervisory Union School District and has seven buses serving Lothrop Elementary School. Elementary students share the bus with middle and high school students. The school buses start arriving on campus at 7:40 AM via US Route 7 turning into the west driveway and proceeding to the drop-off area located at the south school building. The last bus on the drop-off route arrives at approximately 8:00 AM. All buses exit via the east driveway loop to US Route 7.

Students who walk to school typically travel via US Route 7- through the east and west school driveways to access the south school building. Students travelling by bike park at the existing bike racks located at the rear of the north school building. Students who walk or bike to school are required to receive parental permission and are encouraged to obey the safety rules in the Lothrop School Student-Parent Handbook, including wearing a helmet when biking.

The lower level parking lot on Pleasant Street functions as a one-way loop for personal vehicles during arrival and dismissal procedures. This lower parking lot also serves as visitor parking. Access to the south school building is provided by a large set of stairs to make up the grade separation between the lower parking lot and the school buildings. Currently, there is not an accessible path of travel from the lower parking lot to the Lothrop Elementary School.

Dismissal procedures begin at 2:40 PM. Walkers, bikers and car riders are dismissed first, followed by the dismissal of bus riders at 2:45 PM. Students riding the bus board directly from the south school building. Dismissal continues until approximately 3:00 PM when the final late bus arrives. School staff are present at dismissal to ensure that children are behaving properly and safely until they leave the school grounds.

Arrival		
Travel Mode	Procedure	Time
Walk	Arrive staggered through front door only.	7:30-8:00 am
Bike	Arrive staggered through front door only.	7:30-8:00 am
School Bus	Arrives at designated time through front door only.	7:40-8:00 am
Family Vehicle	Arrive staggered through front door only.	7:40-8:00 am
	Note: Staff is not on site until 7:40am	
Dismissal		
Travel Mode	Procedure	Time
Bus	Dismissed the front and far end doors.	2:45 pm (Late buses at 2:55 pm and 3:00 pm)
Family Vehicle	Dismissed first and released through the far end door.	2:40 pm
Walk	Dismissed first and released through the far end door.	2:40 pm
Bike	Dismissed first and released through the far end door.	2:45 pm

EXISTING TRAVEL HABITS

Approximately 20% of the student population lives within a mile of the school and 61% live within two miles. However, the number of students who can walk or bike to school is low due to limited sidewalks, lack of bicycle facilities near the school and overall missing portions in the pedestrian and bicycle network, especially on US Route 7. Currently, 6 students walk to school and 2 students bike to school.

A parent survey was conducted from Fall 2014. Of the 197 surveys distributed, 51 were returned. The survey identified the following primary barriers to walking to school:

- Amount of Traffic Along Route - 84%
- Speed of Traffic Along Route - 82%
- Distance - 71%
- Sidewalks or Pathways - 67%
- Safety of Intersections and Crossing - 64%
- Weather or Climate - 56%

Many of the issues in the list above can be addressed with either infrastructure or non-infrastructure strategies (or in some cases both). We kept these concerns in mind when picking the strategies that we want to accomplish. To view the complete results of the parent survey see Appendix E.

KEY ISSUES

The team identified the following barriers to walking and biking to school:

Issue: The Lothrop Elementary School grounds lack connected sidewalks and high-visibility pavement markings.

Internal sidewalk segments are on the Lothrop Elementary School grounds, however the lack of critical sidewalk connections and substandard low-visibility crosswalk markings provide inadequate walking facilities.

The lack of sidewalk connectivity from the south school building to US Route 7 and active parking area does not provide a designated pedestrian space for students walking to US Route 7.



The internal sidewalks do not connect to US Route 7.

Issue: The observed speed and amount of traffic on US Route 7, combined with a lack of connected bike and pedestrian facilities, creates a barrier to walking and biking safely in town.

US Route 7 is a primary route through town for personal vehicles and heavy industrial traffic traveling south to Rutland and north to Middlebury. The posted speed limit in the town is 35 MPH (25 MPH through the school zone) and 50 MPH outside the town limits. The 25 MPH posted speed limit is in effect at all times during the day. With an approximate 100' right-of-

way, the road carries approximately 9,200¹ vehicles per day in front of the school. This relatively high frequency of vehicles (in comparison with other roads in town) and observed high speeds create a barrier to crossing US Route 7 and walking or biking. Existing sidewalks within town limits are present on both sides- limited sections have curbing while most are flush with US Route 7 due to lack of maintenance. Crosswalk markings are generally absent at intersecting streets. In addition, motor vehicles routinely access US Route 7 from adjacent intersecting streets and there are no devices to alert roadway users that pedestrians may be crossing the intersection in these locations. The traffic conditions mentioned above, along with limited sightlines, can make for a stressful pedestrian environment.

The team also indicated that during specific morning arrival procedures, solar glare can be an issue crossing US Route 7 at the crosswalk in front of the school.

Issue: The intersection of Furnace Road and US Route 7 has challenging lane designation, alignment and environment for all users.



Furnace Road- west approach at the intersection of US Route 7.



Furnace Road- east approach at the intersection of US Route 7.

A relatively high number of the Lothrop student population resides to the north on Furnace Road and to the south on US Route 7 and pass through this intersection on their way to school. This is a T-intersection that is stop-controlled on Furnace Road with a painted median and bollards separating travel lanes. The Furnace Road intersection at US Route 7 provides two-way traffic on both sides of the painted median. The travel lane delineation on the westside of the

¹ AADT VTrans 2010 Traffic Flow Map: This map shows 2010 Annual Average Daily Traffic Volumes on Interstate, US and Vermont Routes.

painted median island directs right turning vehicles from Furnace Road onto US Route 7 and left turning vehicles traveling south on US Route 7 onto Furnace Road. The travel lane delineation on the eastside of the painted median island directs left turning vehicles from Furnace Road onto US Route 7 and right turning vehicles traveling north on US Route 7 onto Furnace Road.



Aerial image: Furnace Road and US Route 7 intersection.

Pedestrians essentially need to cross two separate roadway intersections. The painted median attempts to provide refuge for pedestrians crossing Furnace Road, however the two-way traffic on either side create potential conflict points between turning vehicles and crossing pedestrians. The existing bollard structures, lack of high-visibility pavement markings and large curb radii make for a challenging pedestrian crossing.

Issue: The intersection of US Route 7, Elm Street and Arch Street has challenging sight lines, road geometry and lack of connected sidewalk infrastructure to access key destinations in town.

Prominently located at this intersection are Kamuda's Country Market, Maclure Library and Pittsford Town Post Office, which are all popular destinations within the town. An existing crosswalk is striped crossing US Route 7 north of the Arch Street and US Route 7 intersection. The crosswalk connects to the existing sidewalk on the eastside of US Route 7 and to a grass median island separating US Route 7, Arch Street and Kamuda's Country Market parking lot. The sidewalk segment on the westside ends in the grass median island and does not provide access to Kamuda's Country Market and the Post Office. The parking lot in front of Kamuda's Country Market lacks curbing and consists of an unorganized parking layout which contributes to unsafe walking and biking conditions. Although heavily used, a crossing on Elm Street at US Route 7 is not marked with a crosswalk or signage. This crossing is used by students catching the school bus at Kamuda's, students walking to school and community members visiting the country store.



Looking south on US Route 7 towards Kamuda's Country Market.



Aerial image of the intersection of US Route 7, Elm Street and Arch Street.

Issue: There is no direct pedestrian and bicycle connection from the Lothrop Elementary School to the Pittsford Recreation Area.

The Pittsford Recreation Area is a key community resource and utilized by the school for Project Adventure, the Four Winds Program and for sporting events. The current pedestrian and bicycle route from the school grounds to Pittsford Recreation Area lacks a more convenient and more direct route for pedestrians or cyclists. An existing sidewalk segment on the westside of Furnace Road is provided from the Pittsford Recreation Area driveway south to the intersection of Furnace Road. The sidewalk terminates at this intersection and no crosswalk markings are provided to cross US Route 7 at this intersection location.

Opportunity: Funding for sidewalk connection from village center to the school along Arch Street and Pleasant Street.

Arch Street runs parallel to US Route 7 and provides alternative access from the heavily congested US Route 7 to the school grounds. An existing sidewalk segment extends from Kamuda’s Country Market along the southside of Arch Street for approximately 0.1 miles. Students currently use this route and walk in the roadway at the termination of the sidewalk. This route is a popular segment and currently does not have a designated pedestrian space when the sidewalk ends. The Town has secured funding to connect this sidewalk down Arch Street crossing at eastside of Pleasant Street and continuing along the eastside on Pleasant Street to the school parking lot. If funding allows, the proposed sidewalk could continue and connect all the way to US Route 7 and a crossing would connect the existing sidewalk segments at the Pleasant Street and US Route 7 intersection. The proposed sidewalk segment will be a key connection and provide a safe route for walking and biking, not only for the school community, but also for the town.



Pleasant Street- looking north towards US Route 7.

The team also observed students walking in the road on US Route 7 and Pleasant Street. The Arch Street and Pleasant Street sidewalk project will provide designated pedestrian space to prevent students from walking in the roadway.

TRAVEL PLAN RECOMMENDATIONS

This Travel Plan is comprised of several sections detailing activities and programs for LES to implement now and projects for us to develop over time with local officials.

Non-Engineering Plan

This Travel Plan identifies best practice education, encouragement, enforcement and evaluation activities and programs suitable for our school. Information on the advantages and considerations for each strategy, and resources to help us implement each, are included in the **Appendix F**.

18-Month SRTS Activity Calendar

Our team will pursue a smaller subset of items in the non-engineering plan during the next 18 months. We will review our work periodically, adding additional activities that will build the SRTS program momentum. The Calendar is located in **Appendix A**.

Engineering Recommendations

With assistance from the Vermont SRTS Resource Center, we have identified short, medium and long-term engineering treatments to make walking and bicycling to school safer for our students. Engineering Recommendations can be found in **Appendix C**, along with typical Infrastructure recommendations in **Appendix B**.

Snow Removal Best Practices

Snow, sleet, slush, ice and rain impact all modes of transportation, and the timely clearance and removal of the elements are essential for the functionality and accessibility of a Safe Routes to School program. Snow Removal Best Practices can better inform communities about snow removal policies and procedures, providing tools to increase compliance and safety. Snow removal recommendations are located in **Appendix G**.

NON-ENGINEERING TRAVEL PLAN

We identified a number of activities and programs to promote walking and biking to school. These activities and programs, while grouped by “The Five E’s”, are dependent upon each other for their individual success. We plan to work on our highest priority programs this year, following up with other programs in successive years. We used the timeframe below to determine when to initiate programs:

Type	Short	Medium	Long
Encouragement, Education, Enforcement, Evaluation	<i>What we plan to do this school year</i>	<i>What we plan to do next school year</i>	<i>What we plan to do starting in two years</i>

EDUCATION STRATEGIES

The education strategies included in our 18-month activity calendar are aimed at providing all students with safe walking and bicycling skills. Our education activities this year include:

- Incorporate WalkSmart/BikeSmart Vermont! Curriculum into 2014/2015 school year in PE class.
- Utilize walking field trips and practice evacuations to reinforce safe walking skills.
- Provide opportunities at the beginning of the school year and the spring walking season to educate students and families on safe walking and biking practices through the website and the school's Thursday Folder.
- Host a spring bicycle skills rodeo in collaboration with the Pittsford Recreation Department that will include general bike safety, including hand signals, bike inspections and helmet fittings.
- Partner with other schools in the area and request the Bike Smart Trailer from Local Motion in order to supply bikes and equipment needed for on-bike skills training.

ENCOURAGEMENT STRATEGIES

Encouragement strategies included in our 18-month activity calendar will help students and their parents feel more comfortable and confident about walking and bicycling to school. Our encouragement activities this year will include:

- Participate in International Walk to School Day event on October 8th, 2014 with an all-school meeting pep rally on the 7th and a formalized walking school bus from Kamuda's for the event.
- Host a Vermont Intergenerational Walk and Roll to School Day event on May 7th, 2015.
- Host monthly Walk to School Days during the spring and fall.

- Establish a Walking School Bus from Kamuda's and Bike Train route from Furnace Road. Consider a remote bus drop off for monthly walk to school days.
- Encourage students to ride the bus and carpool during the winter months when walking and biking is less popular due to weather conditions.

ENFORCEMENT STRATEGIES

Our SRTS enforcement strategies are aimed both at changing the behavior of drivers and making the town safer and more secure for students walking to and from school. Our enforcement activities this year will include:

- Work with the Vermont State Police to address speeding along US Route 7.
- Place a temporary speed trailer/feedback machine at roadside locations near the school.

EVALUATION STRATEGIES

Evaluation is an important component of our SRTS program. We plan to complete regular in-classroom student tallies and evaluation tools such as the student tally and parent survey forms provided by the National Center for Safe Routes to School (NCSRTS). Parent surveys will help us measure the effectiveness of SRTS efforts over time. We first administered student tallies in June 2014, which provided base line information on student travel behavior. Parent surveys are planned to be administered in early Fall 2014. Subsequent student tallies and parent surveys will help measure the effectiveness of SRTS efforts over time.

We will continue to conduct walk audits on a regular basis to evaluate the existing walking and biking environment as well as monitor the progress of recommended projects.

Other evaluation strategies we will work on after this year are:

- Administer parent surveys annually to capture opinions of new parents and changes in overall parental perceptions.
- Collect student tally data each year to measure progress toward goals.
- Keep the SRTS Travel plan updated and use it as a tool for increased SRTS activities.

Evaluation Tool	Leader	Schedule
Parent Surveys	Sara Raabe	Annually in October
Student Tallies	Melanie Parker	Annually in June
Walk Audits	SRTS Team and students	Annually, within first two months of school

ENGINEERING TRAVEL PLAN

Our goal for engineering improvements is to enhance the physical environment along walking and biking routes that students use. Engineering improvements generally fall into three categories: providing sidewalks and paths, improving crossings and implementing infrastructure associated with improving the safety of school drop-off and pick-up practices. Descriptions of typical engineering recommendations can be found in **Appendix B**.

We recognize that infrastructure improvements can take time to complete and are a collaborative effort among Lothrop School Community, the Town of Pittsford and potentially VTTrans to implement. The following short, medium, and long-term timeframes are a guide for anticipated project completion, however actual timeframes may vary:

Short term	Within 2 years
Medium term	Within 5 years
Long term	Longer than 5 years

The SRTS team prioritized the infrastructure improvements as high, medium, or low. The factors affecting this ranking include:

- Locations with specific safety concerns;
- Locations along existing student walking or bicycling routes, or with a significant number of school family residences; and,
- Locations that are priorities for the school community.

Engineering Recommendations for specific locations in the vicinity of Lothrop Elementary School can be found in **Appendix C**.

