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Memo

Date: September 19, 2017

From: Laura Wheelock, P.E.

LA 9/19/17

Subject: Amendment to Champlain Elementary School Safe Routes to School Pedestrian and Bicycle Feasibility Study - Final Report dated April 2013

This memorandum has been prepared to amend the *Champlain Elementary School Safe Routes to School Pedestrian and Bicycle Feasibility Study - Final Report* dated April 2013 prepared by Lamoureux & Dickinson Consulting Engineers.

The report identifies several informal paths which connect Callahan Park and the Birchcliff neighborhood through private property on Cherry Lane. This amendment will update the Figures included in the report to remove the delineation of informal paths crossing private property. The updated Figures are attached to this memorandum.

The attached Figures shall replace the following pages of the *Champlain Elementary School Safe Routes to School Feasibility Study - Final Report* dated April 2013:

- Cover Page
- Appendix F - Preferred Conceptual Plan

By issuance of this memorandum, the *Champlain Elementary School Safe Routes to School Pedestrian and Bicycle Feasibility Study - Final Report* is formally amended to incorporate the updates described above.



- Legend**
- Existing Edge of Pavement/Cutting
 - Existing Sidewalks
 - New Crosswalks
 - New Edge of Pavement/Cutting
 - New Sidewalk
 - New Gravel Path
 - New Bituminous Concrete Path
 - New Shrubs / Plantings

Champlain Elementary School Safe Routes To School Feasibility Study



Preferred Alternative
March 2013
Scale: 1" = 80'



Amended September 2017 to remove the informal path crossing private property between Callahan Park and Cherry Lane

Champlain Elementary School Safe Routes to School Pedestrian and Bicycle Feasibility Study

Final Report

April 2013



Prepared for:

**The City of
Burlington**

**Champlain
Elementary School
Safe Routes to
School Steering
Committee**

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Champlain Elementary School Safe Routes to School Pedestrian and Bicycle Feasibility Study

Final Report

For the City of Burlington, Vermont

April 2013



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I. INTRODUCTION

The City of Burlington received a Safe Routes to School (SRTS) grant to study the planning and feasibility of improving bicycle and pedestrian connections to the Champlain Elementary School. The Champlain Elementary School is located on Pine Street and serves the Burlington South End neighborhoods. See Figure 1. This study focused on connections from the Five Sisters, Birchcliff Parkway and Prospect Parkway neighborhoods to the Champlain Elementary School. The existing sidewalks and bicycle routes are not continuous in some areas and there are known deficiencies that prevent safe travel to the school from the three identified neighborhoods.

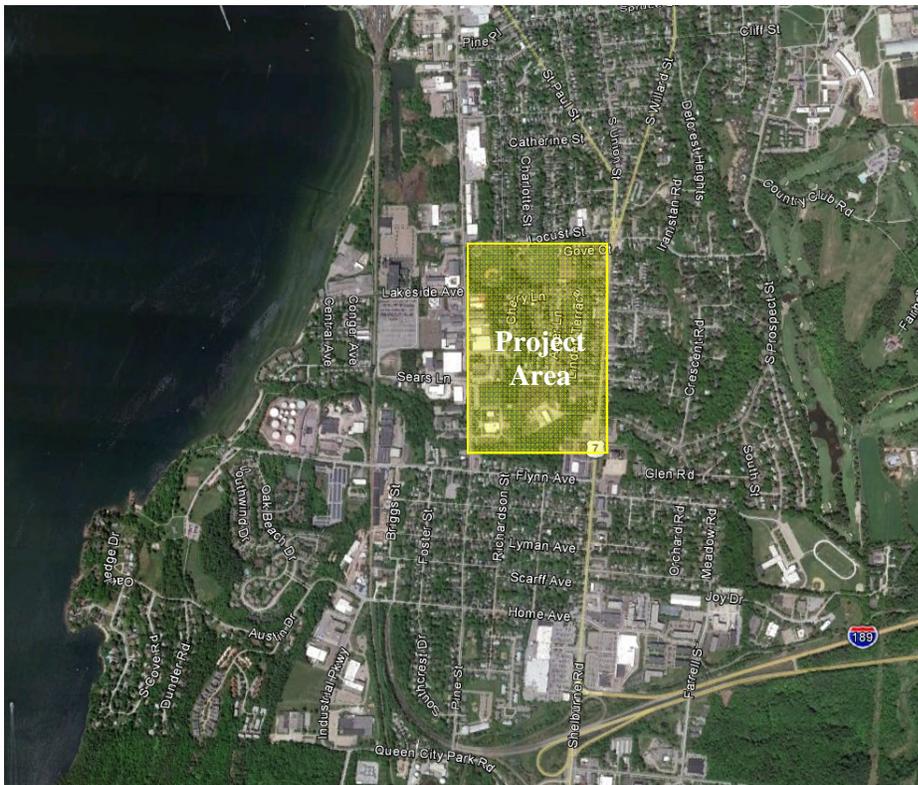


Figure 1 - Location of the Project Area

The Champlain Elementary School has a SRTS Committee that has been actively involved in creating and strengthening safe pedestrian and bicycle routes to the school. This committee is comprised of the School Principal and maintenance representatives, the parent teacher organization (PTO), the Chittenden County Regional Planning Commission (CCRPC), a

parent, the Vermont SRTS Coordinator and Resource Center staff, and Local Motion. The CCRPC is the representative for the City overseeing the study in conjunction with the Champlain Elementary School SRTS Committee and the City Public Works and Parks and Recreation Departments.

Lamoureux & Dickinson (L&D), with Hartgen Archaeological Associates, began working with the SRTS Committee on this project in the Spring of 2011. Background research and

site reconnaissance was conducted for documenting the existing conditions of the project area. A local concerns meeting was held on October 13, 2011 to present these findings and obtain public input of the opportunities and constraints for pedestrian and bicycle access to the Champlain Elementary School. Three alternatives were developed incorporating traffic calming elements, safe routes for pedestrians and bicyclists, signage and other physical improvements, which were presented at a public alternatives presentation meeting on February 21, 2013.

Following a public alternatives presentation, a preferred alternative was developed. The preferred alternative also incorporates several other projects that are underway with the City Public Works Department: the proposed roundabout at the Locust Street/Shelburne Road intersection and the Champlain Parkway project, and another Vermont SRTS project for upgrading pedestrian signage on Shelburne Road between Prospect Parkway and Locust Street. A final public meeting was held on April 3, 2013. The overall plan and elements of the preferred alternative are outlined in the report with anticipated costs, recommendations for phasing and implementation.



II. PURPOSE AND NEED OF THE PROJECT

L&D worked with the Project Steering Committee to identify the purpose and need of the project. This was presented and reaffirmed at the Local Concerns meeting. One bullet was added in the Needs section identifying the lack of bicycle facilities at the school.

Purpose and Need

The purpose and needs of this study are as follows.

Purpose: The purpose of this Project is to:

- Determine the feasibility of creating safer pedestrian and bicycle routes to the Champlain Elementary School from several surrounding South End neighborhoods: the Five Sisters, Birchcliff Parkway and Shelburne Street;
- Analyze current and proposed pedestrian and bicycle routes that can link existing sidewalks and trails;
- Study and analyze potential traffic calming measures to create safer pedestrian and bicycle networks; and
- Analyze existing pedestrian and bicycle facilities at the Champlain Elementary School and recommend improvements that will eliminate conflicts with vehicles, increase safety, and encourage greater use.

