

EDGEMONT-GREENVILLE
SIDEWALK FEASIBILITY
STUDY
TOWN OF GREENBURGH NY



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Project Area and Objective

PROJECT AREA AND OBJECTIVE

The project study area includes the roads listed and highlighted below:

- Seely Place between Ardsley Road and Seely Place Elementary School
- Ardsley Road between Highland Road and Seely Place
- Fort Hill Road between Ardsley Road and Longview Road

The objective of this study is to determine the technical feasibility of constructing sidewalks along the above mentioned road segments. Since there is not a continuous pedestrian network, and the walkways that do exist are of varying degrees of quality, a resident survey has been conducted to solicit input for the community regarding the need and desire for a pedestrian network. The results of this survey will be used to evaluate the potential future use of sidewalks, should they be constructed in the project study area.



AREA OVERVIEW

Highland Road

Greenville School

Ardsley Road

Longview Drive

Fort Hill Road

Central Park Avenue

Retail Corridor

Seely Place School

Ardsley Road

Seely Pl

Major Intersection



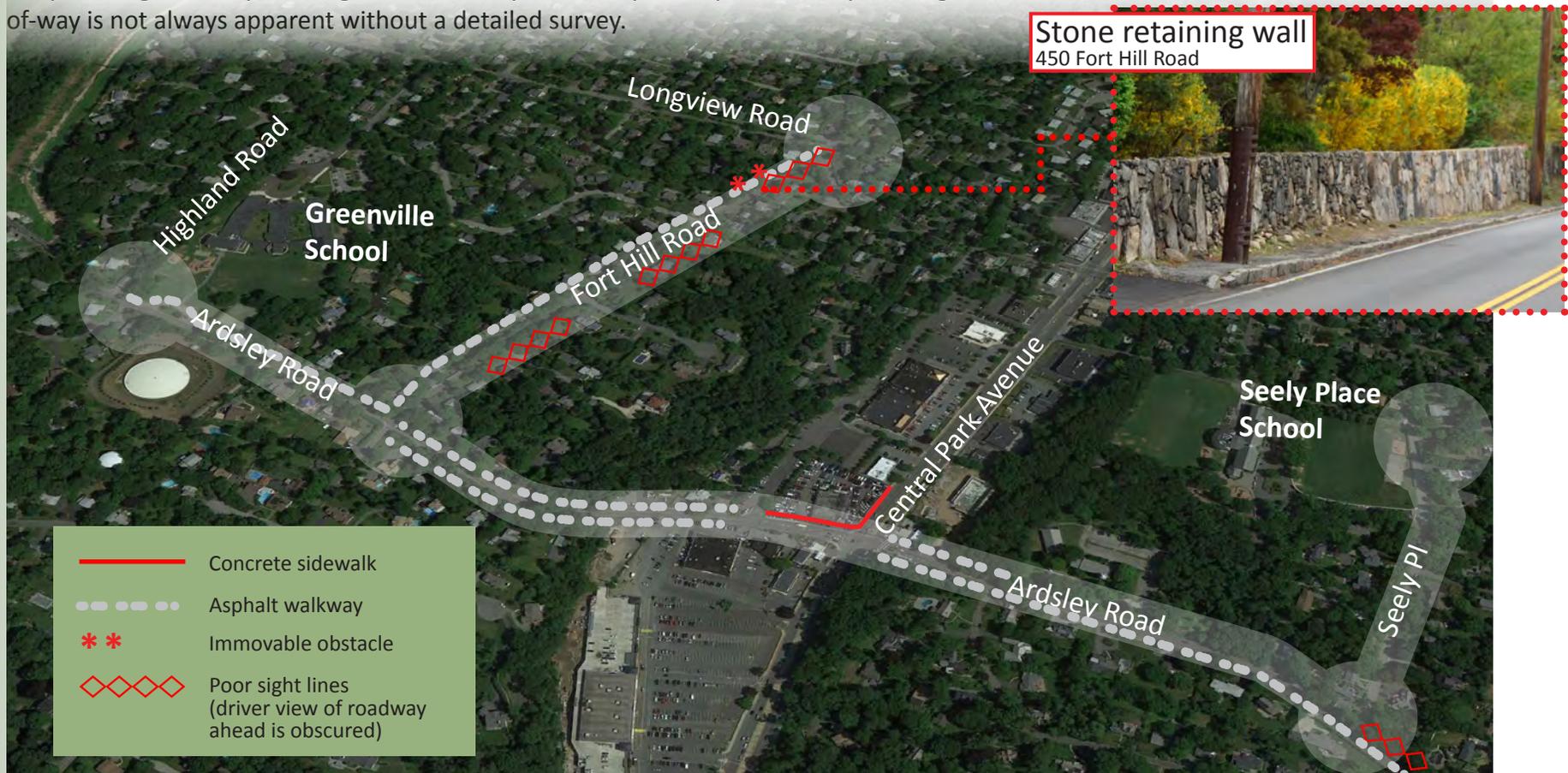
Existing Conditions

EXISTING CONDITIONS

The existing pedestrian network consists of concrete sidewalks at the intersection of Central Park Avenue and Ardsley Road, with pedestrian access ramps at intersections marked with crosswalks. The sidewalks are of adequate width, but pedestrian ramps are not compliant to current accessibility standards. There are also several paved “walkways” that continue on Ardsley Road to the east and west, and along Fort Hill Road, but they are substandard. These intermittent