CONSIDERATIONS FOR DESIGN AND FUNDING

Design

- All infrastructure recommendations in this plan are considered “planning level” and will require further engineering analysis, design, or public input before implementation.
- Recommended changes to existing traffic patterns (adding a signal, adding a stop sign, changing lane patterns, etc.) will require a study to evaluate the potential impact that the recommendation could have on existing traffic conditions.
- Drainage, existing utilities and Americans with Disabilities Act (ADA) compliance will need to be evaluated for all recommendations at the time of design. ADA guidelines recommend particular design features to accommodate persons with disabilities. ADA design considerations for curb ramps, sidewalks and paths, include appropriate slopes, landing areas, surface conditions, and use of detectable warning materials for visually impaired pedestrians, among other design features.
- Right-of-way was not evaluated as a part of this project. Recommendations assume that sufficient right-of-way exists or that a method to gain needed right-of-way will be identified as the project progresses.
- VTrans district office staff will be involved in the planning and design process for any recommendation made on the State system.
- All infrastructure recommendations should comply with federal, state, and local standards including the American Association of State Highway and Transportation Officials’ Policy on Geometric Design of Highways and Streets and the Manual on Uniform Traffic Control Devices (MUTCD).
- Refer to the Vermont Pedestrian and Bicycle Facility Planning and Design Manual for guidelines on pedestrian and bicycle accommodations.

Funding

- A variety of funding sources may be used for the recommendations through the VTrans Transportation Alternatives Program. For example, conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists or other nonmotorized transportation users would be eligible for funds through this program.

More information on the types of projects eligible for SRTS funding through VTrans can be found online at: saferoutes.vermont.gov/getting_started/funding.

For a copy of the VTrans Transportation Alternatives Program Application and Guide can be found online at: vtransengineering.vermont.gov/sections/ltf/transportationalternatives.

APPENDICES

- A. Non-Infrastructure Strategies Calendar
- B. Typical Infrastructure Recommendations
- C. Location-Specific Engineering Recommendations (Location Key and Recommendation Tables)
- D. Student Locator Map
- E. Student Tally Report, June 2014 and Parent Survey Report, September 2014
- F. Non-Engineering Strategies Resource Guide
- G. Infrastructure Strategies Resource Guide
- H. Snow Removal Best Practices

APPENDIX A

NON-INFRASTRUCTURE STRATEGIES CALENDAR

APPENDIX B

TYPICAL INFRASTRUCTURE RECOMMENDATIONS

APPENDIX B TYPICAL INFRASTRUCTURE RECOMMENDATIONS

The following infrastructure recommendations are typical treatments used in SRTS projects. These recommendations may or may not be included in this travel plan. The basic information is provided to give an overall understanding and implementation guidance on each treatment.



Rectangular Rapid Flashing Beacons:

Rectangular rapid flashing beacons (RRFB), as shown to the left, are warning beacons used to increase visibility of students and all pedestrians as they cross the roadway at uncontrolled crosswalks. This type of signal is pedestrian-activated, i.e., the signal will only flash if a pedestrian has pushed a button, indicating that they need to cross the street. Any proposed RRFB locations need to meet current guidance provided in the interim approval of the Manual on Uniform Traffic Control Devices (MUTCD). For proposed uncontrolled crosswalks on state maintained roads, VTrans approval and justification are needed.

Curb Extensions:

Curb extensions, as shown below, are recommended to reduce pedestrian crossing distances (and thus exposure to traffic) and to slow motor vehicle turning speeds at intersections. Curb extensions located along school bus routes should effectively calm traffic, but not impede buses from making the turn. Design considerations should include the appropriate design vehicle, maintenance concerns, and snow plow accommodations depending on the roadway jurisdiction.



Curb Radius Reductions:

Curb radius reductions are recommended to slow motor vehicle turning speeds and to reduce pedestrian crossing distances (and thus exposure to traffic). Curb radius reductions involve

tightening the motor vehicle turning radius at an intersection, as shown to the left, without extending the curb line into a parking lane. Curb radius reductions located along school bus routes should effectively calm traffic but not impede buses from making the turn. Design considerations for curb radius reductions include the appropriate design vehicle depending on the roadway jurisdiction and ADA compliance.

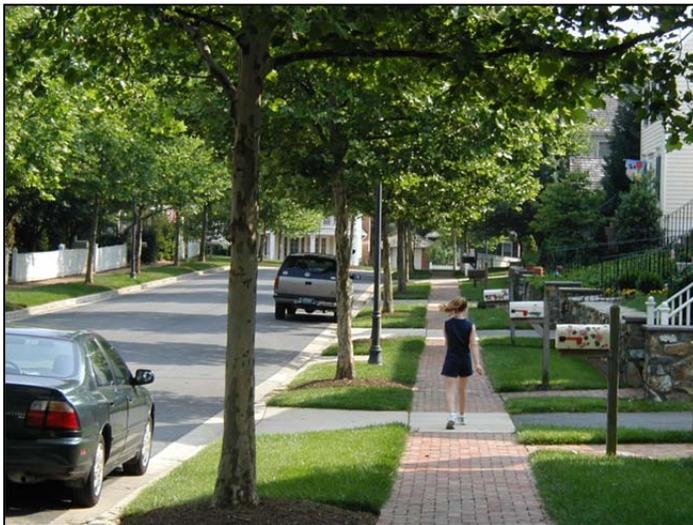
High Visibility Crosswalks:

High visibility crosswalk striping improves the visibility of pedestrians to motorists. Different striping patterns can be used and the most common patterns are variations of the ladder style, shown right. Reflective durable materials should be used to resist decay.



Sidewalks and buffers:

One of our long-term goals is to establish a well-connected sidewalk network throughout the neighborhoods so that families can walk for more of their daily trips, rather than drive. Sidewalks are the most effective when they include a buffer. This buffer increases pedestrian comfort and safety and can also serve as a place for pedestrian “overflow”, especially closer to the school where groups of walkers are largest. Based on Vermont Pedestrian and Bicycle



Facility Planning and Design Manual, the preferred design for sidewalks is a minimum six foot wide sidewalk with a minimum two foot wide buffer for local roadways with curbs. For downtowns and village centers on roadways with curbs, the preferred design for sidewalks is a minimum eight foot wide sidewalk with a minimum four foot wide buffer. For roadways without curbs, the buffer should be a minimum of five feet. Available right of way will impact the ultimate design of the sidewalk.

School Zone Identification:

School pavement markings are recommended to alert motorists that they are entering a school zone where pedestrians may be present both along and crossing the roadway. New pavement markings can work with existing school zone signs to reinforce the message to motorists about the school zone. The detail provided in the figure below is an excerpt of the MUTCD.



Speed Feedback Signs:

Communities may use a mobile “speed trailer” that can be placed in locations where motorists exceed the speed limit often enough that passive enforcement is appropriate. Permanently installed feedback signs, shown right, provide ongoing information to motorists about the speed at which they are traveling. SRTS recommended any potential feedback signs be strategically located at main access points.



For towns interested in reducing the speed limit of a roadway, an engineering study needs to be conducted by the town. Approval from VTrans is needed for state maintained roads.

Pedestrian Refuge Island:

A Pedestrian refuge island, as shown right, may be used to narrow the roadway, reduce motor vehicle speeds, and improve pedestrian crossings. In locations with crosswalks, these islands improve pedestrian safety and access by reducing crossing distances and enable pedestrians to cross roadways in two stages. Pedestrian refuge islands should be used on multi-lane roadways or roadways with insufficient vehicular gaps to pedestrians to safely cross. Prior to design, a gap study should be conducted. Other considerations for pedestrian refuge islands include ADA compliance, maintenance concerns, and snow plow accommodations.



APPENDIX C

LOCATION SPECIFIC ENGINEERING RECOMMENDATIONS & MAP KEY

Appendix C: Location-Specific Engineering Recommendations

Safe Routes to School (SRTS) engineering strategies create safer environments for walking and bicycling to school through improvements to infrastructure in and around school grounds. These improvements focus on reducing motor vehicle speeds and conflicts with pedestrians and bicyclists, as well as establishing safer and fully accessible crossings, walkways, trails and bikeways.

The following tables provide a summary of the engineering strategies recommended for Lothrop Elementary School (LES). These recommendations were developed by Toole Design Group, LLC based on input from the LES SRTS Team. The tables include an estimate of the amount of time that is likely needed to implement the recommended improvements at each site (Estimated Time Frame). The table also indicates the priority of the proposed improvements at each site for the LES SRTS Team (Team Priority).

These recommendations are for planning purposes only and may require further engineering analysis, design or public input before implementation and shall be in full compliance with the Manual on Uniform Traffic Control Devices for Streets and Highways, (MUTCD) Latest Edition adopted by the state.

The summary table provided below is followed by information about implementation and a map which shows where the recommendation sites are located in relation to the school.

Description of Streets with Engineering Recommendations

Street name	AOT Functional Classification	Speed Limit	Surface	Curb
Arch Street	Town Highway/Local Town Road	30 MPH	Asphalt	None
Elm Street	Town Highway/Local Town Road	30 MPH	Asphalt	None
Field Avenue	Town Highway/Local Town Road	30 MPH	Asphalt	None
Furnace Road	Town Highway/Major Collector	30 MPH	Asphalt	None
Pleasant Street	Town Highway/Local Town Road	30 MPH	Asphalt	None
US Route 7	State Highway/Principal Arterial	50 MPH/ 35 MPH/25 MPH school zone	Asphalt	Inconsistent/Varies

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>A</p> <p>LES School Grounds</p> <p>The school campus consists of three school buildings: a north building which contains the cafeteria and gymnasium, a south building which includes classrooms and administrative offices and blue house that provides K-6 classrooms as well as afternoon meeting space.</p>	<p>The driveway loop is the primary way to access the school grounds. Sidewalks are provided on the south side of US Route 7, however segments are missing for the west and east driveway loops. The west driveway loop sidewalk ends prior to US Route 7 and the east driveway loop includes an approx. 4-ft wide painted sidewalk. The existing crosswalk markings are not high-visibility and lack ADA-compliant curb ramps.</p> <p>The asphalt-paved driveways with gaps in the sidewalks, lack of high-visibility crosswalk pavement markings and ADA-compliant curb ramps do not provide a designated space for pedestrians to access the school grounds.</p> <p>The lower school parking lot located on Pleasant Street does not have an accessible route to the school grounds.</p>	<p>A1. Install two high-visibility, durable, block-pattern crosswalks- one crossing the west driveway and one crossing the east driveway at the US Route 7 intersection. Construct ADA-compliant curb ramps with detectable warning surfaces at both ends of both crosswalks.</p>	Short Term	Town/VTrans	<p><input checked="" type="checkbox"/> <i>Safety concerns.</i></p> <p><input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i></p> <p><input checked="" type="checkbox"/> <i>Priorities for the school community.</i></p>	High
		<p>A2. Construct a sidewalk segment approx. 195-lf connecting the existing sidewalk on US Route 7 and the existing sidewalk on the west driveway.</p>	Medium Term	Town/VTrans		
		<p>A3. Construct a sidewalk segment approx. 225-lf to replace the painted walkway on the east driveway.</p>	Medium Term	Town		
		<p>A4. Install a high-visibility, durable, block-pattern crosswalk replacing the existing crosswalk connecting the existing sidewalk in front of the south building and the sidewalk segment proposed in A3. Construct ADA-compliant curb ramps with detectable warning surfaces at both ends of the proposed crosswalk.</p>	Short Term	Town		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>A</p> <p>LES School Grounds</p> <p>Continued.</p> <p>The three buildings are separated by a one-way driveway loop. The driveway physically separates the north building from the south building. Existing sidewalk segments along the driveway are not connected and the pavement markings are not high-visibility.</p>		<p>A5. Install a high-visibility, durable, block-pattern crosswalk to replace the existing crosswalk that connects the north and south buildings. Construct ADA-compliant curb ramps with detectable warning surfaces at both ends of the proposed crosswalk.</p>	Short Term	Town	<input checked="" type="checkbox"/> <i>Safety concerns.</i> <input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i> <input checked="" type="checkbox"/> <i>Priorities for the school community.</i>	High
		<p>A6. Study a potential ADA-compliant pedestrian path connection from the school grounds to the proposed sidewalk project on Pleasant Street.</p> <p><i>Note: Current school emergency evacuation procedures are routinely practiced. The evacuation site is located at the Pittsford Fire Department located on Arch Street at the intersection of Pleasant Street.</i></p>	Medium Term	Town		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>B</p> <p>US Route 7</p> <p>US Route 7 is a State Highway running north to Middlebury and south to Rutland through the Town of Pittsford.</p> <p>US Route 7 is approximately 28-ft wide with 12-ft travel lanes and 2-ft wide shoulders.</p> <p>The speed limit through town is 35 MPH with 25 MPH posted school zone in front of LES.</p>	<p>US Route 7 is the primary route for all modes of travel to and through the Town of Pittsford.</p> <p>As the major road through town, high traffic speeds and volumes are consistently observed.</p> <p>4 to 5-ft wide sidewalks are present on US Route 7 on one or both sides from Arch Street/Elm Street to Arch Street/Route 3. The sidewalk buffer width also varies and is also not consistent throughout the corridor.</p> <p>The sidewalk conditions and materials tend to vary, as well as the connectivity of sidewalk segments along US Route 7.</p>	B1. Reinstall 'SCHOOL' pavement markings at the existing school crossing (S1-1) signs on US Route 7 in both directions.	Short Term	VTrans	<input checked="" type="checkbox"/> <i>Safety concerns.</i> <input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i> <input checked="" type="checkbox"/> <i>Priorities for the school community.</i>	High
		B2. Install 'SCHOOL' (S4-3P) plaques at both school crossing signs on US Route 7 in both directions.	Short Term	VTrans		
		B3. Install two (2) Rectangular Rapid Flashing Beacons (RRFB) at the crosswalk crossing US Route 7 in front of the school.	Medium Term	VTrans		
		B4. Construct a sidewalk segment approx. 475-lf connecting the existing sidewalk on US Route 7 and the existing sidewalk on Furnace Road.	Medium Term	VTrans		
		B5. Construct a sidewalk segment approx. 775-lf connecting the gap in the existing sidewalk on the north side of US Route 7 south of Furnace Road intersection.	Medium Term	VTrans		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
B US Route 7 Continued.		B6. Construct a sidewalk segment approx. 325-lf connecting the gap in the existing sidewalk on the south side of US Route 7 north of Arch Street.	Medium Term	VTrans	<input checked="" type="checkbox"/> <i>Safety concerns.</i>	High
		B7. Patch and/or repair the existing curbing and sidewalk on both sides of US Route 7 from Arch Street/Elm Street intersection to the Arch Street/Route 3 intersection. Consider installing curb stops adjacent to the sidewalks in front of the school to replace the existing deteriorating curbing.	Long Term	VTrans	<input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i> <input checked="" type="checkbox"/> <i>Priorities for the school community.</i>	
		B8. Install permanent speed feedback signs at both existing 25 MPH reduced speed limit ahead (W3-5) signs on US Route 7 to alert drivers of their actual speed and the posted speed limit. There is potential to use solar energy as a power source for the proposed feedback signs.	Short Term	VTrans		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>B US Route 7 Continued.</p>		<p>B9. Install two high-visibility, durable, block-pattern crosswalks- one crossing Pleasant Street to connect to the existing sidewalks on US Route 7 and one crossing Field Avenue to the connect to the existing sidewalks on US Route 7.</p>	<p>Short Term</p>	<p>VTrans</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> <i>Safety concerns.</i> <input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i> <input checked="" type="checkbox"/> <i>Priorities for the school community.</i> 	<p>High</p>