The *Need* for this project is based on:

- Unsafe roadway / intersection crossings within the study area as a result of vehicle driver behavior. Vehicle drivers often fail to stop for crossing guards or traffic lights, or for pedestrians in crosswalks, making it unsafe for pedestrians to cross roadways.
- Perceived speeding traffic that creates unsafe conditions for pedestrians and bicyclists to safely cross and use local roadways. Recent traffic counts indicate there is speeding traffic using cut through roads: Locust Street and Birchcliff Parkway between Shelburne Street and Pine Street.
- Lack of continuous sidewalks on one or both sides of neighborhood streets. Several roadways: Locust Street and Birchcliff Parkway do not have continuous sidewalks on the south side of the streets.
- Lack of crosswalks at some intersections where pedestrians are crossing.
- Limited or lack of facilities for students to safely secure scooters and bicycles when arriving at school. There is no scooter rack or storage area. The existing bike racks are often full on sunny days, causing bicycles to be left in other areas.

III. PROJECT AREA EXISTING CONDITIONS / SITE ANALYSIS

Existing Conditions / Analysis

Information was gathered for the project area by analyzing existing conditions, reviewing existing studies and findings, and collecting input from the community. A base map was created using existing tax maps, state orthophotos, natural resource and other GIS data available from the City, the Chittenden County Regional Planning Commission (CCRPC) and the Vermont Center for Geographic Information (VCGI). The base plan of the project area includes the following:

- Existing City facilities;
- Existing buildings and parking facilities;
- Existing road and driveway intersections;
- Natural resource features and constraints (endangered, rare and/or threatened species, wetlands, flood plains, soils, surface waters, etc.);
- Existing traffic conditions;
- Existing vegetation; and
- Existing utilities (water, sewer, electric, and storm drainage).

The historic and archaeological resources within the project area were reviewed and identified by Hartgen Archaeological Associates in a report dated March 2013 and available in Appendix B. These resources, along with the natural resources present, are summarized in the Natural and Cultural Resources Section.

L&D also conducted site reconnaissance and prepared additional documentation, which is explained in further detail below. See Appendix A for Existing Conditions / Site Analysis Plan. The project area descriptions are organized by street / area.

Locust Street / Five Sisters Neighborhood / Callahan Park

Locust Street, an east / west road, is the northern limit of the project area. It intersects with Shelburne Street to the east and Pine Street to the west. To the north is the Five Sisters residential neighborhood: Caroline and Catherine Streets and Locust Terrace, and to the south is the city owned Callahan Park. On the northeastern end of the road is the private Christ the King Elementary School and on the northwestern end is a multifamily housing complex.

Sidewalks exist on both sides of Caroline and Catherine Streets. Locust Terrace has a



sidewalk on the eastern side of the street. Locust Street has sidewalks on both sides of the road between Shelburne Street and Locust Terrace, and a sidewalk on the south side of the road between Locust Terrace and Pine Street. It has steep grades between Locust Terrace and Pine Street. It is often used as a cut through road between Shelburne and Pine Streets. The proposed roundabout improvements on Shelburne Street will involve a new roadway alignment, sidewalk layout and crosswalks at its intersection with Locust Street.

Callahan Park steps down the slope from Shelburne Street to Pine Street with a series of terraces. The upper terrace near Shelburne Street has community gardens. The middle terraces have a series of soccer fields, a playground area, and tennis courts. A gravel maintenance road crosses the park from Locust Street across from Caroline Street and extends to a maintenance area along the southern property line. There is an informal path defined by chain link fence that connects this gravel road to Cherry Lane in the Birchcliff Parkway neighborhood.



South side of Locust Street near Pine Street intersection



Existing Path in Callahan Park parallel to Locust Street



Parking area bordering Callahan Park with no sidewalk

Several baseball fields exist in the lower terraces. South of the baseball fields is a wooded area that borders the Birchcliff Parkway neighborhood. An informal path exists through the woods and connects onto Cherry Lane between two residences. Another gravel path in the park that treats stormwater parallels Locust Street between Charlotte Street and the lower terrace. This path is often used by bicyclists and pedestrians to access Pine Street. There is also an informal path between the baseball field on the lower terrace that connects to an existing parking lot on the abutting commercial property to the south.



Existing path from Callahan Park looking towards Cherry Lane

There are several physical limitations to pedestrians and bicyclists that are noted as follows.

- Excessive pavement width exists on Locust Street between Shelburne Street and Caroline Street, which often results in increased vehicle speeds in this area. The excessive pavement width also makes it difficult for pedestrians and bicyclists to cross the road safely. While there is on street parking in this area to accommodate park events and parking, Locust Street does have additional pavement that is undefined.
- The sidewalk on the south side of Locust Street ends at the gravel driveway in Callahan Park, which is across from Caroline Street. Due to no sidewalk beyond this point on the south side of the street, pedestrians must walk on the north side of Locust Street and cross at the Pine Street intersection.
- The Locust Street / Pine Street intersection has limited sight distances due to grades and existing vegetation, which is problematic for pedestrians trying to cross the road. In addition, there are steep grades on Locust Street as it meets Pine Street, which is often difficult for young bicyclists to handle especially descending.
- When vehicles turn on and off of Pine Street onto Locust Street, they are often in a hurry and are not always aware of pedestrians and bicyclists wanting to cross.

- There is on-street parallel parking on both sides of Locust Street between Shelburne Street and Caroline Street. There is also on-street unmarked perpendicular parking and parallel parking spaces on the south side of the street bordering Callahan Park between Caroline Street and Pine Street.
- Presently, the existing crosswalks that cross Locust Street at the Caroline Street and Charlotte Street intersections land in an undefined paved area bordering the perpendicular parking area. As a result, pedestrians end up crossing at some of the widest roadway widths and end up in unprotected areas that conflict with parked vehicles.
- The side road intersections have sidewalks and ramps with either faded or no crosswalks, forcing pedestrians to cross unprotected.
- The existing informal path that connects the gravel maintenance road to Cherry Lane is narrow and has a very uneven surface.
- All of the existing informal paths that lead from Callahan Park to Cherry Lane and Pine Street cross onto private property and have no formal easements.

Birchcliff Parkway Neighborhood

The Birchcliff Parkway residential neighborhood is defined by several streets: Birchcliff Parkway, Linden Terrace, Alder Lane, Bittersweet Lane and Cherry Lane. On the western end of Birchcliff Parkway is industrial and commercial development along Pine Street. There are existing sidewalks on both sides of Linden Terrace, Alder Lane, Bittersweet Lane and Cherry Lane. Sidewalks exist on both sides of Birchcliff Parkway between Shelburne Street and Bittersweet Lane.



Birchcliff Parkway looking east uphill

Between the Bittersweet Lane and Cherry Lane intersections, there is a steep grade on a curve downhill with poor sight distances. On this segment of Birchcliff Parkway, there is a sidewalk on the southern side of the road only. And similar to Locust

Street, Birchcliff Parkway is also used as a cut through road from Shelburne Street to Pine Street.

There are several physical limitations to pedestrians and bicyclists that are noted as follows.