walkways are generally 2.5 - 4.5 feet wide with no curb cuts at intersections, and in many cases utility obstructions (poles and hydrants) and exhibit uneven and/or broken pavement. These do not constitute adequate sidewalks, but the creation and ongoing maintenance of these makeshift walkways shows that there is a need for some form of pedestrian accommodation along these corridors. It should be noted that many of the existing asphalt walkways fall within the public right-of-way, although the boundary between private parcels and public right-of-way is not always apparent without a detailed survey.



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SCHOOL ARRIVAL



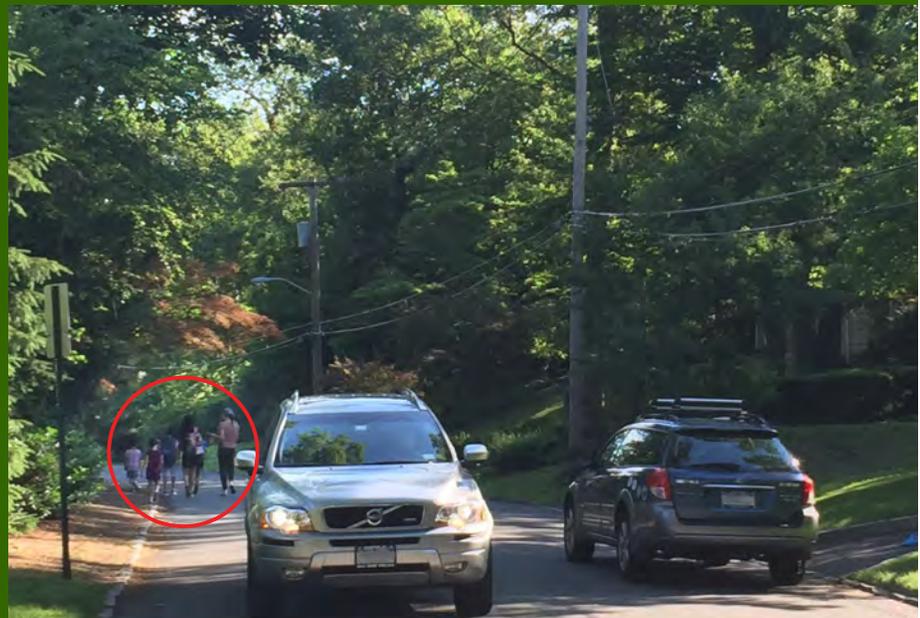
A parent pushes a toddler across Ardsley Road in front of Greenville School. Across the intersection, there is no pedestrian ramp, forcing pedestrians to remain in the street.



This pedestrian ramp, while present, does not provide sufficient landing space, and does not connect to a sidewalk.



Cars parked against hedges force pedestrians into the roadway to pass when landscaping or fencing are close to the roadway.



A group of students and parents/guardians walking to Seely Place Elementary School, with cars passing side-by-side.

Approach

APPROACH

To determine the technical feasibility of constructing sidewalks along each of the roads in the project area, a detailed site investigation was conducted. Measurements were taken for the existing walkways, as well as utilities and other obstructions. Consideration was also given to crossing locations, should sidewalks be implemented. In some cases, crossing locations may dictate where sidewalks are feasible to implement.