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>C</p> <p>Furnace Road</p> <p>Furnace Road is classified as a major collector within the town and intersects with US Route 7.</p> <p>Furnace Road is approximately 24-ft wide with 12-ft travel lanes.</p> <p>There is an existing 5-ft wide sidewalk with a 3-ft wide buffer on the west side from the intersection of US Route 7 to Recreation Road, which provides access to the Pittsford Recreation Area.</p> <p>The posted speed limit is 30 MPH.</p>	<p>The T-intersection of US Route 7 and Furnace Road includes a painted median with bollards. The bollards separate two travel lanes on each side.</p> <p>The travel lane delineation on the west side of the painted median consists of a turn lane for vehicles turning right from Furnace Road onto US Route 7 and a travel lane for left turning vehicles traveling east on US Route 7 onto Furnace Road.</p>	<p>C1. Remove the existing painted median island. Normalize Furnace Road to have a single travel lane in each direction at the intersection. Reconstruct the intersection to reduce the corner radii, which will reduce motor vehicle turning speeds and reduce the overall pedestrian crossing distance. This will also reduce vehicle conflicts and minimize confusion for all users.</p>	Long Term	Town/VTrans	<p><input checked="" type="checkbox"/> <i>Safety concerns.</i></p> <p><input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i></p> <p><input checked="" type="checkbox"/> <i>Priorities for the school community.</i></p>	Medium
	<p>The travel lane delineation on the eastside of the painted median consists of a turn lane for vehicles turning left from Furnace Road onto US Route 7 and a travel lane for vehicles traveling west on US Route 7 turning right onto Furnace Road.</p>	<p>C2. Install a high-visibility, durable, block-pattern crosswalk crossing Furnace Road to connect to the existing sidewalk on Furnace Road and US Route 7. Construct ADA-compliant curb ramps with detectable warning surfaces at both ends of the proposed crosswalk.</p>	Short Term	Town/VTrans		
	<p>There is not a delineated space for pedestrians to cross Furnace Road to connect to the existing sidewalks.</p>	<p>C3. Conduct a traffic study to investigate the potential of installing a traffic signal at this intersection of Furnace Road and US Route 7.</p>	Long Term	Town/VTrans		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>D</p> <p>Arch Street/Elm Street/US Route 7/Pleasant Street</p> <p>The intersection of Arch Street, Elm Street and US Route 7 provides access to Kamuda's Country Market, Maclure Library and Pittsford US Post Office.</p> <p>Arch Street and Elm Street are both approx. 22-ft wide. Pleasant Street is approx. 20-ft wide.</p> <p>The posted speed limit for Arch Street and Elm Street is 35 MPH.</p> <p>The posted speed limit for Pleasant Street is 30 MPH.</p>	<p>The Arch Street/Elm Street/US Route 7 intersection is adjacent to popular amenities and local destinations. With the challenging road geometry, sight lines and topography, the intersection is difficult for pedestrians and bicyclists to navigate.</p> <p>Kamuda's Country Market parking lot site lacks curbing and pedestrian space. The parking layout is generally chaotic and unorganized.</p> <p>The Arch Street and Elm Street intersections with US Route 7 lack designated pedestrian space.</p> <p>Village Manor, a retirement community, is also located on Arch Street.</p> <p>Pleasant Street provides direct access to the lower school parking lot and does not have a designated school zone. The T-intersection of Arch Street and Pleasant Street is stop controlled.</p>	<p>D1. Install a high-visibility, durable, block-pattern crosswalk crossing Arch Street at the US Route 7 intersection connecting to the proposed sidewalk segment in D3 and proposed sidewalk segment in D4. Construct ADA-compliant curb ramps with detectable warning surfaces at both ends of the proposed crosswalk.</p>	Short Term	Town/VTrans	<p><input checked="" type="checkbox"/> <i>Safety concerns.</i></p> <p><input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i></p> <p><input checked="" type="checkbox"/> <i>Priorities for the school community.</i></p>	High
		<p>D2. Study the feasibility to install a radius reduction on Arch Street at the intersection of US Route 7. The radius reduction must maintain sufficient roadway width to maintain heavy truck access and snow plow maintenance. This will slow vehicles on Arch Street as they approach US Route 7 intersection.</p>	Long Term	Town/VTrans		
		<p>D3. Construct a sidewalk segment approx. 500-lf on the north side of Arch Street from intersection of US Route 7 and Arch Street to at least Village Manor (758 Arch Street).</p>	Medium Term	Town/VTrans		
		<p>D4. Construct a sidewalk segment approx. 90-lf on the north side of the grass median island. The proposed sidewalk segment would connect to proposed</p>	Medium Term	Town/VTrans		

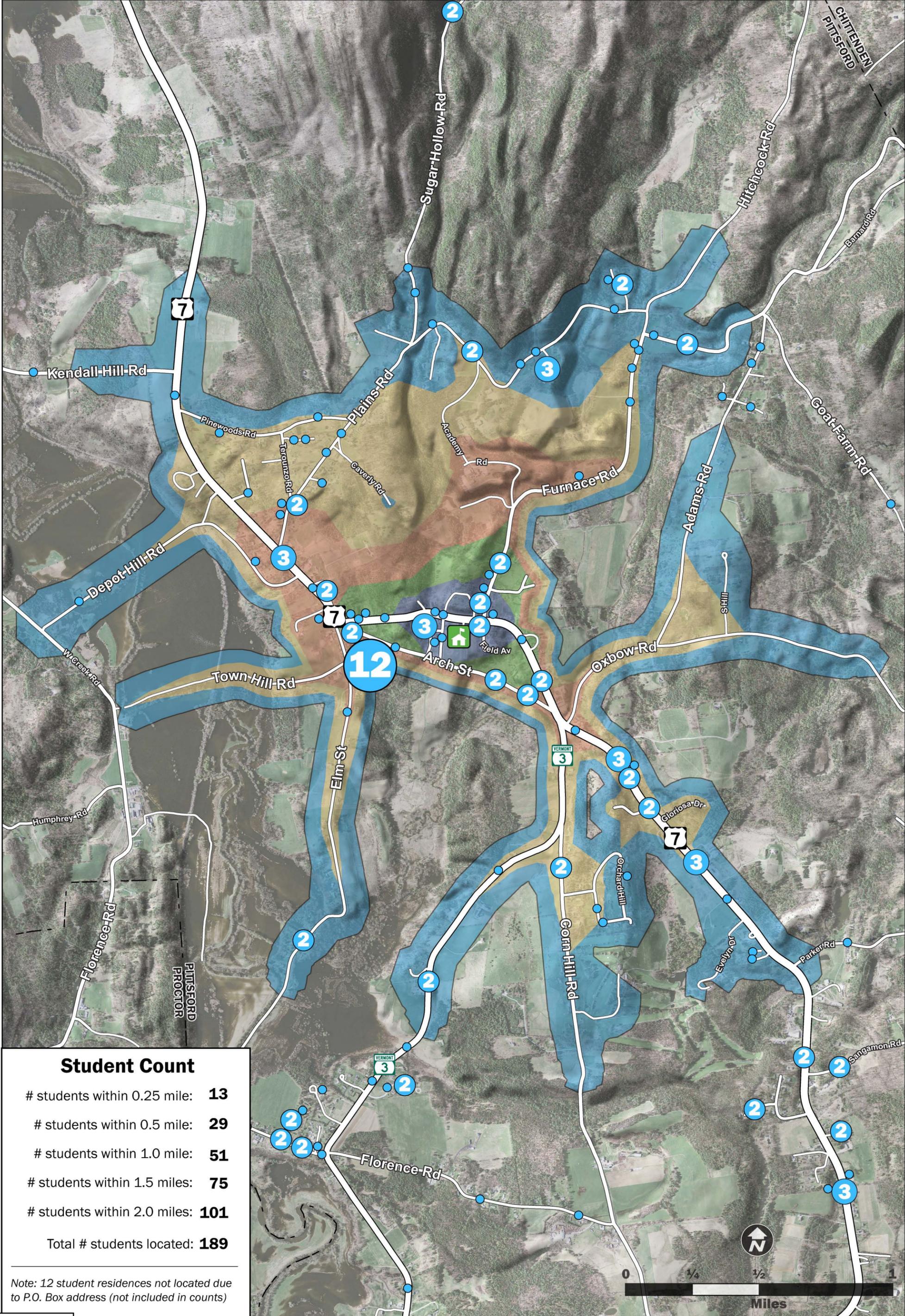
Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
D Arch Street/Elm Street/US Route 7/Pleasant Street Continued.	<p><i>Note: A proposed sidewalk project is currently in the engineering design phase. The proposed sidewalk project would connect the existing sidewalk segment that ends approximately at Village Manor on the south side of Arch Street. The sidewalk continues on the eastside of Pleasant Street. The plans also call for two proposed crosswalks- one crossing Arch Street on the east side of Pleasant Street and one crossing Pleasant Street at the US Route 7 intersection (Anticipated construction summer 2015).</i></p> <p><i>Note: VTrans is also in development of conceptual design plans for US Route 7 that will include sidewalks on both sides, signage improvements and realigned Arch Street, Elm Street and US Route 7 intersection. The conceptual improvements also propose defining two driveway aprons for Kamuda's Country Market parking lot area access.</i></p>	D4. Construct a sidewalk segment approx. 90-lf on the north side of the grass median island. The proposed sidewalk segment would connect to proposed crosswalk in D1 and proposed crosswalk in D5.	Medium Term	Town/VTrans	<input checked="" type="checkbox"/> <i>Safety concerns.</i> <input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i> <input checked="" type="checkbox"/> <i>Priorities for the school community.</i>	High
		D5. Install a high-visibility, durable, block-pattern crosswalk crossing Elm Street at the US Route 7 intersection connecting to the proposed sidewalk segment in D4 and existing sidewalk segment on US Route 7. Construct ADA-compliant curb ramps with detectable warning surfaces at both ends of the proposed crosswalk.	Short Term	Town/VTrans		
		D6. Reconstruct the west side of US Route 7 on the southbound approach to Elm Street to follow the curvature of the roadway. Increase the sidewalk width and install a grass buffer to reduce the overall pavement width. This will also slow vehicles on US Route 7 as they approach Elm Street. Consider maintaining on-street parking.	Long Term	Town/VTrans		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>D</p> <p>Arch Street/Elm Street/US Route 7/Pleasant Street</p> <p>Continued.</p>		<p>D7. Work with Kamuda’s Country Market and the Town of Pittsford to revise the parking lot layout. Suggest installing formal driveway aprons to delineate vehicular access points. Consider installing sidewalk segments on the west, north and east sides of the parking lot to create designated pedestrian circulation space.</p>	Long Term	Town/VTrans	<input checked="" type="checkbox"/> <i>Safety concerns.</i> <input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i> <input checked="" type="checkbox"/> <i>Priorities for the school community.</i>	High
		<p>D8. Consider implementing and installing a reduced school speed limit zone on Pleasant Street. The delineated school zone may consist of ‘SCHOOL ZONE SIGN’ (S1-1), ‘SPEED LIMIT (SCHOOL USE) (R2-1), ‘SCHOOL’ plaques (S4-3P) and ‘SCHOOL’ pavement markings.</p>	Short Term	Town		

Site	Need	Recommendation	Time Frame	Team Lead	Ranking Factors	Team Priority
<p>E</p> <p>Trail Connections</p> <p>The Town of Pittsford has an extensive existing network of trails open to the public that allows a recreational experience for all users.</p> <p>The Pittsford Recreation Area Trails circumnavigate the Pittsford Recreation Area and are accessible from Furnace Road, Route 7 and the Pittsford Recreation Area.</p>	<p>The extensive trail network could be used for daily transportation trips to key destinations throughout town.</p> <p>Rebranding the use and enhancing the trail network wayfinding system would increase the functionality and promote a multi-modal transportation network.</p>	<p>E1. Team up with students to install wayfinding markings and signage from the Lothrop Elementary School to the Pittsford Recreation Area.</p>	Short Term	Town	<input checked="" type="checkbox"/> <i>Safety concerns.</i> <input checked="" type="checkbox"/> <i>Existing walking or bicycling routes.</i>	Low
		<p>E2. Team up with students, volunteers, private landowners and the Town of Pittsford Recreation Department to schedule long term trail management and maintenance program for the Pittsford Trail Network.</p>	Long Term	Town	<input checked="" type="checkbox"/> <i>Priorities for the school community.</i>	

APPENDIX D

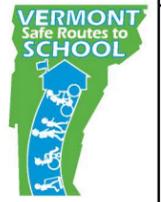
STUDENT POPULATION MAP



Student Count

- # students within 0.25 mile: **13**
- # students within 0.5 mile: **29**
- # students within 1.0 mile: **51**
- # students within 1.5 miles: **75**
- # students within 2.0 miles: **101**
- Total # students located: **189**

Note: 12 student residences not located due to P.O. Box address (not included in counts)



**Lothrop Elementary School
Student Locator
Pittsford, VT
Summer 2014**

Legend

- School Location
- Student Residence
- Travel Distance to School
- Multiple Students' Residence



APPENDIX E

STUDENT TALLY (JUNE 2014) & PARENT SURVEY (SEPT 2014) REPORTS

Student Travel Tally Report: One School in One Data Collection Period

School Name: Lothrop Elementary School

Set ID: 15285

School Group: Rutland County Schools

Month and Year Collected: June 2014

School Enrollment: 197

Date Report Generated: 06/24/2014

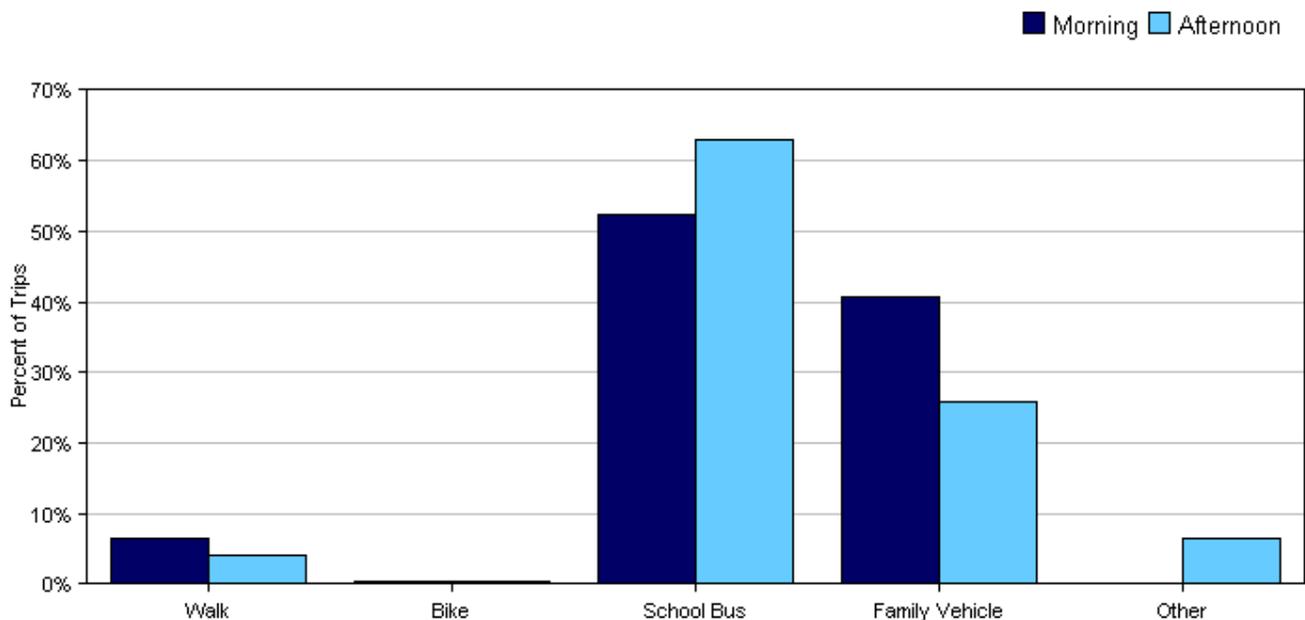
% of Students reached by SRTS activities: Don't Know

Tags:

**Number of Classrooms
Included in Report:** 13

This report contains information from your school's classrooms about students' trip to and from school. The data used in this report were collected using the in-class Student Travel Tally questionnaire from the National Center for Safe Routes to School.