- There are sight distance limitations at the mid block crossings at Cherry Lane and Bittersweet Lane.
- Crosswalk markings at the Pine Street intersection appear to be worn off and there is no stop sign.
- There are conflicts between vehicles cutting through the neighborhood and pedestrians / bicyclists trying to cross at the Pine Street intersection.
- Children can visually see the Champlain Elementary School from the lower portion of Birchcliff Parkway. However, there is no path to get there. Children and their parents often use the Lake Champlain Chocolates driveway and parking area to get to the school parking area rather than go onto Pine Street.
- There are no existing crosswalks at the Linden Terrace, Alder Lane or Bittersweet Lane intersections across Birchcliff Parkway for pedestrians to safely cross the road.
- An undefined streetscape exists through the commercial and industrial area that borders Pine Street. There is no sidewalk on the north side of Birchcliff Parkway between Cherry Lane and Pine Street.
- The street trees bordering the Lake Champlain Chocolates building on the south side of Birchcliff Parkway have low branches that interfere with pedestrians on it.

Pine Street

Pine Street defines the western side of the project area. Along Pine Street in this area exists commercial and industrial businesses, multifamily housing developments, city offices (public works , parks and recreation and code enforcement departments), and the Champlain Elementary School. It is a heavily travelled route in / out of the city that parallels Shelburne Street and also serves the numerous businesses along it.

There are sidewalks on both sides of the road with a crosswalk at the Lakeside Avenue traffic light and in front of the Champlain Elementary School. The sidewalk on the east

side of Pine Street between Locust Street and Lakeside Avenue is separated from the road by a narrow green strip with the exception of one property. The sidewalk is higher than the road and the green strip slopes to it. A crosswalk exists at the Lakeside Avenue intersection on the north side only.



Pine Street looking north - lack of green strip between sidewalk and curb

There are numerous curb cuts for the commercial and industrial businesses between Lakeside Avenue and the Champlain Elementary School on Pine Street. Many of the buildings on the east side of the road have been upgraded and expanded in the past several years with minor adjustments to the curb cuts.

The Champlain Parkway Plans include improvements that will occur to the Locust Street / Pine Street and Lakeside Avenue / Pine Street intersections. This project is in the permitting and final design phase now.

There are several physical limitations to pedestrians and bicyclists that are noted as follows.

- There are no street trees or plantings in the green strips to help visually slow vehicles or provide separation for the pedestrians.
- While there are “sharrow” pavement markings on the roadway to notice vehicles that they need to share the road with bicyclists, there is limited space and drivers are not always conscious of them. Parents with young children will ride their bicycles on the sidewalks to avoid conflicts with vehicles.
- There are no pedestrian signals or push buttons at the Pine Street / Lakeside Avenue intersection, making it difficult to cross Pine Street until the traffic light is activated.

Champlain Elementary School / Shelburne Street

The Champlain Elementary School property is the southernmost boundary of the project area. It borders Pine Street to the west and the school district maintenance facility building to the east. There are community gardens on the southwestern side of the property.

Students come to school by walking, bicycling, taking the city bus, or are dropped off. The city buses stop in front of the school on both sides of Pine Street. There is a crosswalk from the west side of Pine Street to cross to the school. There is a special small bus that transports handicapped students to the eastern side of the school. A drop off area exists along Pine Street in front of the school. Parents will also use the existing parking area off of Pine Street for drop off.

There are existing sidewalks from the parking area and Pine Street to the front of the school. There are walkways to entrances on the southern and northern sides of the school. A well worn path exists between the Prospect Parkway / Shelburne Street traffic light that accesses the eastern side of the school. And an informal path exists from the Lake Champlain Chocolates parking lot to the school parking lot sidewalk. A bike rack exists in the lawn on the south side of the school.

There are several physical limitations to pedestrians and bicyclists that are noted as follows.

- There are quite a few commercial driveways that must be crossed



Existing sidewalk and parking at school



Existing bike rack in lawn area

between Lakeside Avenue and the School, which is problematic for pedestrians and bicyclists.

- There is no sidewalk from the Shelburne Street / Prospect Parkway crossing. There is a very narrow pedestrian path on the south side of the school maintenance driveway behind an existing chain link fence that links to the school property. There are safety concerns along this path, especially in the winter.
- The existing sidewalk bordering the school parking area along Pine Street is narrow and only separated by a bumper curb stop. This sidewalk ends at the north end of the parking area and a path exists to Lake Champlain Chocolates parking area that students use to walk and bike to and from Birchcliff Parkway.
- Bike racks on the north side of the school are often full. They are in an unpaved lawn area and are far from the school entrances.
- There are conflicts between the parent drop off area and students walking and bicycling to school.

Traffic

Vehicular Traffic Data

There is existing vehicular traffic data that was collected by the Chittenden County Regional Planning Commission, the City of Burlington and the Vermont Agency of Transportation for the project area. Speed counts exist for the major roadways: Locust Street, Birchcliff Parkway, and Pine Street. Average annual daily traffic (AADT) counts exist for Locust, Pine and Shelburne Streets, and Birchcliff Parkway. Below is a summary of the vehicular traffic data.

Locust Street – East of Pine Street

Speed: 85% at 30 mph (Data from September 2006)

Speed Limit - 25 mph

AADT: 1,800 (Data from September 2006)

Birchcliff Parkway

Speed: 85% at 30 mph (Data from August 2004)

Speed Limit - 25 mph

AADT: 940 (Data from August 2004)

Pine Street – Between Flynn Avenue and Birchcliff Parkway

Speed: 85% at 33 and 35 mph (Data from August 2010)

Speed Limit - 30 mph

AADT: 14,968 (Data from August 2010)

Shelburne Street – South of Ledge Street

Speed Limit - 30 mph

AADT: 20,000 (Data from 2010)

Pedestrian and Bicycle Traffic Data

While there are no pedestrian or bicycle traffic counts available for the study area, there does exist quite a bit of pedestrian and bicycle traffic.

The Champlain Elementary School Travel Plan conducted classroom surveys in the fall of 2009 and the following summary includes students who walk and bike to school.

Table 1: Classroom Survey Results at the Champlain Elementary School, Fall 2009

Method of Traveling to School	% of Students Surveyed
Walk	26%
Bicycle	7%
City Bus	19%
Family Vehicle	43%



IV. PREVIOUS STUDIES RELATED TO BICYCLE AND PEDESTRIAN NETWORKS IN THE PROJECT AREA

There are several relevant studies and projects for creating safe pedestrian and bicycle facilities that are either underway or are long term include the following.

- **Safe Routes to School Project for Improved Pedestrian Signage along Shelburne Street.** This project will upgrade and install new school zone signage along Shelburne Street between Prospect Parkway and Locust Street. It should be installed within the next year.
- **Roundabout Design Project for Shelburne Street.** The roundabout design, located at the Shelburne Street intersection with Locust Street, South Willard Street and Ledge Road includes a new intersection design that includes sidewalks and pedestrian crossings. There will be a new road, sidewalk and crosswalk configuration at the eastern end of Locust Street. It is a Vermont Agency of Transportation project that is in preliminary design stage. It is included in the plans for this project.
- **Champlain Parkway.** The Champlain Parkway is designed to connect the existing segment of the parkway to Lakeside Avenue to Pine Street, where it will head north into Burlington. The design plans include improvements to the Locust Street / Pine Street intersection. This project is in Act 250 permitting.
- **City of Burlington Transportation Plan.** The Transportation Plan, dated 2010, is a city wide vision for all forms of transportation. It recommends a Complete Streets approach to Shelburne Street, which could possibly include a road diet to shrink vehicular lanes and increase other forms of alternative transportation. This would help the pedestrian traffic crossing Shelburne Street. It also recommends Pine Street be a Complete Street between Locust Street and Lakeside Street, and a Bicycle Street continuing south. This will help with pedestrian and bicycle traffic accessing the school.
- **Burlington North / South Bicycle and Pedestrian Route Study.** The North / South Bicycle and Pedestrian Route study, completed in November 2002, includes the roadways that are part of this project area. It identifies several north/south routes of

importance: Pine Street and Shelburne Street, and Locust Street as a key cross connector. It also identifies the same pedestrian and bicycle network deficiencies noted in this report along Locust Street and Pine Street. The recommendations for Locust Street include bike lanes on both sides of the street with a path on the south side to connect to the existing sidewalks. The recommendations for Pine Street between Locust Street and Flynn Avenue include bike lanes and a path on the west side of the street. The Public Works Department is now considering a citywide bicycle / pedestrian master plan, which will expand upon this study.