Additional observations were made during school arrival on June 17, 2015. The weather was sunny and in the high 60's. Crossing guards were observed at three intersections: Ardsley Road at Highland Avenue (in front of the Greenville School), Ardsley Road at Seely Place, and Old Army Road at Henry Street. Both crossing guards on Ardsley Road were briefly interviewed during and/or immediately after morning school arrivals, to gather anecdotal information about common occurrences and trends.

Both sides of each roadway were assessed for the accommodation of sidewalks. For continuous sidewalk connections proposed, our team has developed a conceptual construction cost estimate.

During the feasibility study, a survey was sent to all of the homes in the Greenville Central School District. Of approximately 2,700 surveys sent out, 607 surveys were filled out by hard copy or using the web link provided on the hard copy. The results of this survey are reported on in this report and used to forecast future trends.



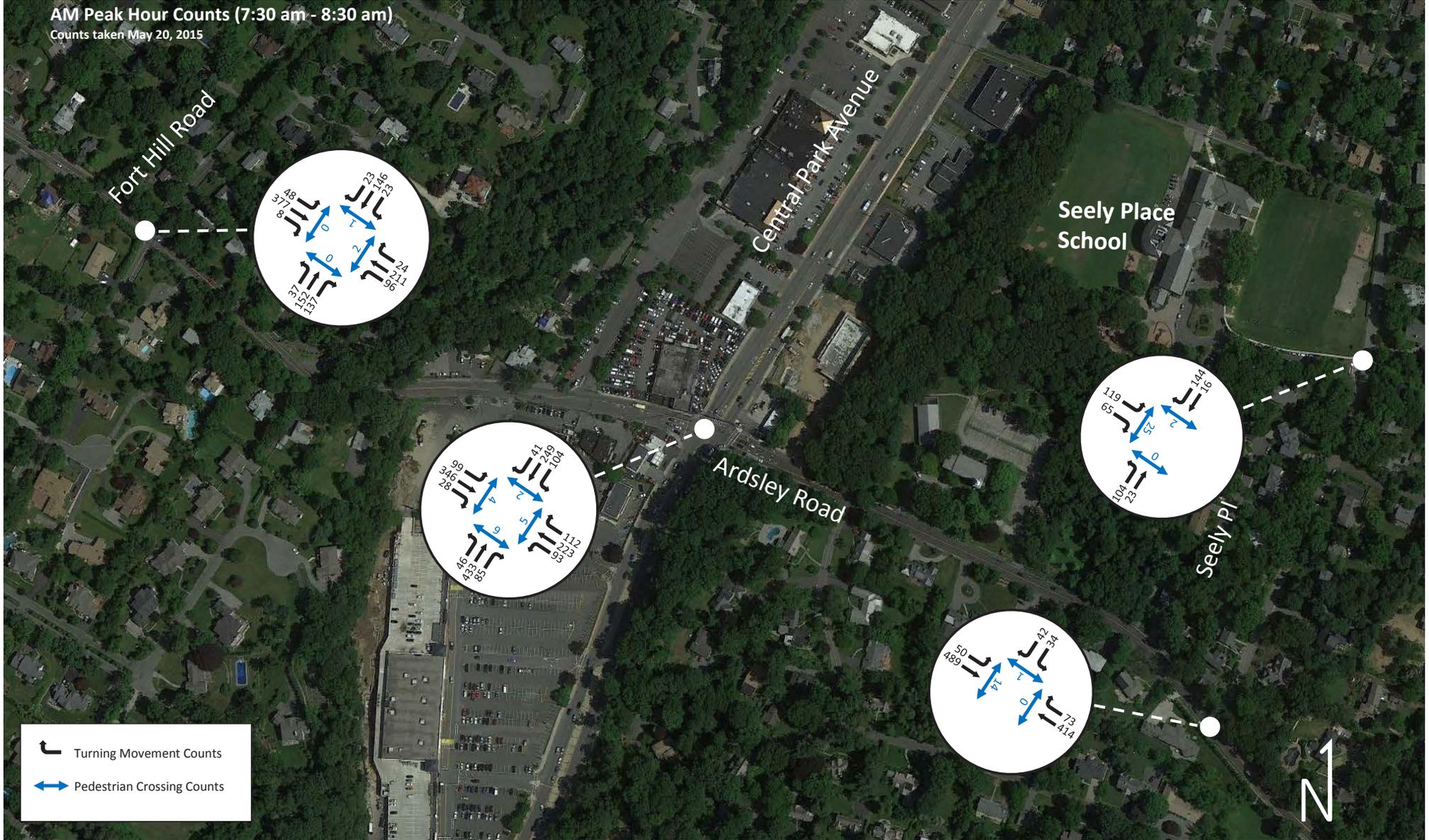
Traffic Counts

Traffic counts were taken on May 20, 2015 during the AM and PM peak hours. These counts captured vehicle volumes and movements as well as pedestrian volumes, and are used as a baseline for the future trend analysis.