Morning and Afternoon Travel Mode Comparison

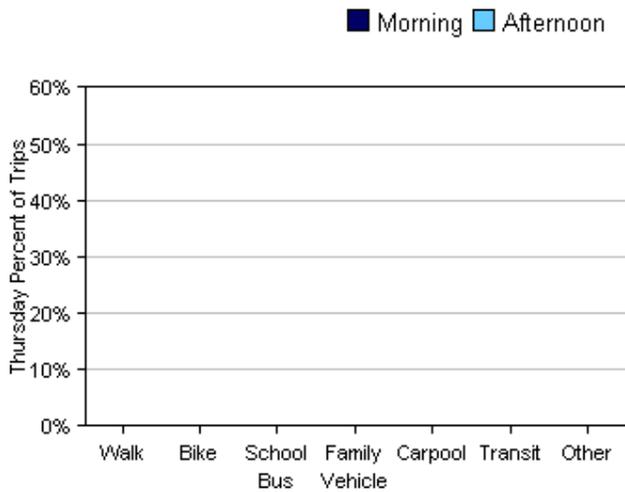
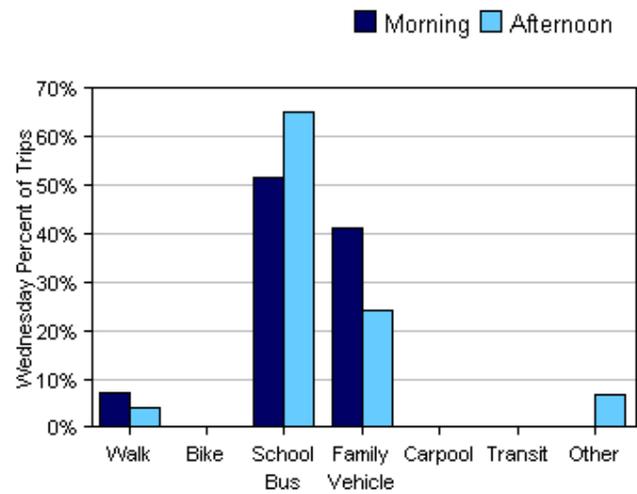
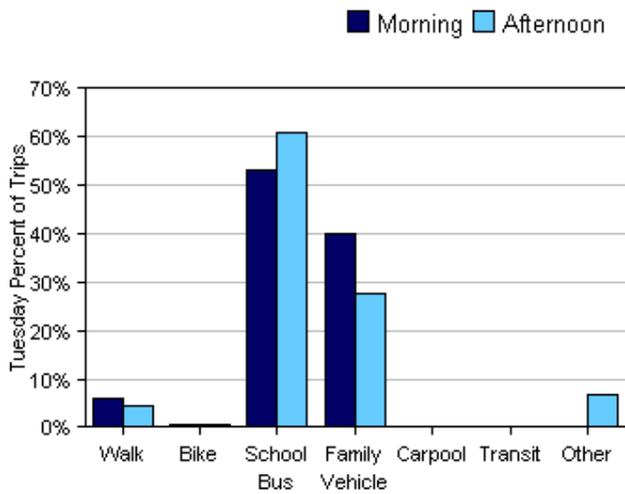


Morning and Afternoon Travel Mode Comparison

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	364	7%	0.3%	52%	41%	0%	0%	0%
Afternoon	363	4%	0.3%	63%	26%	0%	0%	7%

Percentages may not total 100% due to rounding.

Morning and Afternoon Travel Mode Comparison by Day

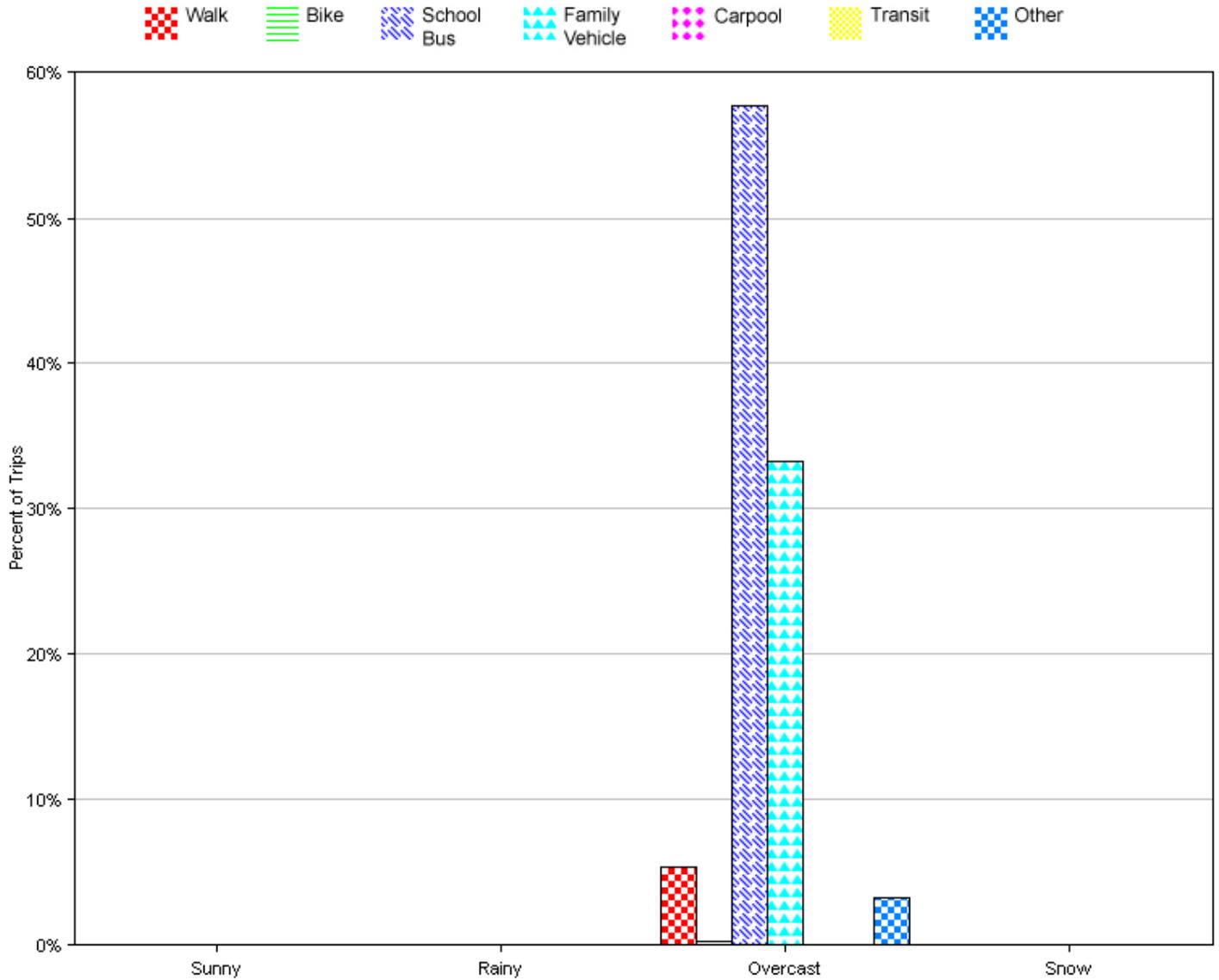


Morning and Afternoon Travel Mode Comparison by Day

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Tuesday AM	184	6%	0.5%	53%	40%	0%	0%	0%
Tuesday PM	182	4%	0.5%	61%	27%	0%	0%	7%
Wednesday AM	180	7%	0%	52%	41%	0%	0%	0%
Wednesday PM	181	4%	0%	65%	24%	0%	0%	7%
Thursday AM		0%	0%	0%	0%	0%	0%	0%
Thursday PM		0%	0%	0%	0%	0%	0%	0%

Percentages may not total 100% due to rounding.

Travel Mode by Weather Conditions



Travel Mode by Weather Condition

Weather Condition	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Sunny	0	0%	0%	0%	0%	0%	0%	0%
Rainy	0	0%	0%	0%	0%	0%	0%	0%
Overcast	727	5%	0.3%	58%	33%	0%	0%	3%
Snow	0	0%	0%	0%	0%	0%	0%	0%

Percentages may not total 100% due to rounding.

Parent Survey Report: One School in One Data Collection Period

School Name: Lothrop Elementary School

Set ID: 12307

School Group: Rutland County Schools

Month and Year Collected: September 2014

School Enrollment: 0

Date Report Generated: 10/13/2014

% Range of Students Involved in SRTS: 76-100%

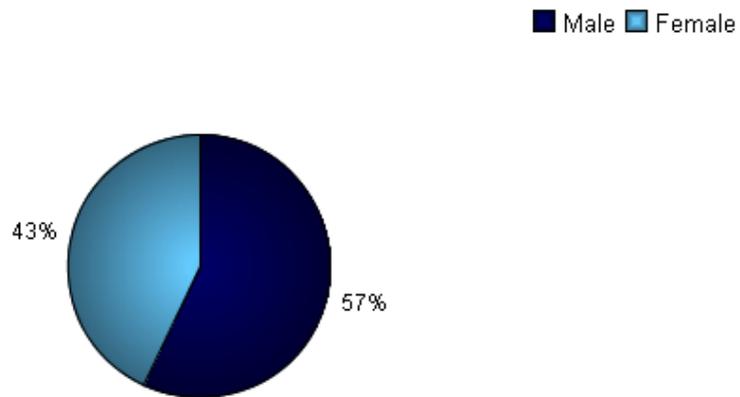
Tags:

Number of Questionnaires Distributed: 200

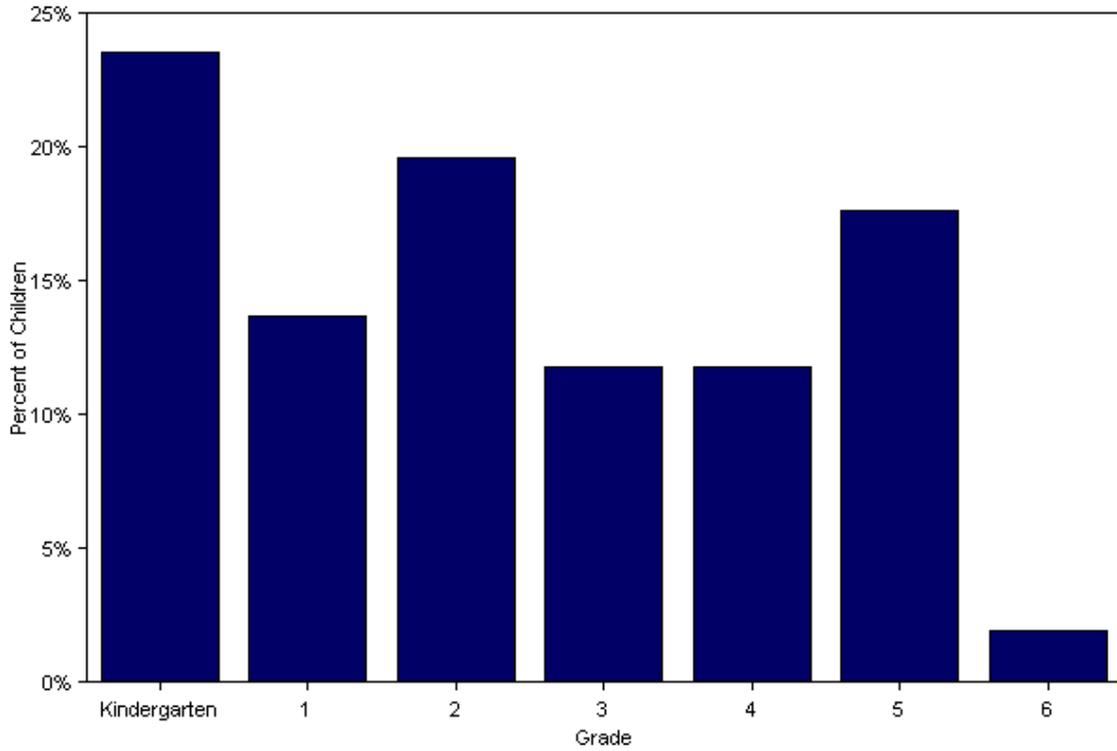
Number of Questionnaires Analyzed for Report: 51

This report contains information from parents about their children's trip to and from school. The report also reflects parents' perceptions regarding whether walking and bicycling to school is appropriate for their child. The data used in this report were collected using the Survey about Walking and Biking to School for Parents form from the National Center for Safe Routes to School.