- **Local Motion’s Pedestrian and Bike Mapping Project**, completed several years ago, include suggestions for improvements for bicycle and pedestrian facilities to the school.
- **Champlain Elementary School Travel Plan**. The Travel Plan, dated February 9, 2010, was prepared by the SRTS Team at the Champlain Elementary School. It documents the issues and desires for creating safer pedestrian and bicycle routes to the school, and identifies five intersections that are problematic. Three of these intersections are part of this study: Locust Street and Pine Street, Birchcliff Parkway and Cherry Lane, and Shelburne Street and Prospect Parkway.
- **Chittenden County Regional Bicycle - Pedestrian Plan Update**. Completed in September 2008, this regional bicycle - pedestrian plan update includes recommended goals that include “..continuing to make bicycling and walking safer throughout the CCMPO region.”



V. RIGHT-OF-WAY

Many of the proposed improvements will be within the existing road rights-of-way (ROW). City street ROW widths were identified with assistance from the City Public Works Department.

- ◆ The Locust Street and Birchcliff Parkway rights-of-way (ROW) are presumed to be a 3 rod (49.5 feet) width. The roads within the Five Sisters and Birchcliff Parkway neighborhoods are also presumed to be 3 rod ROW widths.
- ◆ The Pine Street ROW is presumed to be a 4 rod (66 feet) width based on the Champlain Parkway design plans.
- ◆ The Shelburne Street ROW is presumed to be at least a 6 rod (99 feet) wide based on the SRTS signage plans and the roundabout design plans.

It is recommended that a detailed ROW survey and deed research be conducted at the next phase of design to verify these widths.

There are several areas where proposed improvements would be on private property. The proposed cross country trail from Birchcliff Parkway would involve an easement from Lake Champlain Chocolates and the abutting commercial property to the east. An easement could straddle the property line and involve a portion of the path on both properties. An initial discussion with the owner of Lake Champlain Chocolates was positive and he supports the proposed path connection.

The proposed sidewalk starting at the Shelburne Street across from Prospect Parkway would involve an easement from the property to the north. This would most likely be a limited width of easement to accommodate new curbing to the south of the path at Shelburne Street.

The existing path from Callahan Park to Cherry Lane could benefit from a permanent easement to accompany it. It would be ideal to widen this path to at least 5 foot width in order to accommodate bicyclists and pedestrians. The additional informal paths that are used from Callahan Park to Cherry Lane would also benefit from permanent easements.

VI. UTILITIES

Existing utilities within the project area include above and underground electric, telecommunications and phone; and municipal water, wastewater and stormwater. It is not anticipated that any of the proposed improvements will effect the electric, telecommunications or phone infrastructure, lines or utility poles. Municipal water and wastewater do not appear to be affected either.

With the construction of curb extensions, raised speed tables or curb adjustments / road narrowing, there will most likely need to be additional structures and/or elements for handling the storm water flows. There is an existing rain garden within Callahan Park that handles some of the existing storm water runoff from Locust Street. Callahan Park has some existing storm water drainage issues that are being addressed as part of a comprehensive storm water and master planning process that is currently underway. It is recommended to work with the City Public Works and Parks and Recreation departments to coordinate improvements within road ROWs and within Callahan Park.

For proposed improvements at the school, there may need to be relocations of and / or additions to outdoor lighting and storm drainage facilities. These will need to be looked at further at the next level of design.

VII. NATURAL AND CULTURAL RESOURCES

The natural and cultural resources identified in the project area are summarized below. Most of the proposed improvements occur within already developed parts of the city and the road ROWs have already disturbed. The Agency of Natural Resources (ANR) Environmental Interest Locator Plan, in Appendix C, highlights the resources present.

NATURAL RESOURCES

Water Resources

The Englesby Ravine and Brook traverses the project area south of the Champlain Elementary School building from east of Shelburne Street and flow west under Pine Street in a large culvert and eventually drains into Lake Champlain. It is a very steep drop to the stream through a densely wooded area in this location. The existing path that begins at Shelburne Street at the Prospect Parkway intersection and ends on the east side of the school is located near the bank of the Englesby Brook. The brook has Class 2 wetlands associated with it in this area and is identified as an impaired waterway by the Vermont ANR Stormwater Section.

The proposed upgrade to a paved path between Shelburne Street and the school should not impact the Englesby Brook.

Lakes and Ponds

There are no lake or pond water bodies within the project area.

Storm water

ANR storm water permitting requirements involve new impervious areas and redevelopment of existing impervious areas of a project that are greater than 1 acre. While individual segments of the proposed conceptual plan will be under one acre in disturbance, collectively they will most likely be greater than this.

As discussed earlier in this report, there will most likely need to be storm water improvements made as a result of new and adjusted sidewalks and paths, changes to existing curbs and new curb extensions, and traffic calming elements such as speed tables. In addition, there will need to be some storm water improvements associated with new walkways and paths in Callahan Park. These will, at a minimum, involve city storm water

permitting. Callahan Park has an existing State storm water permit that will most likely need to be amended. And any proposed improvements within Englesby Brook area will most likely State involve storm water permitting. However, this should be verified at the next level of design.

Floodplain

The proposed improvements within the project area is outside of the Englesby Brook floodplain. No impacts to the floodplain are anticipated. Typically, the ANR Department of Environmental Conservation River Management Program requests that floodplain impacts be reviewed when more information is available at the next phase of design.

Wetlands

There is a Class 2 wetlands associated with Englesby Brook. However, there are no impacts anticipated to this wetlands.

Wildlife Habitats, Fisheries, Endangered and Threatened Species and Natural Heritage Sites

No important fish and wildlife habitats, rare, endangered or threatened species, or natural heritage sites important to the State of Vermont are identified within the project area.

Agricultural Lands

There are soils that are classified as prime agricultural soils with the project area. However, the areas of proposed improvements have already been disturbed, such as roadways, paved areas and Callahan Park, or are no longer considered prime agricultural soils due to their location within a built up portion of the city. This project area is within a densely populated city setting and a viable agricultural operation wouldn't be possible on such small parcels of land. It is not anticipated that the impacts to the prime agricultural soils will need mitigating. However, this should be reviewed further at the next level of design with the State Department of Agriculture.

CULTURAL RESOURCES

Historic and Archaeological Resources

An Archaeological Resource Assessment And Historical Architecture Assessment Report for the Champlain Elementary School, prepared by Hartgen Archaeological Associates in March 2013, documents the historic and archaeological resources in the project area.

Their background research and site visit identified that most of the project area is already disturbed and not considered historic or archaeologically sensitive.

There is one area that is considered moderately sensitive for precontact and early historic archeological deposits: along the Englesby Brook. The moderate archeological sensitivity is due to the proximity of a proposed upgrade to the existing path along Englesby Brook and to the limited disturbance exhibited in the area over the years. It is recommended that a Phase IB archeological reconnaissance survey be conducted of this one area at the next level of design to determine if significant archeological sites are present. See Appendix B for the full Assessment Report.