The traffic counts also demonstrate that there are no turning movements with excessively high volumes, making the accommodation for pedestrians feasible from a traffic perspective. Also documented were low levels of pedestrian activity at most intersections, except for the intersection of Ardsley Road and Seely Place, as well as at the entrance to the Seely Place Elementary School.

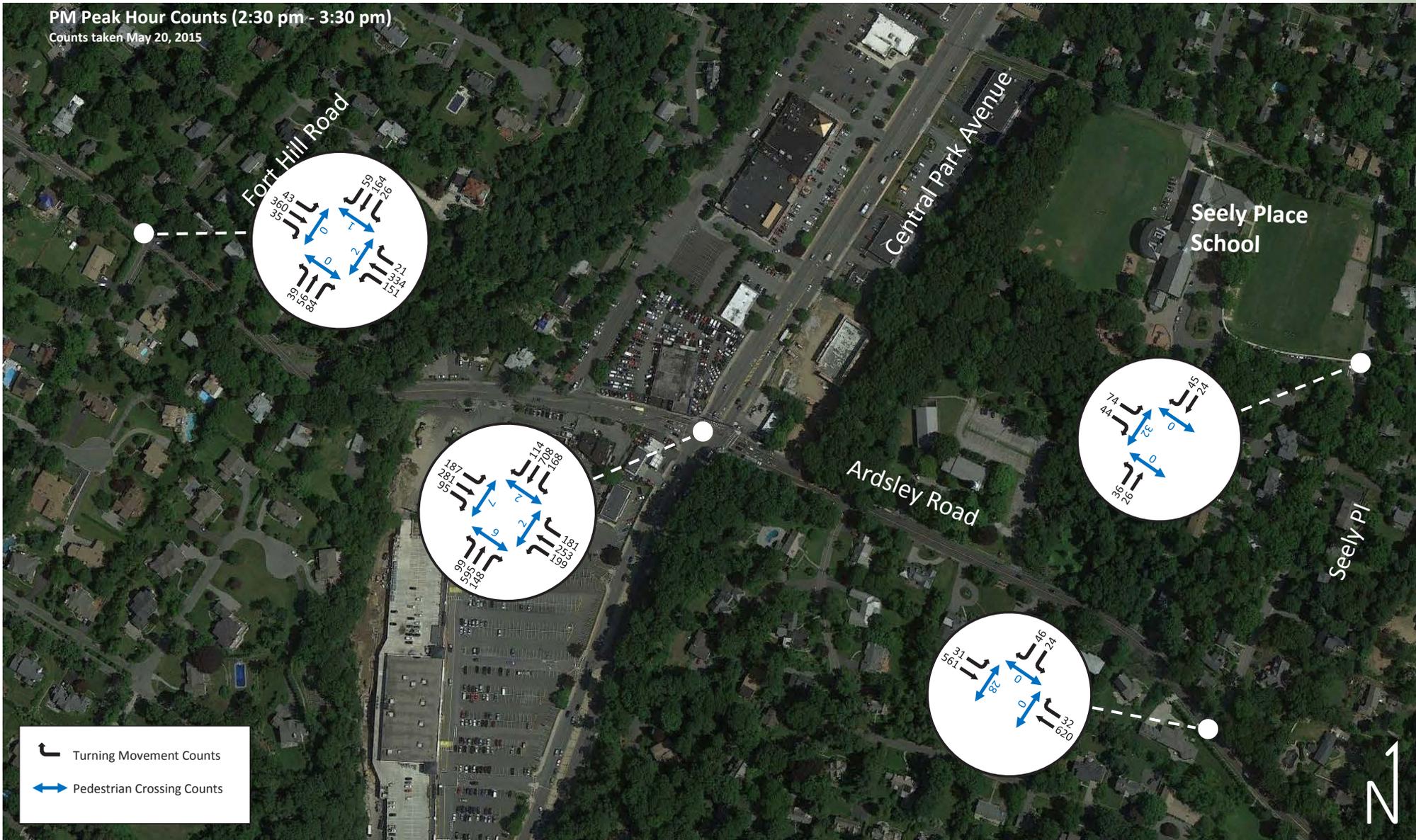
TRAFFIC COUNTS (AM)