Sex of children for parents that provided information



Grade levels of children represented in survey



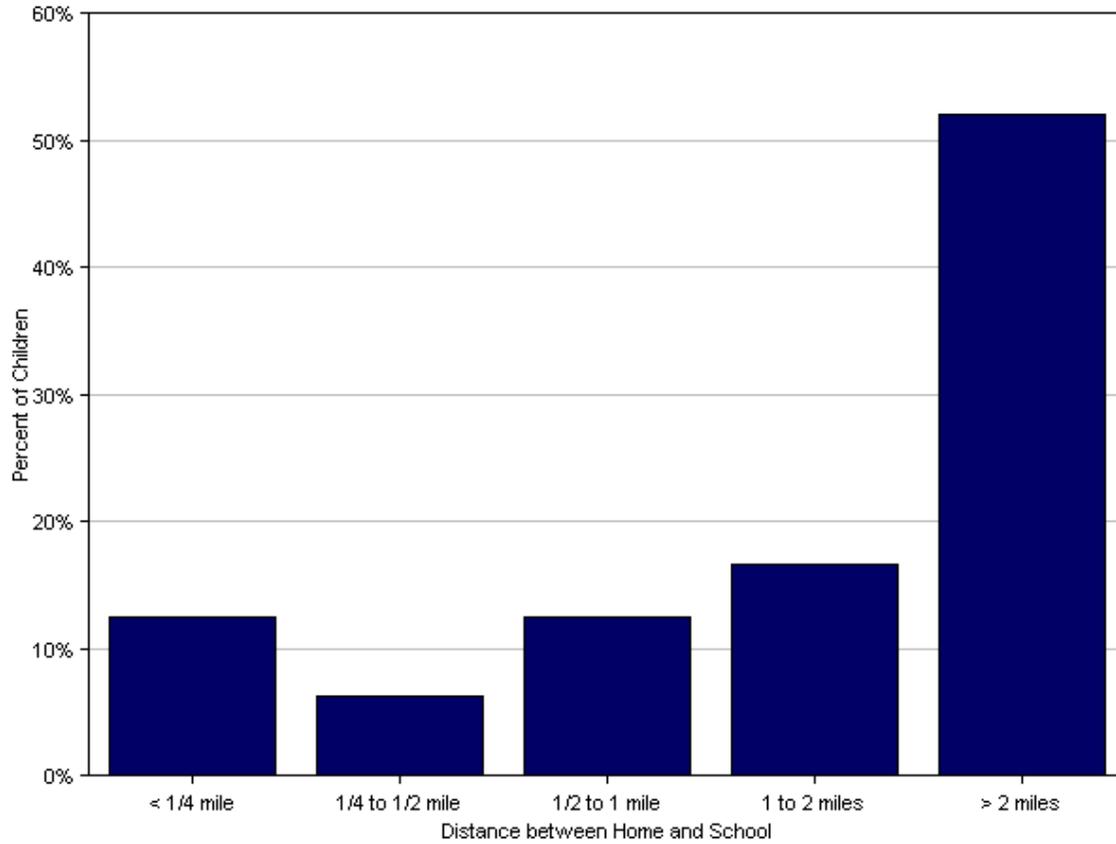
Grade levels of children represented in survey

Grade in School	Responses per grade	
	Number	Percent
Kindergarten	12	24%
1	7	14%
2	10	20%
3	6	12%
4	6	12%
5	9	18%
6	1	2%

No response: 0

Percentages may not total 100% due to rounding.

Parent estimate of distance from child's home to school



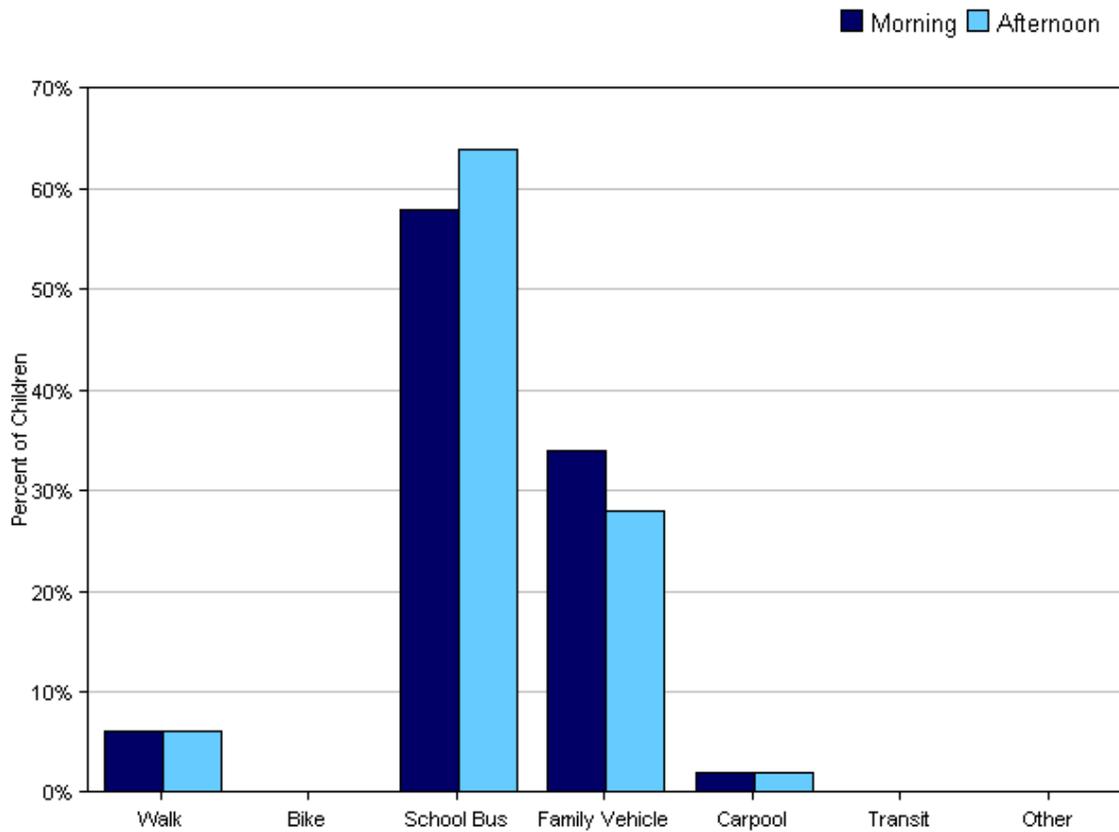
Parent estimate of distance from child's home to school

Distance between home and school	Number of children	Percent
Less than 1/4 mile	6	13%
1/4 mile up to 1/2 mile	3	6%
1/2 mile up to 1 mile	6	13%
1 mile up to 2 miles	8	17%
More than 2 miles	25	52%

Don't know or No response: 3

Percentages may not total 100% due to rounding.

Typical mode of arrival at and departure from school



Typical mode of arrival at and departure from school

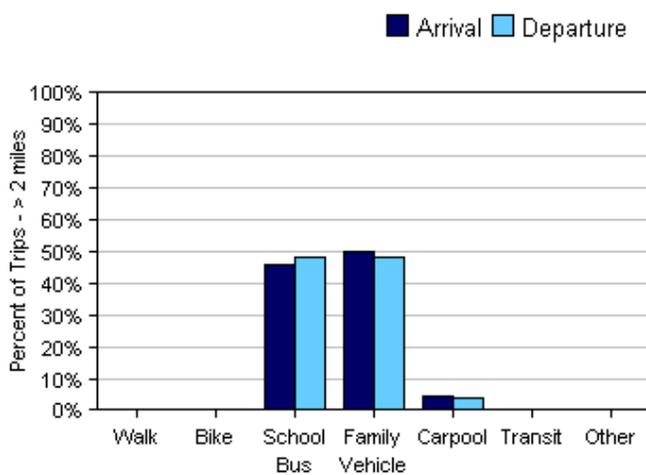
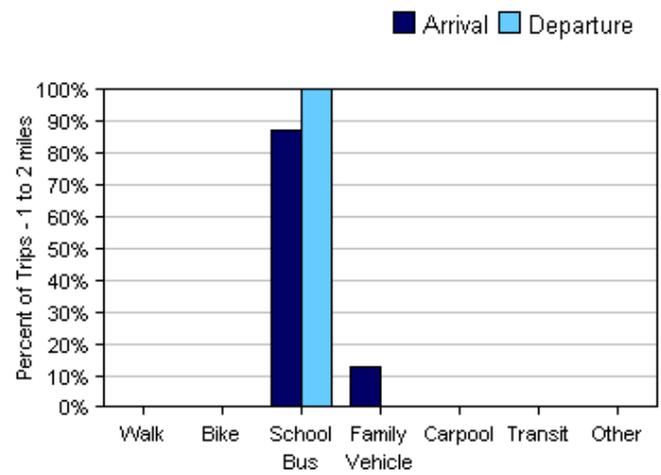
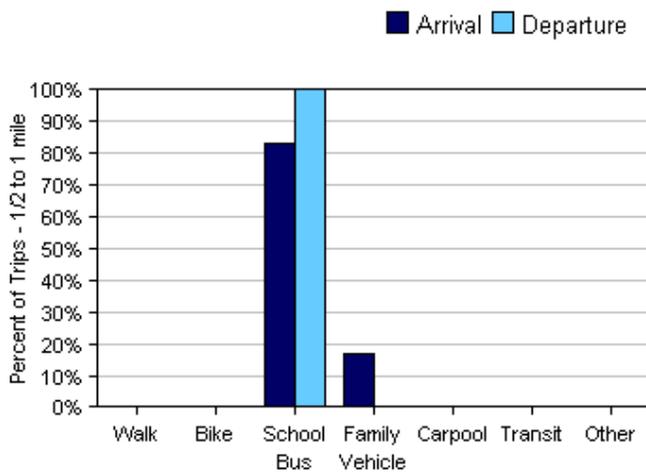
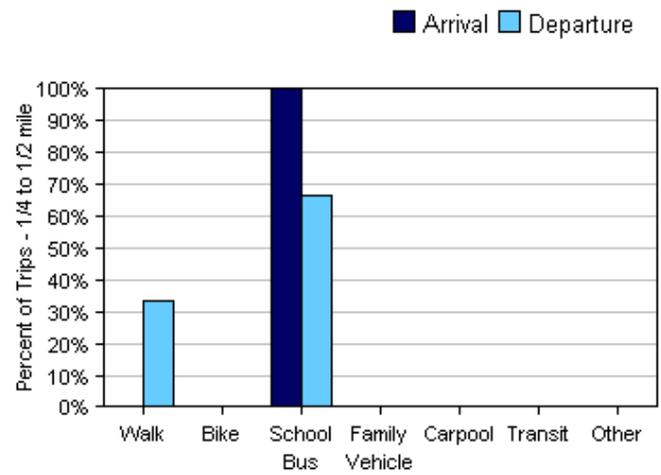
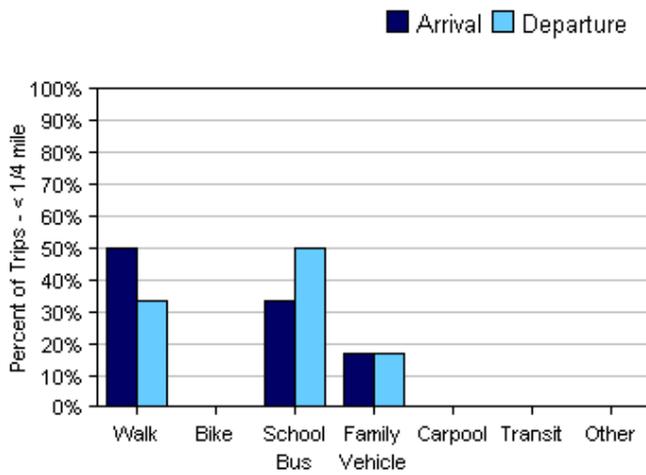
Time of Trip	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	50	6%	0%	58%	34%	2%	0%	0%
Afternoon	50	6%	0%	64%	28%	2%	0%	0%

No Response Morning: 1

No Response Afternoon: 1

Percentages may not total 100% due to rounding.

Typical mode of school arrival and departure by distance child lives from school



Typical mode of school arrival and departure by distance child lives from school

School Arrival

Distance	Number within Distance	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Less than 1/4 mile	6	50%	0%	33%	17%	0%	0%	0%
1/4 mile up to 1/2 mile	3	0%	0%	100%	0%	0%	0%	0%
1/2 mile up to 1 mile	6	0%	0%	83%	17%	0%	0%	0%
1 mile up to 2 miles	8	0%	0%	88%	13%	0%	0%	0%
More than 2 miles	24	0%	0%	46%	50%	4%	0%	0%

Don't know or No response: 4

Percentages may not total 100% due to rounding.

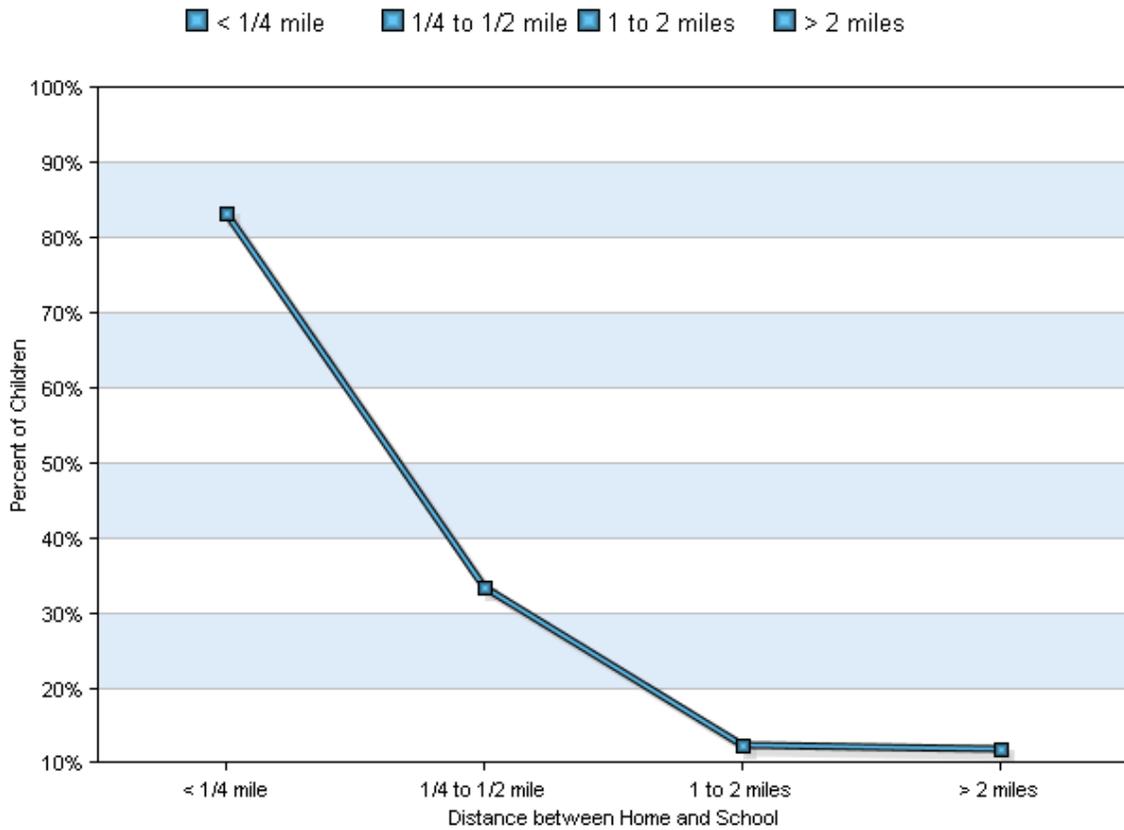
School Departure

Distance	Number within Distance	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Less than 1/4 mile	6	33%	0%	50%	17%	0%	0%	0%
1/4 mile up to 1/2 mile	3	33%	0%	67%	0%	0%	0%	0%
1/2 mile up to 1 mile	6	0%	0%	100%	0%	0%	0%	0%
1 mile up to 2 miles	7	0%	0%	100%	0%	0%	0%	0%
More than 2 miles	25	0%	0%	48%	48%	4%	0%	0%

Don't know or No response: 4

Percentages may not total 100% due to rounding.