Parks and Public Lands

If federal or state funding is used for construction, Section 4(f) resource impacts will need to be reviewed. Section 4(f) resources include publicly owned parklands. No lands will be acquired as part of the proposed improvements in Callahan Park. At the next phase of design, a more detailed review of Section 4(f) resource impacts should be done.

Hazardous Waste Sites

There are several identified hazardous waste sites within the project area along Pine Street and on the Burlington School District maintenance facility. None of the proposed improvements will affect these existing sites.

VIII. PROPOSED ALTERNATIVES

Alternatives Considered

Several conceptual alternatives were developed and considered for the project area. The options involve:

- ◆ Sidewalk extensions and connections along Locust Street.
- ◆ Path connections through Callahan Park.
- ◆ Traffic calming measures on Locust Street and Birchcliff Parkway.
- ◆ Sidewalk and path connections to the school from Birchcliff Parkway and Shelburne Street.

It is intended that the proposed improvements in these options would stay within the existing city owned ROWs to the greatest extent possible.

Each of these alternatives were reviewed based on the following:

- ◆ Conformance with VTrans, Americans with Disabilities Act (ADA), American Association of State Highway Traffic Officers (AASHTO) and other applicable standards, regulations and requirements;
- ◆ Conflicts with and potential relocation of existing utilities including storm drainage, water, and electric;
- ◆ Impacts to existing vegetation;
- ◆ ROW issues;
- ◆ Impacts to the environment including public land, hazardous waste, agricultural lands, fish and wildlife habitat, threatened and endangered species habitat, historical and archaeological resources, and aesthetics; and
- ◆ Concerns and suggestions from the SRTS Committee, private property owners and the public.

The advantages and disadvantages of each alternative are discussed below summarizing resource impacts, local and regional issues, and required permits and clearances.

Appendix D includes the alternatives plans.

Alternatives

Do Nothing / Existing Conditions

The existing project area conditions don't provide safe routes for children to walk and bike to school. This alternative has the least impacts on environmental and cultural resources and has the least cost. However, it doesn't address the purpose and need of the study.

Alternative A

For Alternative A, the following elements and improvements are proposed:

Locust Street:

- New on street parking area,
- New sidewalk on south side of street,
- New curb extensions with textured crosswalks at street intersections,
- Expanded rain gardens, and
- Improved pedestrian and bicyclist signage.

Callahan Park:

- Paved path connection to Cherry Lane with rain garden, and
- New sidewalk connection to Gove Court.

Pine Street:

- New plantings in green strips,
- Reduced curb cuts where possible, and
- Improved pedestrian and bicyclist signage.

Birchcliff Parkway:

- New speed table at the Cherry Lane intersection,
- New textured crosswalks at the Alder Lane and Linden Terrace intersections,
- Reduced roadway width along the curve,
- New infill sidewalk on the north side of street, and
- Street tree pruning along the southwestern end of the road.

Champlain Elementary School:

- New parent drop off area on Pine Street,
- Consolidated parking area on north side of school,
- New cross country path from Birchcliff Parkway to school,
- New and improved pedestrian circulation to school entrances,
- New bike rack area in pavement or pavers on south side of the building, and
- New gravel path and sidewalk connection from Shelburne Street.

Alternative A includes a proposed path connection through Callahan Park to Cherry Lane utilizing the existing gravel maintenance path, which will help reduce new stormwater impacts. The missing sidewalk segment on Birchcliff Parkway between Bittersweet and Cherry Lanes is added while reducing the width of the roadway. A new cross country path from Birchcliff Parkway over private property to the school land is shown. It places the

school drop off areas on Pine Street thereby completely separating them from the pedestrians and bicyclists accessing the school. The school drop off area along Pine Street is advantageous as it eliminates the short term conflicts on the school property, but it will involve more crossing guard assistance to make sure children can safely cross Pine Street. The new sidewalk through the green space in front of the school will limit the use of this space. The parking areas are all consolidated on the north side of the school to reduce vehicular conflicts with pedestrians and bicyclists.

Alternative B

Alternative B is similar to Alternative A and includes the following elements and improvements:

Locust Street:

- Reorganized and expanded perpendicular on street parking and the elimination of the parallel parking on the western end,
- New sidewalk on south side of street,
- New speed tables at the Catherine and Caroline Street intersections,
- New curb extensions at intersections,
- New textured crosswalks, and
- Improved pedestrian and bicyclist signage.

Callahan Park:

- New paved path connection to Cherry Lane east of the tennis courts,
- Sidewalk connections to Gove Court, and
- New and expanded rain gardens near the speed tables on Locust Street.

Pine Street:

- Reduced curb cuts where possible,
- Street tree pruning, and
- Improved pedestrian and bicyclist signage.

Birchcliff Parkway:

- New speed tables at the Cherry Lane, Bittersweet Lane and Linden Terrace intersections,
- New textured crosswalk at the Alder Lane intersection,
- Reduce roadway width, and
- Street tree pruning.



School:

- Better parent drop off area separated from consolidated parking areas on north side of school,
- Improved pedestrian circulation to school entrances,
- New paved bike rack area, and
- New gravel path and sidewalk connection from Shelburne Street.

Alternative B eliminates on street parking on the west end of Locust Street for making a continuous sidewalk on the south side of the road and allowing for the roadway to be narrowed. It also has speed tables at two of the intersections for traffic calming measures on this street. Additional perpendicular parking is added on the south side of the road east of the Caroline Street intersection, which will minimally impact the park.

A new cross country path is shown through Callahan Park that would connect on the east side of the playground and tennis courts. However, this area already has some storm drainage issues and a new path here would have to be designed with this in mind. Several speed tables are included on Birchcliff Parkway for traffic calming measures along with reducing the width of the road on the curve. The school drop off and parking areas are consolidated for easy access, but separated to allow for safe pedestrian walkways to the school.

Alternative C

For Alternative C, the following elements and improvements are proposed:

Locust Street:

- New off street parking area with eliminated on street parking between Locust Terrace and Pine Street,
- New continuous sidewalk on south side of street,
- New street trees,
- New curb extensions at all intersections, and
- Improved pedestrian and bicyclist signage.

Callahan Park:

- Paved path connection to Cherry Lane, and
- Sidewalk connection to Gove Court.

Pine Street:

- Reduced curb cuts where possible, and
- Improved pedestrian and bicyclist signage.

Birchcliff Parkway:

- New speed tables at Cherry Lane, Bittersweet Lane and Linden Terrace intersections,
- Reduce roadway width on the curve, and
- Street tree pruning.

School:

- Better parent drop off area,
- Consolidated parking areas,
- Improved pedestrian circulation to school entrances,
- New paved bike rack area, and
- New gravel path and sidewalk connection from Shelburne Street.

Alternative C creates a continuous sidewalk along the south side of Locust Street. To do this, parallel parking is eliminated on the west end and is added between Caroline and Catherine Streets. A new off street parking area is shown on the northeastern portion of Callahan Park near the Christ the King school. The advantage of removing perpendicular parking spaces off of the street is offset by the placement of the off street parking area near existing residences. Improvements on Birchcliff Parkway are the same as Alternative B. At the school, the school drop off area and parking areas are consolidated on the north side of the building with only one curb cut off of Pine Street. This will help reduce vehicular conflicts with pedestrians and bicyclists, but will concentrate all of the traffic in one area.