AM Peak Hour Counts (7:30 am - 8:30 am)
 Counts taken May 20, 2015



TRAFFIC COUNTS (PM)

PM Peak Hour Counts (2:30 pm - 3:30 pm)
 Counts taken May 20, 2015



Resident Survey & Future Trend Analysis

RESIDENT SURVEY & FUTURE TREND ANALYSIS

The resident survey was circulated to each household in the school district, which included almost 2,700 addresses. The resident survey included a link to a web-based version of the survey. Of those surveys sent out, 607 responses were received through a combination of web-based (179) and hard-copy (428) responses.

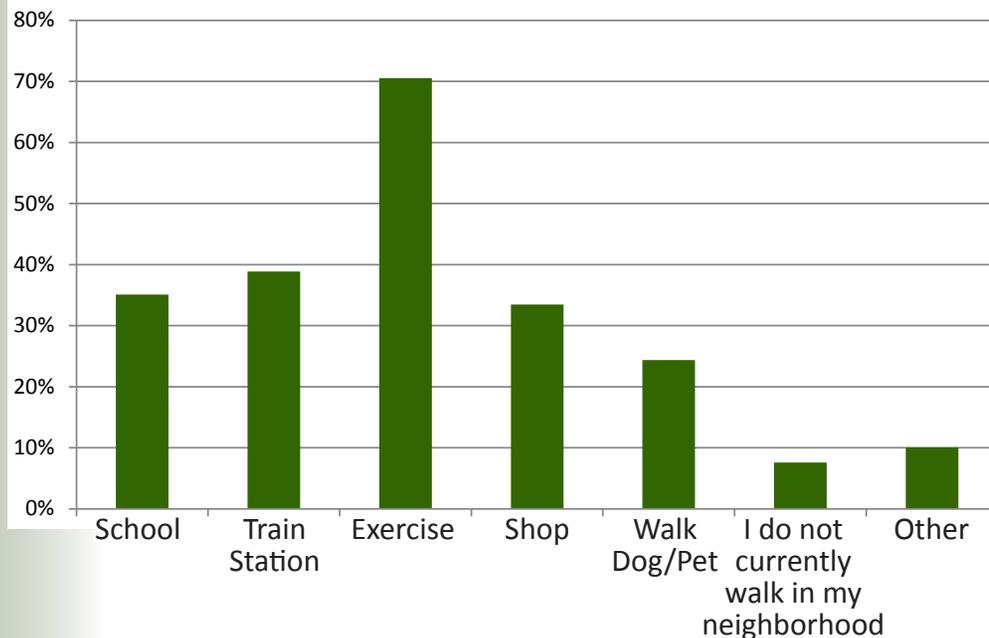
The survey results demonstrate a desire to walk a day-to-day means of getting around. In fact, many residents are already walking around town for a variety of trips. At the same time, an overwhelming majority of residents would like to walk more places within the Town. By analyzing responses to individual questions, as well as the interplay between related questions, we can see that the future trend in this community is to increase walking. However, a major factor in both current and future trends is having the infrastructure to support it.

What this means, in the context of future trends, is that although there is the desire to walk more, there are barriers stopping residents from walking in and around the Town. The makeshift walkways show that there is a demand, but a fully compliant system of sidewalks would not only provide a place for residents to walk, but could also have a traffic calming effect. Drivers, many of whom are typically neighbors of the pedestrians in a residential setting such as this, tend to slow down when they perceive presence of pedestrians is possible. Sidewalks feed that perceptions, and once they are built they tend to get used, bringing access and mobility options to all.