Percent of children who have asked for permission to walk or bike to/from school by distance they live from school

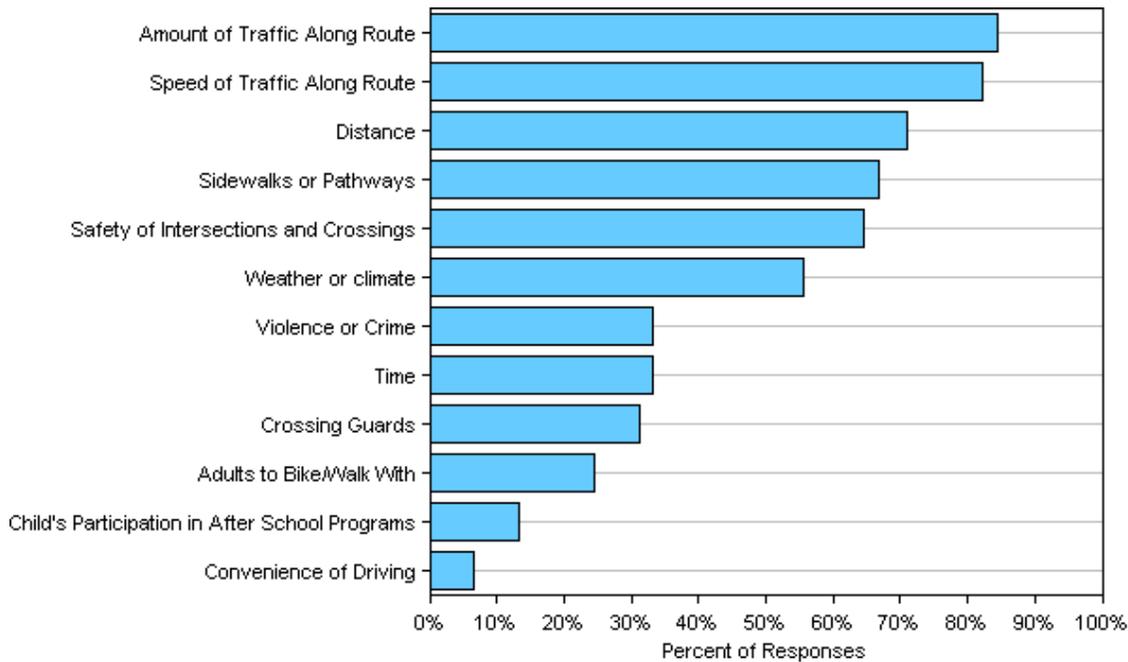


Percent of children who have asked for permission to walk or bike to/from school by distance they live from school

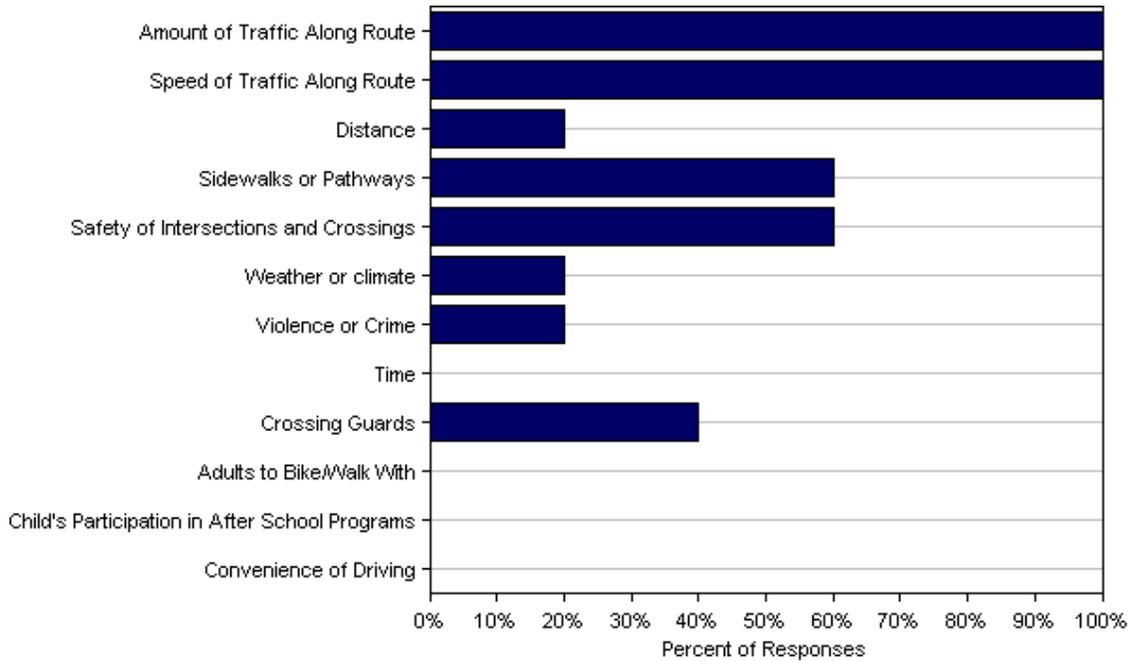
Asked Permission?	Number of Children	Less than 1/4 mile	1/4 mile up to 1/2 mile	1/2 mile up to 1 mile	1 mile up to 2 miles	More than 2 miles
Yes	10	83%	33%	0%	13%	12%
No	38	17%	67%	100%	88%	88%

Don't know or No response: 3
 Percentages may not total 100% due to rounding.

Issues reported to affect the decision to not allow a child to walk or bike to/from school by parents of children who do not walk or bike to/from school



Issues reported to affect the decision to allow a child to walk or bike to/from school by parents of children who already walk or bike to/from school



Issues reported to affect the decision to allow a child to walk or bike to/from school by
parents of children who already walk or bike to/from school

Issue	Child does not walk/bike to school	Child walks/bikes to school
Amount of Traffic Along Route	84%	100%
Speed of Traffic Along Route	82%	100%
Distance	71%	20%
Sidewalks or Pathways	67%	60%
Safety of Intersections and Crossings	64%	60%
Weather or climate	56%	20%
Violence or Crime	33%	20%
Time	33%	0%
Crossing Guards	31%	40%
Adults to Bike/Walk With	24%	0%
Child's Participation in After School Programs	13%	0%
Convenience of Driving	7%	0%
Number of Respondents per Category	45	5

No response: 1

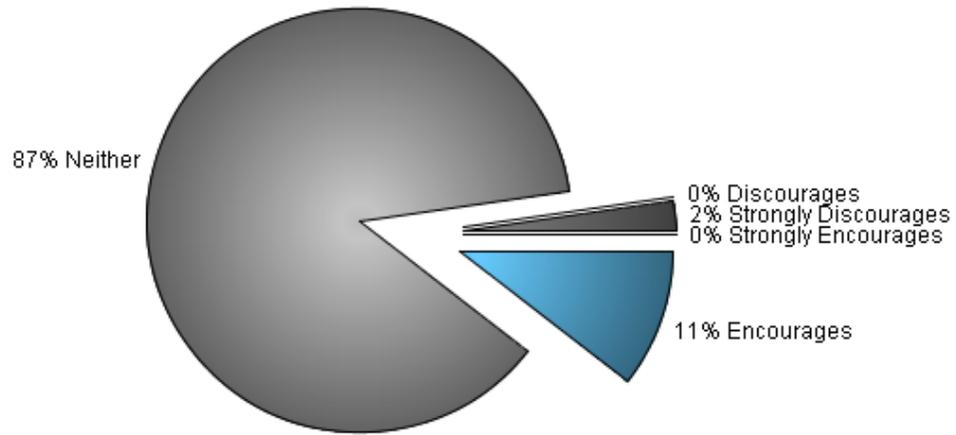
Note:

--Factors are listed from most to least influential for the 'Child does not walk/bike to school' group.

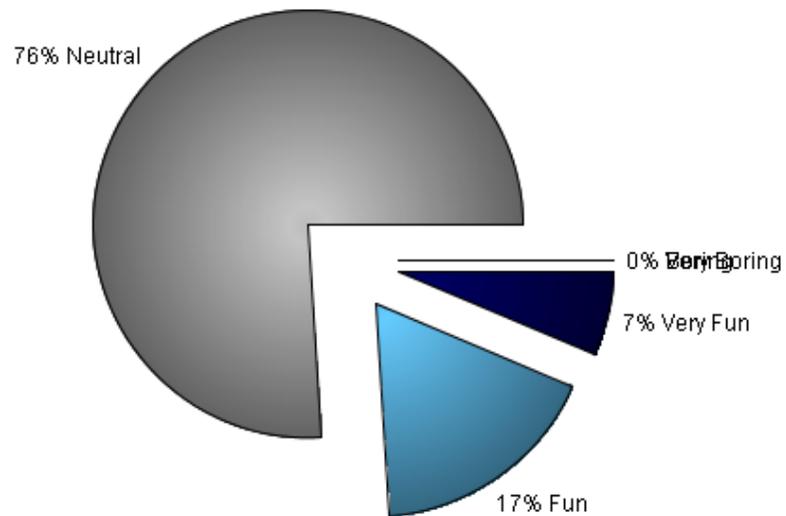
--Each column may sum to > 100% because respondent could select more than issue

--The calculation used to determine the percentage for each issue is based on the 'Number of Respondents per Category' within the respective columns (Child does not walk/bike to school and Child walks/bikes to school.) If comparing percentages between the two columns, please pay particular attention to each column's number of respondents because the two numbers can differ dramatically.

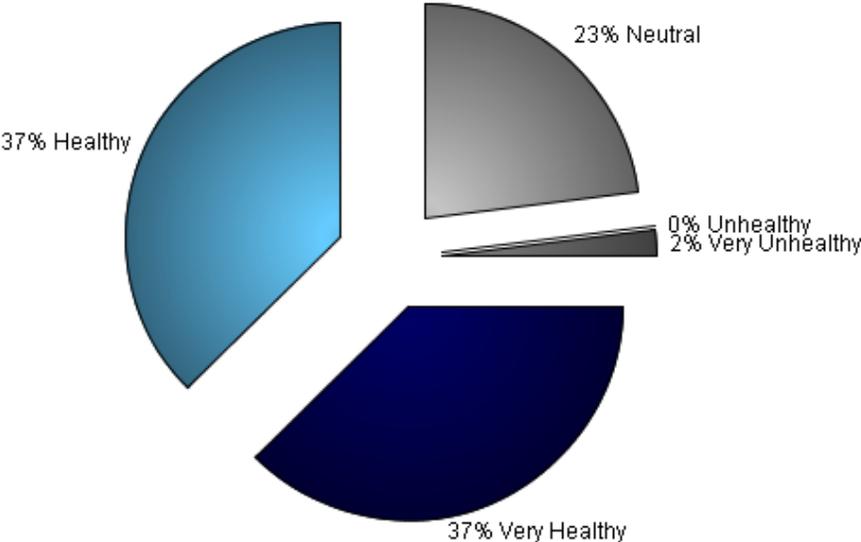
Parents' opinions about how much their child's school encourages or discourages walking and biking to/from school



Parents' opinions about how much fun walking and biking to/from school is for their child



Parents' opinions about how healthy walking and biking to/from school is for their child



Comments Section

SurveyID	Comment
1246035	I feel my child needs an adult to walk to school with due to age and safety issues personally. Though I feel there should be a crossing guard or something for safety in the lower parking lot.
1246038	I biked the same route to Lothrop in 6th grade. Traffic is faster and Route 7 (and Elm St) crossing is more dangerous. Need a cop at the crosswalk.
1246106	Pittsford needs better sidewalks on Route 7!
1246025	Children living within sight of the school should be walking. Route 7, Arch Street and parts of Furnance Rd and surrounding streets like Pleasant and Cross streets, etc. No need for added expense of the buses.
1246041	We would walk if we were closer with a better sidewalk system.
1246083	Our home is just too far from school to consider walking or biking. Route 7 going past the school would have most parents concerned about traffic.
1246062	:)
1246081	My daughter would love to rider her bike, but due to no sidewalks, a sharp, blind curve and speed she's unable to.
1246021	I am not sure I would ever feel comfortable letting my children walk to school. There are a lot of wierdos out there and the sidewalks are NOT SAFE. Route 7 has a ton of traffic too
1246031	Sometimes my child walks from the bus stop (3/4 of a mile) with an older sibling. If I lived less than a mile from school, I would let them walk by 4th grade.
1246045	I like the idea, but at my son's age the distance at this time is too far. When he gets older I wouldn't have a problem with it with the right precautions in affect.
1246079	It's hard in this time to feel safe as a parent as things have changed so much since we were younger. Many more missing people and issues with cars v. pedestrians.
1246034	We live on a busy highway with high speed and no chance of sidewalks ever existing.
1246047	We live in a rural area. It is 9 miles to school and impossible to consider walking or biking.
1246107	Distance and highway route prevent my child from walking or biking to school. This activity is unsafe for him while in elementary school
1246095	Lack of sidewalks through the area
1246040	My son is much to young to walk/bike to school. We also live a bit too far from the school to ever be a reasonable option.