An Alternatives Matrix was prepared for the above alternatives documenting engineering needs, resource impacts, local/regional issues, and required permits and clearances. Each option has its strengths and weaknesses. The proposed improvements in each of the alternatives will create safe routes to the Champlain Elementary School from the Five Sisters and Birchcliff Parkway neighborhoods. These three alternatives were presented at an Alternatives Presentation meeting on February 21, 2013. See Appendices D and E for the alternative plans and matrix.

IX. MAINTENANCE

With any type of public infrastructure expansion project such as is proposed in this study, there will be a need for ongoing maintenance. For the City, the new sidewalks and paths would be for use year round and would involve additional winter maintenance and upkeep. The traffic calming measures would need regular inspections and maintenance. The new textured crosswalks and markings will require some annual maintenance and repair. The City Public Works Department will need to incorporate ongoing maintenance into their annual work plan for repairs and winter snow removal.

For the paths in Callahan Park, the City Parks and Recreation Department will need to come up with an agreeable maintenance strategy for winter plowing and ongoing maintenance.

The new sidewalks at the school will require some additional maintenance. However, the consolidation of parking areas would help reduce the current maintenance. The School Maintenance Department will need to incorporate this into their annual work plan for ongoing winter snow removal and repairs.

X. REQUIRED PERMITS AND CLEARANCES

The following permits and certifications may be needed at the next level of design for this project. Some of these permits and certifications are not needed if federal funding is not used.

Categorical Exclusion (CE) Environmental Analysis - If federal funds are involved in the next phases of design, a Categorical Exclusion Environmental Analysis report will need to be prepared and submitted to the Federal Highway Administration (FHWA) and VTrans for approval.

Americans with Disabilities Act (ADA) Compliance The proposed improvements will need to be compliant with the most current ADA standards.

Act 250 Land Use Permit– If a municipal project has under 10 acres of involved area, an Act 250 permit is not required. If all of the proposed improvements are to be constructed at one time and are under 10 acres, typically an Act 250 permit most likely would not be needed. However, this may vary depending upon other municipal projects in the area. For these proposed improvements, it will most likely be phased and would occur over a multi-year period. The Act 250 District #4 Environmental Commission should be contacted at the next level of design to determine if a permit will be needed.

Uniform Act / ROW - If additional easements and / or ROW is needed for proposed improvements and state and/or federal funding is involved, the Uniform Relocation Assistance and Reap Property Acquisition Policies Act will need to be followed. An easement will most likely be needed from one or two property owners for the proposed cross country path between Birchcliff Parkway and the school, and at the Shelburne Street / School Maintenance property driveway.

Erosion Prevention and Sediment Control - Presently, the State of Vermont Agency of Natural Resources requires projects disturbing more than 1 acre of land to obtain an erosion prevention and sediment control (EPSC) permit. The total disturbance for this project will most likely be over 1 acre and therefore an EPSC permit would most likely be needed. If it is phased over a period of years, an EPSC permit may not be needed. ANR should be contacted at the next phase of design to determine if an EPSC permit will be required.

Section 106 Clearance - A Section 106 clearance will be needed for impacts to the archaeologically sensitive area along Englesby Brook as part of the CE Environmental Analysis report for federally funded projects.

Manual of Uniform Traffic Control Devices (MUTCD) Compliance - The proposed improvements within the road ROWs: signage, pavement markings, etc, will need to conform with the latest version of the MUTCD.

Stormwater - The State ANR procedure for determining whether public projects (sidewalks, shared use paths, etc) need a stormwater permit is based on the total impervious surfaces including existing and proposed. If a project proposes to redevelop more than one acre, it will need a stormwater permit. A project can propose up to a 20% increase in existing impervious surfaces and only need to address the water quality treatment standard. ANR is also allowing more flexibility for using green infrastructure to address stormwater runoff and there may be an opportunity to include rain gardens, permeable pavements or other treatments.

If the project is phased, a State stormwater discharge permit may not be needed. This should be reviewed with ANR at the next phase of design. Improvements in Callahan Park will most likely involve State and City stormwater permits as it currently has these.

Stream Alteration Permit - A Stream Alteration Permit and a 401 Water Quality certification or waiver from the Department of Environmental Conservation may be needed for the proposed path along Englesby Brook. This should be verified at the next phase of design.

Wetlands - It is not anticipated that there will be any impacts to the Class 2 wetlands in Englesby Brook. Therefore, a wetlands permit from the State ANR or from the US Army Corps of Engineers will most likely not be needed. This should be verified at the next phase of design.

Appendix E contains the Alternatives matrix documenting the anticipated permitting needs.

XI. PREFERRED ALTERNATIVE PLAN

Alternatives Review and Selection

An Alternatives Presentation Meeting was held on February 21, 2013, where the alternatives described above were presented for review and comment. After receiving public input, the preferred conceptual plan was created.

Preferred Conceptual Plan

A description of the Preferred Conceptual Plan proposed improvements with recommended lead organization for implementation is outlined below. Appendix F includes the Preferred Conceptual Plan.

Callahan Park / Locust Street

- Lead: Department of Parks and Recreation (DPR)
 - New path within Callahan Park parallel to Locust Street along the south side of the street to Pine Street. The possibility of a pervious pavement surface for this walk could help address stormwater runoff, but should be looked into further.
- Lead: Department of Public Works (DPW)
 - New crosswalk at Locust Terrace on east side to connect the existing sidewalk on the east side of Locust Terrace with a new sidewalk and path in Callahan Park.
- Lead: DPR
 - For the proposed parking along Locust Street, there was no consensus as to which was the best option. It was felt this needed more study and not be dealt with now. This should be looked at as part of the Callahan Park master plan.
- Lead: DPR
 - New paved path through Callahan Park from Locust Street to Cherry Street along the existing gravel path.
- Lead: Safe Routes to School (SRTS) Committee
 - Look into formalizing a path through the woods in Callahan Park and securing an easement for the path between homes on Cherry Lane to connect near the Cherry Lane curve. There is a dirt path here now that is heavily used by children, and the property owners seem agreeable to allowing children to cross their properties.
- Lead: DPW
 - New crosswalks on all legs of each intersection on Locust Street, except the western leg of Locust Terrace where there is no sidewalk.



Lead: DPW ▪ New speed tables and curb extensions at all three Locust Street intersections.

Lead: DPR with DPW ▪ Keep on street parking, but adjust depth of the perpendicular parking area to narrow roadway. This should be part of the Callahan Park master plan.

Birchcliff Parkway

Lead: DPW ▪ New speed table and a pedestrian activated flashing sign (RRFB or similar) at the Cherry Lane/ Birchcliff Parkway intersection.

Lead: DPW ▪ New sidewalk on the downhill curve of Birchcliff Parkway. Suggest narrowing the street to 22' or even 20' wide.

Lead: DPW ▪ New speed table at Bittersweet Lane. This will help slow vehicles before heading down the hill.

Lead: DPW ▪ New chicane design along Birchcliff Parkway from Shelburne Road to Bittersweet Lane. The chicane design could shift at each roadway intersection.

Lead: SRTS Committee , Burlington School District and CEDO ▪ Investigate securing a ROW for a path between homes across from Linden Terrace intersection with Birchcliff Parkway to access the school property.

Lead: DPW ▪ New sidewalk on last section of Birchcliff Parkway – on the north side along new Lake Champlain Chocolates warehouse.

Lead: SRTS Committee, Burlington School District and CEDO ▪ New cross country path from the east side of the Lake Champlain Chocolates parking area and along the east side of the school field.

Champlain Elementary School Site

Lead: Burlington School District ▪ New bicycle parking on the north side of the school and relocate / upgrade bicycle parking on the south side to meet current accepted bike parking standards.

Lead: Burlington School District ▪ New cross country path from Lake Champlain Chocolates parking lot with new bridge to intersect the school drive at the apex of its northeast curve.

- Lead: Burlington School District
 - Prohibit all vehicle traffic on the drive around the school except for deliveries and service vehicles and add a physical barrier to exclude vehicles. Redesign the drive around the north and east sides of the school as a wide pedestrian walkway that accommodates service vehicles, rather than as a vehicle lane that accommodates pedestrians.
- Lead: Burlington School District
 - New one way entrance on south side and one way exit on north side for drop off area and parking area. There would be a one way drop off lane on east side of loop, with 15-minute angled nose-in parking spaces along the west side of the drop-off lane. Recommend closing off parking area closest to road with removable barriers during parent drop off times.
- Lead: Burlington School District
 - Path from Prospect Parkway to school to be paved so it can be plowed in winter.

General Recommendations

- Lead: DPW
 - General recommendations for Pine Street: move sidewalk further away from curb and add a green strip with street trees where possible, consolidate curb cuts where possible, and look into adding a bike lane or cycle track on roadway.
- Lead: Burlington School District with DPW
 - Additional study is needed to incorporate an on-street bus stop / drop off area on Pine Street without allowing on street drop off for cars.
- Lead: Burlington School District
 - Reconvene / reinvigorate the SRTS Committee to assist with moving the recommendations in this report forward.

The proposed elements included in the Preferred Conceptual Plan help establish safer pedestrian and bicycle routes to the school. The consolidated parking and one way drop off area will help to separate pedestrians and bicyclists. The new cross country path from Birchcliff Parkway to the school is a good alternative to using Pine Street and it will keep bicyclists out of the Lake Champlain Chocolates. And the proposed path connections through Callahan Park will create an interconnected network of facilities that can be used by pedestrians and bicyclists.



XII. CONCEPTUAL ESTIMATE OF PROBABLE COSTS

A Conceptual Estimate of Probable Costs outlines the estimated costs for the design, permitting, and construction of the preferred conceptual plan. This estimate is based on 2013 construction costs. See Table 2 below.

Table 2 - Preferred Conceptual Plan Estimated Costs

	Item	Unit	Quantity	Cost	Total
Locust Street and Callahan Park					
1	New Curb (for curb extensions)	LF	930	\$75	\$69,750
2	New Concrete Sidewalk (Extension from Gove Court)	LF	240	\$100	\$24,000
3	New Bituminous Concrete Path (Parallel to Locust Street)	LF	1175	\$150	\$176,250
4	New Bituminous Concrete Path (To Cherry Lane)	LF	970	\$150	\$145,500
5	Future Gravel Path	LF	780	\$80	\$62,400
6	New Textured Crosswalks	LF	210	\$35	\$7,350
7	New Speed Tables	Each	3	\$8,000	\$24,000
8	New / Expanded Rain Gardens	SF	4600	\$15	\$69,000
9	Topsoil and Seed	CY	65	\$60	\$3,900
10	New Signage	Each	4	\$350	\$1,400
<i>Subtotal</i>					\$583,550
Birchcliff Parkway					
11	New Curb (for curb extensions)	LF	1450	\$75	\$108,750
12	New Concrete Sidewalk	LF	770	\$100	\$77,000
13	New Textured Crosswalks	LF	260	\$35	\$9,100
14	New Speed Tables	Each	2	\$8,000	\$16,000
15	Topsoil and Seed	CY	140	\$60	\$8,400
16	New Signage	Each	8	\$350	\$2,800
17	New Signage (Pedestrian Activated Flashing Sign)	Each	2	\$5,000	\$10,000
<i>Subtotal</i>					\$232,050

	Item	Unit	Quantity	Cost	Total
Champlain Elementary School					
18	New Curb	LF	950	\$75	\$71,250
19	New Concrete Sidewalks	LF	400	\$100	\$40,000
20	New Paved Path (from Shelburne Street)	LF	850	\$150	\$127,500
21	New Paved Path (from Birchcliff Parkway)	LF	800	\$150	\$120,000
22	New Gravel Subbase for Bituminous Concrete Pavement	CY	390	\$50	\$19,500
23	New Parking Area Bituminous Concrete Pavement	Ton	780	\$250	\$195,000
24	New Parking Area Striping - Painted Lines	LF	1650	\$2	\$3,300
25	New Bike Racks	Each	2	\$1,500	\$3,000
26	New Pavement for Bike Rack Areas	SF	1850	\$25	\$46,250
27	New Removable Bollards	Each	3	\$500	\$1,500
28	New Pedestrian Bridge (for path from Birchcliff Parkway)	Each	1	\$15,000	\$15,000
29	New Signage	Each	8	\$350	\$2,800
<i>Subtotal</i>					\$645,100
Subtotal of all Areas					\$818,400
Mobilization (10%)					\$81,840
SubTotal					\$900,240
Contingency (20%)					\$180,048
Subtotal					\$1,080,288
Engineering and Permitting (20%)					\$216,058
TOTAL Estimated Costs					\$1,296,346



XIII. RECOMMENDED PHASING / PROJECT TIME LINE

Phasing of master planning study projects is often done by municipalities due to the large costs for which funds are not always available for such improvements. An outline of the phasing options is described below. This will give the City of Burlington and the Champlain Elementary School an opportunity to finance the projects as funds are available or grant opportunities arise. In addition, if the proposed improvements can be constructed in conjunction with other planned municipal or state projects, this can often reduce the overall construction costs. One example is to coordinate improvements as much as possible with the anticipated upgrades to Callahan Park and / or the Champlain Parkway project.

Recommended Short Term Improvements (1 to 5 years)

- Work with the owner of Lake Champlain Chocolates and the abutting property to the east to obtain an easement for the cross country path from Birchcliff Parkway to the school.
- Parks and Recreation Department to include recommended improvements: sidewalks, paved paths, rain gardens and storm drainage improvements, and realigned parking, in Callahan Park in the updated master plan after assessing storm water impacts.
- Public Works Department to install new speed table and a pedestrian activated flashing sign (RRFB or similar) at the Cherry Lane/ Birchcliff Parkway intersection.
- Work with landowners on Cherry Lane for formalizing existing and proposed paths with easements from Callahan Park to Cherry Lane.
- Public Works Department to install speed tables, curb extensions, crosswalks, and additional pedestrian signage, on Locust Street and Birchcliff Parkway. Ideally, these could be done when the City repaves these roads if it will occur in the near future or when the Shelburne Street roundabout is constructed.
- Public Works Department to install the chicane traffic calming measure on Birchcliff Parkway.
- Public Works Department to install new sidewalk on the downhill curve and to the Pine Street intersection on Birchcliff Parkway.
- Install new bike racks on new paved areas at the school.

- Expand and reorganize the school parking area, and create the new drop off area. This may need to be considered a long term improvement if funding is not available.
- Street tree pruning along Birchcliff Parkway.
- Reconvene the SRTS Committee.

Recommended Long Term Improvements (5 years +)

- Design and construct the cross country path and bridge from Birchcliff Parkway to the school.
- Design and construct the paved sidewalk and path from Prospect Parkway intersection with Shelburne Street to the school.
- Public Works Department to enhance bicycle and pedestrian network on Pine Street. This should dovetail with the installation of the Champlain Parkway project improvements.
- Public Works Department to study and design new on-street bus stop areas.