APPENDIX F

NON-ENGINEERING STRATEGIES RESOURCE GUIDE

NON-ENGINEERING STRATEGIES RESOURCE GUIDE

Strategy	E's	Advantages	Considerations	Resources
<p>Walking and Biking Safety Curriculum and/or Assembly</p> <p>These lessons can be held in the fall to promote Walk to School Day. Guest speakers teach the students pedestrian and bicycle safety skills that they can use when walking and biking to school.</p> <p>Instruction as a part of school curriculum is also vital to ensuring on-going learning of bicycle and pedestrian safety and development of skills.</p>	<p>Education, Encouragement</p>	<ul style="list-style-type: none"> • Assures all children learn bicycle and pedestrian safety skills • Establishes habits that benefit children throughout their lives, regardless of whether they currently walk or bike to school • Establishes consistent messages for young pedestrians and bicyclists • Provides a refresher for parents if take home materials are provided in conjunction with the assembly. It's never too late to correct bad habits. • Events can make learning fun, and help strengthen community ties with event organizers and participants. 	<ul style="list-style-type: none"> • Best taught using a combination of methods, including one-time instruction (e.g. assemblies), multi-lesson classroom curricula, and skills practice (e.g. bicycle safety fairs). • Requires able and willing instructors • Should be age-appropriate • Bicycle safety education may require an outside instructor, e.g. a police officer. 	<ul style="list-style-type: none"> • Walk Smart/Bike Smart Vermont! http://healthandlearning.org/documents/WalkSmartBikeSmartFINAL2008_001.pdf • National Highway Traffic Safety Administration Pedestrian Safety Lessons http://www.nhtsa.gov/ChildPedestrianSafetyCurriculum • WalktoSchool.org - Classroom activities that encourage walking and biking. www.walktoschool.org/eventideas/classroom.cfm • Pedestrian Safer Journey: The National Highway Traffic Safety Association has created a video to help teach children pedestrian safety skills. http://www.pedbikeinfo.org/pedsaferjourney • See Partner Resource CD for more materials

Strategy	E's	Advantages	Considerations	Resources
<p>Continue to Participate in Walk to School Day</p> <p>Walk to School Day is a one-day event that celebrates walking and biking to school.</p> <p>Generally this event is scheduled for the first full week in October along with Vermont Walk and Roll to School Day in May. Why not use this strategy multiple times a year?</p>	<p style="text-align: center;">Education, Encouragement</p>	<ul style="list-style-type: none"> • Excellent kick-off event for Safe Routes to School program • Generates enthusiasm for walking and biking • Way to raise community awareness about safety issues • Can be as simple as a few kids and parents meeting to walk to school or very elaborate celebrations • Can be folded into studies of international cultures as it is an international event • Date is flexible- to be counted by the National Center for Safe Routes to school the event need only take place before Dec 1. 	<ul style="list-style-type: none"> • Preparations for elaborate celebrations must begin several months in advance to allow time to identify partners, plan activities, and promote the event • Should provide bicycle and pedestrian safety information to children and parents • International Walk to School Day takes place in October but some schools organize multiple Walk to School Day (or “Walk and Roll Day”) events over the course of the school year (e.g. one in the fall and one in the spring). 	<ul style="list-style-type: none"> • U.S. Walk to School Day website (provides resources and event registration): www.walktoschool.org • International Walk to School Day website: www.iwalktoschool.org/ • Plan and promote your Walk to School Day event http://saferoutes.vermont.gov/sites/saferoutes/files/PDFs/How%20To%20-%20Special%20Events.pdf • Include students when it is too far or unsafe http://saferoutes.vermont.gov/sites/saferoutes/files/Including%20Students%20When%20It%27s%20Too%20Far%20or%20Unsafe%20VT.pdf • See Partner Resource CD for more materials
<p>Frequent Walker/Bicyclist Program or Walking Wednesdays</p> <p>Track and reward students who walk and bicycle to school. Can be an individual competition or a competition among classes.</p>	<p style="text-align: center;">Encouragement</p>	<ul style="list-style-type: none"> • Provides positive reinforcement for walking and bicycling. • Children respond to incentives. • Can include all students. • Can include walking and bicycling beyond the trip to school. 	<ul style="list-style-type: none"> • Necessary to identify a coordinator. • Establish a simple record-keeping system. • Establish age-appropriate goals. • Consider giving rewards to parents as well, since parents are often involved in the commute to school. 	<ul style="list-style-type: none"> • Frequent Walker Punch card template http://saferoutes.vermont.gov/sites/saferoutes/files/PDFs/VT_SRTS_Punchcard_v2_110825-1.png • Vermont Challenge: Walk Across America http://saferoutes.vermont.gov/sites/saferoutes/files/PDFs/The%20VT%20Challenge%20-%20Walk%20Across%20Vermont%21.pdf • Tips for creating a walking and bicycling route map http://saferoutes.vermont.gov/sites/saferoutes/files/PDFs/Tips%20for%20Creating%20Walking%20and%20Bicycling%20Route%20Maps.pdf • See Partner Resource CD for more materials

Strategy	E's	Advantages	Considerations	Resources
<p>Traffic Enforcement (Staff)</p> <p>This can be an ongoing program for school staff. This could work well in conjunction with PBIS.</p>	<p>Education, Enforcement, Encouragement</p>	<ul style="list-style-type: none"> • Crossing guards play an important role in helping children cross the street at key locations, reminding drivers of the presence of pedestrians, and making parents feel more comfortable about letting their children walk and bicycle to school. • Staff and crossing guards can also reward students with Paws of Praise in order to reinforce positive behavior. 	<ul style="list-style-type: none"> • Requires some training and coordination with crossing guards 	<ul style="list-style-type: none"> • Vermont School Crossing Guard Training Video https://www.youtube.com/watch?v=pNmKXKWFdzo • Adult School Crossing Guard Guidelines (NCSRTS) http://guide.saferoutesinfo.org/crossing_guard/pdf/crossing_guard_guidelines_web.pdf • Florida School Crossing Guard Training Guidelines http://saferoutesinfo.org/program-tools/florida-school-crossing-guard-training-guidelines • See Partner Resource CD for more materials

Strategy	E's	Advantages	Considerations	Resources
<p>Bicycle Safety Fair</p> <p>This is a single-day event that promotes bicycle safety. At the bicycle safety fair, students can borrow bicycles or bring their own.</p>	Education, Encouragement	<ul style="list-style-type: none"> • Events such as bike safety fairs make learning fun and can help strengthen community ties with event organizers and participants. • At the bicycle safety fair students learn safety skills such as how to properly wear a helmet and how to behave while bike riding. The bicycle safety fair can also have a closed “test course” for the students to ride along. This helps the students to practice in a safe environment and gain confidence in their decision-making skills. • Possible partners for this include the Caledonia County Sheriff’s Department or Kingdom Trails. 	<ul style="list-style-type: none"> • Requires able and willing instructors • Should be age-appropriate • Bicycle safety education may require an outside instructor, e.g. a police officer. • These events require planning and materials to share with students 	<ul style="list-style-type: none"> • Teaching a Bicycle Safety Fair in Vermont http://www.vtbikeped.org/what/VT_Safety_Fair_Curriculum.pdf • Bicycling Life page on bicycle safety fairs: http://www.bicyclinglife.com/SafetySkills/BicycleRodeo.htm • An organizer’s guide to bicycle safety fairs http://www.bike.cornell.edu/pdfs/Bike_Rodeo_404.2.pdf • Easy steps to properly fit a bicycle helmet http://www.nhtsa.gov/people/injury/pedbimot/bike/EasyStepsWeb/
<p>Walk Audit/Parent Surveys / Student tallies</p> <p>The team will meet annually (ideally in August before school starts) to review the accomplishments from the previous year and set new goals for the upcoming school year.</p>	Evaluation	<ul style="list-style-type: none"> • Establishes baseline information on student travel behavior and perceived barriers to walking and biking • Helps determine existing needs • Helps determine success of SRTS efforts and identify needed adjustments 	<ul style="list-style-type: none"> • Best to conduct initial surveys before SRTS measures have been implemented • Requires teacher buy-in and administrative organization • Getting parents to fill out and return surveys can be a challenge. Follow up is necessary. Consider a contest among classes for highest rate of return. 	<ul style="list-style-type: none"> • Student In-Class Travel Tally Form: http://www.saferoutesinfo.org/resources/evaluation_student-in-class-travel-talley.cfm • Parent Survey Form: http://www.saferoutesinfo.org/resources/evaluation_parent-survey.cfm • Instructions for Survey Administration: http://www.saferoutesinfo.org/resources/evaluation_instructions.cfm • Instructions for Data Entry: http://www.saferoutesinfo.org/resources/evaluation_cover-sheets.cfm

Strategy	E's	Advantages	Considerations	Resources
<p>Walking School Buses/ Bicycle Trains</p> <p>Walking school buses and bicycle trains are adult supervised groups of students walking and/or bicycling to school.</p>	<p>Education, Encouragement</p>	<ul style="list-style-type: none"> • Adult supervision on the walk to school • Can be loosely structured or highly organized • Can include a meeting point in a parking lot so children and parents who must drive can participate. • Adults can rotate who will lead each time. 	<ul style="list-style-type: none"> • Need to identify routes where conditions support walking and there is sufficient demand for supervised walking • Requires parents willing to walk with children and learn about how Walking school buses are organized and conducted. • More organized structure requires considerable planning 	<ul style="list-style-type: none"> • How to start a walking school bus or bike train http://guide.saferoutesinfo.org/walking_school_bus/pdf/wsb_guide.pdf
<p>Drive Safe Campaigns</p> <p>Some parents are not aware of how their driving behavior can put walking students at risk. This teaches parents how their unsafe driving habits can put their children in danger.</p>	<p>Education</p>	<ul style="list-style-type: none"> • Has the ability to effect positive change in the community and around the school • Improves the safety of the walking environment • Good drivers can help to set the example for good behavior. This is especially true for helping to control speeds. 	<ul style="list-style-type: none"> • This requires a person to organize and administer the campaign. • May not be effective at schools where parent/teacher organizations are weak • Law enforcement officers would be great at speaking at the campaign events. Sometimes, due to their heavy schedules that can be difficult to pin down. • A good way to contact parents is at back to school night and PTA meetings. Starting at the beginning of the year helps to prevent bad habits from starting. Law enforcement officers (or other teachers) can hold a brief assembly to explain the dangers of unsafe driving in school areas. • Law enforcement officers can provide a demonstration of how difficult it is to quickly stop a moving vehicle at 50, 40 and 30 mph. The National Center has information on how the speed of the vehicle can affect the severity of injury that the pedestrian experiences in a crash. 	<ul style="list-style-type: none"> • Driving Around Schools: Keeping Children Safe http://apps.saferoutesinfo.org/lawenforcement/resources/driving_tips.cfm • Parents, Avoid Becoming a Traffic Hazard http://www.aaamidatlantic.com/FetchFile.ashx?id=e55bfa26-a70d-4e17-afde-073b86cc9975

Strategy	E's	Advantages	Considerations	Resources
<p>Crossing Guard Appreciation Day</p> <p>Crossing guards help our children cross the road safely in the mornings and afternoons, in all weather conditions. Remind them that you appreciate their service and dedication. Students can create thank you cards that they deliver themselves during their walks home, or teachers and administrators can honor them formally during a school assembly.</p>	<p>Encouragement</p>	<ul style="list-style-type: none"> • Maintains a positive relationship between the crossing guards and the school/community. • Can inspire crossing guards to continue to be reliable, safety figures. • Creates an opportunity to remind students why it is important to practice safe walking skills. 	<ul style="list-style-type: none"> • Requires coordination between the crossing guards, school administrators and school instructors. • May require materials to create the thank-you cards. • Is most effective with newsletter and in-school announcements. • Relatively inexpensive strategy 	<ul style="list-style-type: none"> • Active Transportation Alliance webpage for Crossing Guard Appreciation Day http://www.activetrans.org/crossingguard

APPENDIX G

INFRASTRUCTURE STRATEGIES RESOURCE GUIDE

Strategy	Advantages	Considerations	Resources	Actions
<p>Wide Paved Shoulders</p> <p>Wide paved shoulders are created by striping a roadway to provide space for a shoulder and a travel way for motor vehicles. Wide paved shoulders can be created by adding pavement to one or both sides of the paved roadway or by narrowing travel lanes.</p> <p>Current Vermont State Standards recommend ten-foot minimum travel lanes for state and local roads.</p>	<ul style="list-style-type: none"> • Provide room for pedestrians when there is no sidewalk or other facility. • Provide a clear space for bicyclists that is separated from the motor vehicle travel way. • Research has shown that by narrowing travel lanes, motor vehicle speeds might also be reduced. 	<ul style="list-style-type: none"> • Lane markings need to be bright and maintained to clearly delineate the motor vehicle travel lane. When lane markings fade, the travelway for motor vehicles appears to be wider, which tends to encourage motorists to travel at higher speeds. • When adding pavement to widen the roadway and accommodate shoulders, the base material for the shoulder needs to be integrated well with the base material under the existing road to minimize the potential for pavement cracking and settling that would create hazardous conditions for bicyclists and motorist. • The <i>Vermont State Standards</i> provide detailed information on appropriate travel lane and paved shoulder widths for different classifications of state roads. These standards also provide a guide for appropriate lane and shoulder widths for town roads. • Other considerations include right-of-way, drainage, grading, existing signs and structures, and utilities. 	<ul style="list-style-type: none"> • Vermont State Standards http://www.aot.state.vt.us/progdev/standards/statabta.htm 	<ul style="list-style-type: none"> • For town roads, start with discussions with the appropriate, Selectboard, Board of Trustees, or City Council (municipal legislators) and town officials, such as road commissioner and/or town engineer to determine the municipality’s policies on travel lanes widths. Provide background information on the benefits of narrower travel lanes for speed reduction and safer conditions for pedestrians and bicyclists. • Review shoulder widening proposals with municipal officials. If sufficient pavement exists, suggest conducting an experiment with temporary striping to provide wider shoulders. • Follow up the experiment with feedback and request for comments from municipal officials and community.

Strategy	Advantages	Considerations	Resources	Actions
<p>Speed Feedback Signs</p> <p>Speed feedback signs, either temporary or permanent, show motorists how fast they are traveling as calculated by radar.</p>	<ul style="list-style-type: none"> • Speed feedback signs tend to slow motorists and remind motorists of the posted speed limits. 	<ul style="list-style-type: none"> • Speed feedback signs on state roads must follow the State’s placement guidelines for state roads. Installing a feedback sign requires a highway access permit from the State. • Permanent signs may be appropriate at school zones; elsewhere temporary signs, set up for short periods at various locations, can be more effective. • Speed feedback signs, including those installed through VTrans funded projects on state roads, require a maintenance and care agreement with the local municipality. 	<ul style="list-style-type: none"> • <i>Guidelines for the Use of Radar Speed Feedback Signs on the State Highway System</i> http://www.aot.state.vt.us/documents/3014_Guidelines_on_the_Use_of_Radar_Speed_Feedback_Signs.pdf • <i>Classification of Vermont Roads</i> http://maps.vermont.gov/imf/sites/ANR_NATRESViewer/jsp/ 	<ul style="list-style-type: none"> • Review the State’s speed feedback sign guidelines to be sure the proposed location is acceptable. • Contact the municipality to determine the appropriate person to contact regarding the placement of speed feedback signs, either temporary or permanent. Check with the local police or sheriff to see if they have a portable trailer that can be used on a temporary basis as a trial. • Contact the responsible party to understand their process for the placement of speed feedback signs and whether the sign should be temporary or permanent. Follow the process for installation of the speed feedback sign. • If a temporary feedback sign was installed, review the results with the municipality to determine if it has been successful. If successful, suggest the municipality install a permanent speed feedback sign. • Permanent feedback signs are an eligible use for SRTS funds. Check with the regional planning commission about this and other potential funding sources.

Strategy	Advantages	Considerations	Resources	Actions
<p>High-visibility Crosswalks</p> <p>High-visibility crosswalks are roadway markings designating a location for pedestrians to cross a roadway.</p> <p>High-visibility crosswalks are typically in locations that are convenient to pedestrians and visible to motorists. High-visibility crosswalks must be installed with reflective durable material.</p>	<ul style="list-style-type: none"> • Crosswalks provide notification to both pedestrians and motorists to where pedestrians may be crossing the roadway. • Pedestrians have the right-of-way when in a crosswalk and motorists are supposed to stop their vehicles until the pedestrian has cleared the roadway. 	<ul style="list-style-type: none"> • Pedestrians should assume that a motorist may not see them or stop. • Crosswalks should have a receiving facility, such as a path, sidewalk, or adequate shoulder for use by pedestrians on either end. • Crosswalks may be marked with different striping patterns but the most common pattern is the ladder style. Further considerations may be needed for crosswalks at unsignalized intersections and at mid-block locations to determine if the crosswalk is warranted. • Crosswalks are not appropriate for every location as they may give the pedestrian a perceived sense of safety that may not exist. 	<ul style="list-style-type: none"> • <i>Vermont Pedestrian and Bicycle Facility Planning and Design Manual</i> http://www.aot.state.vt.us/progdev/Sections/LTF%20Info/BikePedTOC.html • <i>Vermont's Guidelines for the Installation of Crosswalk Markings and Pedestrian Signing at Marked and Unmarked Crossings</i> http://www.aot.state.vt.us/progdev/sections/highway%20info/DocumentsRoadwayPages/TrafficOpsCrosswalk%20Guidelines%202004.pdf • <i>Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations</i> http://www.fhwa.dot.gov/publications/research/safety/04100/04100.pdf • <i>Classification of Vermont Roads</i> http://maps.vermont.gov/imf/sites/ANR_NATRESViewer/jsp/ 	<ul style="list-style-type: none"> • For all classifications of roadways, state and local, consult with the regional planning commission about the appropriateness of the proposed location for a crosswalk. • Follow-up with the municipal road commissioner, planner, or engineer to seek their guidance and support. • For non-state roads, after gaining appropriate endorsements, work with the appropriate local official or employee to get the high-visibility crosswalk installed in the proper and safe location. • For state roads, work with the regional planning commission to get a formal study to determine if a crosswalk is warranted and safe.

	Advantages	Considerations	Resources	Actions
<p>Shared-use Paths</p> <p>Shared-use paths are separate facilities for non-motorized users such as bicyclists and pedestrians. Typically these facilities have their own right-of-way rather than sharing a right-of-way with a roadway.</p>	<ul style="list-style-type: none"> • Provides a safe place for non-motorized users that are typically separated from motor vehicles. • Shared-use paths appeal to users of all different skill levels, particularly those with basic or beginner skills. 	<ul style="list-style-type: none"> • Shared-use paths should typically be a minimum of ten feet wide and paved with asphalt. • Guidelines for the construction of shared-use paths can be found in the <i>Vermont Pedestrian and Bicycle Facility Planning and Design Manual</i>. • Further considerations are needed at intersections of the shared-use path and roadways to ensure safety for all users. 	<ul style="list-style-type: none"> • <i>Vermont Pedestrian and Bicycle Facility Planning and Design Manual</i> http://www.aot.state.vt.us/progdev/Sections/LTF%20Info/BikePedTOC.html 	<ul style="list-style-type: none"> • Work with the municipal planning office, road commissioner, administrator, or other municipal officials to gain their support for the proposed shared-use path. • Work with municipal partners to engage the regional planning commission with the project in terms of funding or other support for an initial alignment study to determine the appropriate shared-use path alignment and end points. This study will help the community understand where the shared-use path may be located as well as the issues that will need to be addressed, the types of permits that will be needed, and the potential cost for developing the shared-use path as proposed. This study, done with community input, will help the community decide if they want to proceed further with the project. • If the community wishes to continue to pursue a shared-use path, work with the municipal partner to understand potential funding sources and the various requirements involved in obtaining them.

Strategy	Advantages	Considerations	Resources	Actions
<p>Bicycle Routes/ Bicycle Pedestrian Warning Signs</p> <p>Bicycle route signs are officially designated routes for bicyclists through municipalities; they are typically used to focus bicycle travel onto roadways most suited for it.</p> <p>Bicycle and/or Pedestrian present warning signs (with an image of a bicycle and a pedestrian) provide a notice to motorists, that bicyclists or pedestrians are likely to be present.</p>	<ul style="list-style-type: none"> • Bicycle route signs assist bicyclists in determining the best route for their travel. • Warning signs raise safety conditions for bicyclists due to greater awareness by motorists of bicyclists on the road. 	<ul style="list-style-type: none"> • The number and location of bicycle routes and signs should be carefully studied by the community prior to implementation. Measures should be taken to reduce sign clutter. • Bicycle route signs and warning signs must meet the guidelines provided in the <i>Manual on Uniform Traffic Control Devices</i> (MUTCD). • In cases where there are on-road sections of bicycle connecting nearby trails, where a bike lane ends or a paved shoulder is reduced at a bridge, a “Share the Road Sign” may be appropriate. The “Share the Road” sign should be used to indicate a relatively brief special condition. 	<ul style="list-style-type: none"> • <i>Vermont Pedestrian and Bicycle Facility Planning and Design Manual</i> http://www.aot.state.vt.us/progdev/Sections/LTF%20Info/BikePedTOC.html • <i>Manual on Uniform Traffic Control Devices, latest edition (MUTCD)</i>, http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm 	<ul style="list-style-type: none"> • Review guidelines provided in the latest edition of the MUTCD to make sure signs are compliant. • Work with the municipal planning office, road commissioner, administrator, or other municipal officials to gain their support for the creation of bicycle routes. • Follow the recommendations of the local official or employee as to the appropriate way to proceed, which could include: <ul style="list-style-type: none"> - Presenting the idea to the municipal legislators; - Implementing existing recommendations in a bicycle plan for the community; - Undertaking the development of a bicycle plan for the community to make sure that the specific recommendations still work within the context of the entire municipality; and - Working with the regional planning commission.

Strategy	Advantages	Considerations	Resources	Actions
<p>Sidewalks</p> <p>Sidewalks are paths separated from other roadway users along the sides of the roadway reserved for pedestrians.</p>	<ul style="list-style-type: none"> • Sidewalks provide a relatively safe location for pedestrians along the sides of a roadway. • They help to separate other roadway users and pedestrians within the same right-of-way. 	<ul style="list-style-type: none"> • The availability of sufficient right-of-way to install sidewalks, including the travel way for vehicles and standards for sidewalk width, must be assessed. • Sidewalks are most effective when they include a buffer from the paved surface of the road that is at least five feet wide. • When sufficient right-of-way is not available for a buffer, a curb can provide some degree of separation between the roadway and the sidewalk. • Other considerations include drainage, grading, existing signs, structures, and utilities. • Sidewalks can be constructed of various materials including concrete, asphalt, or stone dust. 	<ul style="list-style-type: none"> • <i>Vermont Pedestrian and Bicycle Facility Planning and Design Manual</i> http://www.aot.state.vt.us/progdev/Sections/LTF%20Info/BikePedTOC.html • <i>Designing Walkable Urban Thoroughfares: A Context Sensitive Approach</i> (Institute of Transportation Engineers - Publication #RP 036A) http://www.ite.org/modules/scriptcontent/olders/ProductDetail.cfm?pc=RP-036A-E 	<ul style="list-style-type: none"> • Review the State's <i>Pedestrian and Bicycle Facility Planning and Design Manual</i> to determine the appropriate dimensions based on roadway classification. • Work with the municipal planning office, road commissioner, administrator, or other municipal officials to gain their support for the proposed sidewalk. • Work with municipal partners to determine the appropriate sidewalk location based on available right-of-way. • Review the sidewalk location to determine if any additional issues will need to be addressed, the types of permits that will be needed, and the potential cost for developing the proposed sidewalk. This review, done with community input, will help the community decide if they want to proceed further with the project. • If the community wishes to continue work on the proposed sidewalk, work with the municipal partners to understand potential funding sources and the various requirements involved in obtaining them.

Strategy	Advantages	Considerations	Resources	Actions
<p>School Zones</p> <p>A school zone is an identified location on the roadway abutting a school which extends several hundred feet in each direction. It is identified with signs and pavements markings and sometimes includes a reduced speed zone.</p>	<ul style="list-style-type: none"> School zones increase motorists' awareness to look for students on or near the road and to drive with more caution. 	<ul style="list-style-type: none"> The creation of a school zone typically needs the approval of the municipality, either from the Selectboard, Board of Trustees, or City Council, unless they have passed on this approval to the road commissioner. School zones created on state roads need VTrans approval. Sight distances and other roadway conditions should inform the location of signs and pavement markings noting the limits of the school zone, within MUTCD guidelines. With few exceptions, school zones are located on the roadway adjacent to the school's main entrance. Must comply with State sign laws and laws for setting speed limits. 	<ul style="list-style-type: none"> <i>Manual on Uniform Traffic Control Devices, latest edition (MUTCD)</i>, http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm Refer to <i>Vermont Statute 23, Section 1007</i> for guidance on assigning local speed limits http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=23&Chapter=013&Section=01007 	<ul style="list-style-type: none"> Work with the municipal planning office, road commissioner, administrator, or other municipal officials to gain their support for the proposed school zone. Discuss the creation of a school zone with local Selectboard, Board of Trustees, or City Council to gain their support. For a school zone on a state road, work with municipal officials and/or the regional planning commission to contact VTrans to propose a school zone. Work with the municipal planning office, road commissioner, administrator, or other municipal officials to determine the specific limits of the school zone and the methods to be used to notify motorists of its presence, including signage, warning lights during arrival and dismissal times, pavement markings, or other methods. Work with municipal partners to determine the most appropriate way to provide funding for the notifications as appropriate and work with them to secure funding.

Strategy	Advantages	Considerations	Resources	Actions
<p>Road Signs</p> <p>Road signs provide information on road conditions, direction, advisories, or mandatory actions. Road signs may be regulatory, warning, or guide signs.</p>	<ul style="list-style-type: none"> • Signs notify road users about road conditions, other users, regulations, or conditions that may not be immediately apparent. • Many signs are not typically an expensive installation and can be approved and installed quickly. 	<ul style="list-style-type: none"> • The number and type of existing signs can influence the effectiveness of new signs. Sign “clutter” can diminish the impact of new signs. • Permanent signs can become part of the background and their perception by regular road users can diminish over time. • Changing conditions, such as temporary flashing lights or periodic flags, can help to continually draw attention to a sign. • Adding new signs to a local road typically needs the approval of the municipality, either from the Selectboard, Board of Trustees, or City Council, unless they have passed on this approval to the road commissioner. • Signs added to state roads need VTrans approval. • Any proposed signage must meet the guidelines provided in the <i>Manual on Uniform Traffic Control Devices</i> (MUTCD). • Temporary devices such as in-street “Yield to Pedestrian” signs, require designated personnel to provide continuous maintenance. Such signs must be installed and removed EACH DAY of intended use and should not remain on the roadside when not in use. 	<ul style="list-style-type: none"> • <i>Vermont Pedestrian and Bicycle Facility Planning and Design Manual</i> http://www.aot.state.vt.us/progdev/Sections/LTF%20Info/BikePedTOC.html • <i>Manual on Uniform Traffic Control Devices, latest edition (MUTCD)</i>, http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm • <i>Classification of Vermont Roads</i> http://maps.vermont.gov/imf/sites/ANR_NATR/ESViewer/jsp/ 	<ul style="list-style-type: none"> • Work with the municipal planning office, road commissioner, administrator, or other municipal officials to gain their support for the placement of new signs. • Discuss the placement of new signs with local Selectboard, Board of Trustee or City Council to gain their support. • Work with the municipal planning office, road commissioner, administrator, or other municipal officials to determine the appropriate place for the signs while meeting guidelines provided in the MUTCD. • If proposed on a state road, work with the municipal officials and the regional planning commission to contact VTrans to gain their approval and any necessary permitting for the proposed signs.

APPENDIX H

SNOW REMOVAL BEST PRACTICES

SNOW REMOVAL BEST PRACTICES

Prompt and effective snow, ice, and slush clearance on sidewalks along Safe Routes to School is critical for maintaining safe biking and walking conditions. Snow removal of bicycle and pedestrian accommodations that are designated school routes should be planned for and maintained. According to the VT Pedestrian and Bicycle Facility Design Manual Section 10.5.1, local policies should treat the clearance of snow from walkways as equally important as clearance of snow from roadways in order to maintain year-round accessibility.

Guidelines

The responsibility of all snow and ice clearance generally falls upon the property owner of the facility. A municipality's highway department is typically responsible for snow and ice removal on roads and sidewalks on public property. Private roads and sidewalks on private property are the responsibility of the property owner.

A clear, unobstructed pathway at a minimum of 48" wide should be provided on all sidewalks, curb ramps, and through crosswalks. Snow, slush, and ice should be cleared from sidewalks, to provide a clear path of 48", ideally, within 12 hours after a storm event. Designated portions of the roadway for bicycle use should also be cleared since, even in winter, some experienced bicyclists commute by bicycle.

Pedestrian walkways, curb ramps, and crosswalks or bicycle facilities should not be used for areas of snow storage. Additional consideration should also be taken to maintain adequate sight distances at all intersections and to prevent snow storage from building up too close to walkways.

Paved shared-use paths that are designated routes to school should be kept clear of snow so that students can walk to school year-round. Snow clearance is not a consideration for natural surface paths that are used for winter activities which also allow students to cross-country ski or snow-shoe to school.

Recommendations

The following six basic recommendations can assist a community in developing a strategy to improve sidewalk snow and ice clearance.

1. Create a norm of snow and ice clearance through social awareness campaigns.
2. Identify a municipal point person for snow removal.
3. Determine priority sidewalks and paths for snow clearance.
4. Improve monitoring and enforcement.
5. Design sidewalks for easier snow removal.

6. Train municipal and private snow plowing personnel on the guidelines for pedestrian and bicycle facility clearance (i.e., 48" clear path and priority routes.)

Monitoring and Enforcement

There are three primary ways in which the clearance of sidewalks can be monitored and enforced;

1. Identify who monitors and enforces.
2. Define penalties and how they will be enforced.
3. Implement a social awareness campaign.