A potential time line for the preferred plan from design development through to construction using state or federal funds is shown in Table 3. This can often take a 2 to 3 year period from design to construction when using state or federal funding.

Table 3: Project Time Line

PHASE	Year 1		Year 2		Year 3	
	Jan-June	Jul-Dec	Jan-June	Jul-Dec	Jan-June	Jul-Dec
A. PROJECT DEFINITION						
Conceptual Design Development						
Project Initiation						
Topographic Survey						
Conceptual Design Plans						
Identify ROW issues						
NEPA Documentation: CE Approval						
Federal & State Permit Applications						
B. PROJECT DESIGN						
Plan Development						
Preliminary Design Plans						
Obtain All Required Permits						
Utility Relocation Process						
Re-Evaluation of the CE						
Right-of-Way						
Final ROW Plans						
Necessity Hearing						
Appraisals, Appraisal Review						
Obtain ROW Clearances						
Final Plan Development						
Utility Agreements and Clearances						
Special Provisions						
Final Design Plans						
Contract Plans, Construction Bidding and Award						
Contract Plans						
Construction Bid Package						
Bid Process						
Post Award						
C. CONSTRUCTION						
Construction Oversight						
Construction Material Sampling & Testing						
Final Inspection						
Project Acceptance						



XVI. POTENTIAL FUNDING SOURCES

Listed below are several potential funding sources for construction. The most logical source for design and construction funding is through the VTrans Transportation Alternatives Grant program (formally the Transportation Enhancement Grant program) that is federally funded. However, these projects must go through the Federal Highway Administration (FHWA) project development process, which does take considerable time for needed design reviews, permitting and clearances.

Some of the smaller elements, such as road signs, speed tables or bike racks, could potentially be funded directly by the City on their own or in conjunction with other funding options. The City might secure funding for the larger budget recommendations from an assortment of sources. Below is a list of various funding potentials that could be used to help with the implementation of the recommendations.

Surface Transportation Program/VTrans Capital Program (STP Funds): The STP funds are the most flexible funding source from federal transportation funds. These funds could be used for the recommendations relating to the roadway itself, such as the restriping of travel lanes. These funds require a 20 percent match. Projects funded with STP funds need to be included on the States Transportation Improvement Program and the CCRPC's Transportation Improvement Program.

Transportation Alternatives Program (TA Funds): TA funds can be used to increase bicycle and pedestrian mobility, improve aesthetics along a roadway or other specific types of projects that enhance the overall transportation experience. These funds will cover a maximum of 80 percent of the project costs with the remaining portions most likely coming from the project sponsoring organization. TA funds have been distributed in Vermont through a competitive grant program.

*Contact Patti Coburn, Enhancements Coordinator at VTrans, 802.828.5799,
patti.coburn@state.vt.us*

Bicycle and Pedestrian Program: These funds cover specific bicycle and pedestrian improvement projects and are also provided via a competitive grant program. VTrans works with the regional planning commissions and metropolitan planning organizations to identify potential projects for annual funding for bicycle/ pedestrian planning and construction of bike paths, sidewalks, and rail trails. A 10% local match is required for these grants.



Contact Jon Kaplan, VTrans Bicycle and Pedestrian Coordinator, 802.828.0059,
jon.kaplan@state.vt.us

Safety Improvement Funds: Safety Improvement Funds are available to cover projects that are directly related to improving specific safety related problems. These funds are administered by VTrans and could potentially be used to fund the intersection reorganizations.

There are other resources through foundations that potentially can help fund smaller phases of this project. Many communities choose to fund their projects using local resources and can often be combined with other municipal improvements, which can often provide cost and time savings.

Other Funding Sources

American Greenway Awards / The Conservation Fund

Non-profit organizations, public agencies, and individuals can apply for funding for planning and implementation of greenway projects. Grants may be used for activities such as mapping, surveying, developing brochures, hiring consultants, planning a bike path or other creative projects. Grants range from \$500 to \$2,500. Applications may be submitted between March 1st and June 1st each year.

Contact the American Greenways Coordinator at The Conservation Fund, 703.525.6300,
www.conservationfund.org

Potential Local Funding Sources

Municipal Bonds

One method for funding the construction of traffic calming, bicycle and pedestrian facilities, and trail connections that many communities in Vermont have utilized are bonds. A request for a community to finance a project with a bond must have voter approval and are often added to ballots for other items such as the annual town budget or national voting days. A project could be funded in its entirety or partially with these funds used as a match for a grant. The South Burlington Recreation / Shared Use Paths and Williston Shared Use Paths have been funded in this manner.

Impact Fees

New developments may be required to pay an impact fee to help cover the costs that their project will have on a community. Impact fees can be collected for transportation and

recreation related activities for which bicycle and pedestrian facilities are potential projects.

Municipal Crews

Some of the proposed improvements, such as removing existing pavement, sidewalks and curbs, could possibly be constructed using municipal roadway crews. This could assist with reducing construction costs by combining phases of this project with other similar improvements in the community.



XV. PUBLIC INVOLVEMENT

Public participation throughout this project consisted of three public meetings. Each of these meetings was attended by SRTS Committee members and residents. Support remains strong for moving the various phases of this feasibility study to design and implementation.

On July 1, 2011, a kickoff meeting was held. Ms. Henderson-King of Lamoureux & Dickinson gave an overview of the planning and feasibility study, reviewed existing studies, plans and projects of relevance, and invited comments and discussion about the project.

On October 13, 2011, a local concerns meeting was held. An overview of the planning and feasibility study, documentation of the existing conditions, observations and site analysis was given by Ms. Henderson-King. The discussion was opened up to allow for public input and thoughts on what people would like to see for improving walking and bicycle networks from the Five Sisters and Birchcliff Parkway neighborhoods and Shelburne Street / Prospect Parkway intersection to the school.

On February 21, 2013, an Alternatives Presentation was held. An overview was given by Ms. Henderson-King of the proposed alternatives. A presentation of the elements of each alternative was done. Discussion ensued regarding each proposed alternative with additional comments, details and possible adjustments. The selected approach for moving forward combined elements from several of the alternatives with a few additional elements added in. Overall support for the project still remains strong as expressed by the attendees.

On April 3, 2013, a Final Presentation was held. A brief review was done of the project, the alternatives considered, the selected preferred conceptual plan and the proposed overall costs. There is still very strong support for the project with a recommendation to reconvene the SRTS Committee to work with the School and City for implementation.

Appendix G contains the PowerPoint presentation and notes from the aforementioned public meetings.

XIV. ASSESSMENT OF PROJECT VIABILITY

The *Champlain Elementary School SRTS Bicycle and Pedestrian Planning and Feasibility Study* has considered various options and responded to the community's need to provide safe pedestrian and bicycle facilities from the Five Sisters and Birchcliff Parkway neighborhoods and the Shelburne Street / Prospect Parkway intersection to the Champlain Elementary School.

Research was conducted of the natural and cultural resources, and historic and archaeological sites within the study area and no major areas or issues have been identified that would be major hurdles for the project. There is one area that will need additional archaeological study: the proposed paved path from the Shelburne Street / Prospect Parkway intersection to the school near the Englesby Brook.

This project will serve school children and residents with safe bicycle and pedestrian routes to the Champlain Elementary School, which will be a huge benefit to the health and well being of users and will help to increase the walking and biking networks in the South End.

There is strong local support for this project throughout this study. The *Champlain Elementary School SRTS Bicycle and Pedestrian Planning and Feasibility Study* identifies alternatives that are viable and needed and should be further funded for design and construction.