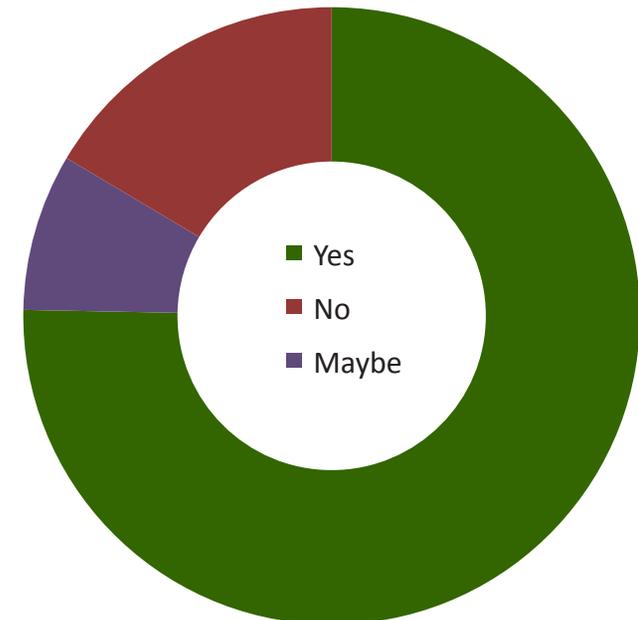
On the pages that follow, the results of the survey questions can be found, along with some cross-analysis of related questions.

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Do you currently walk in your neighborhood to:

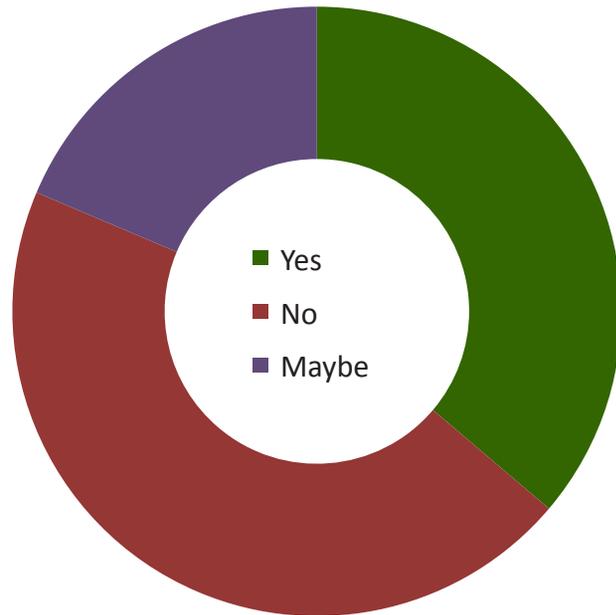


Would you like to be able to walk to more places within the Town?



Barriers to walking

Do you think the pedestrian system in Town (i.e., intersections, crosswalks, and sidewalks) are adequate?



6 out of 10 residents that said they do not think the pedestrian system is adequate also said they would like to drive less on a daily basis.

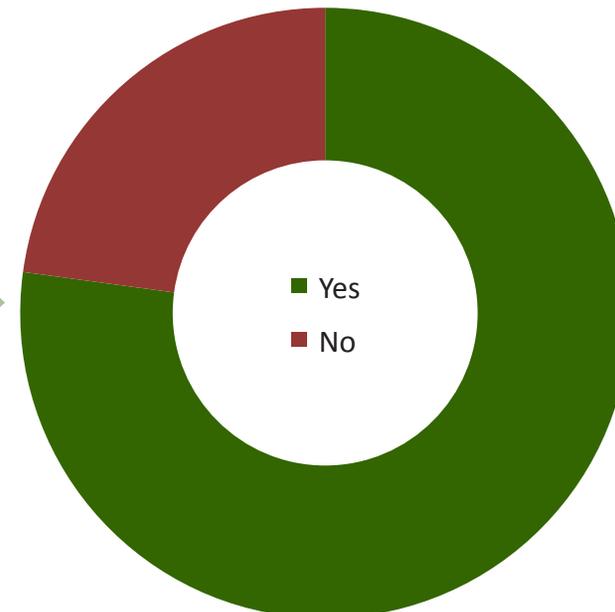
Almost 85% of residents that said they do not think the pedestrian network is adequate also said they would like to walk more places within Town, and another 6% said they would might like to walk more places. That is 9 out of 10 that would walk if they have a network of sidewalks, crosswalks and pedestrian safety features.

Having a pedestrian network that is safe, accessible and consistent is essential for it to be successfully used. Today, we see the a need fulfilled with the use of makeshift walkways and front lawns, but these are neither safe nor accessible to all.

As a community, providing sidewalks allows all residents to walk, some of which do not have other means of getting around. The aging community and people with disabilities need flat, predictable surfaces. By providing a pedestrian network, communities allow residents to age in place - stay in their home, living in their community - when mobility begins to fade.

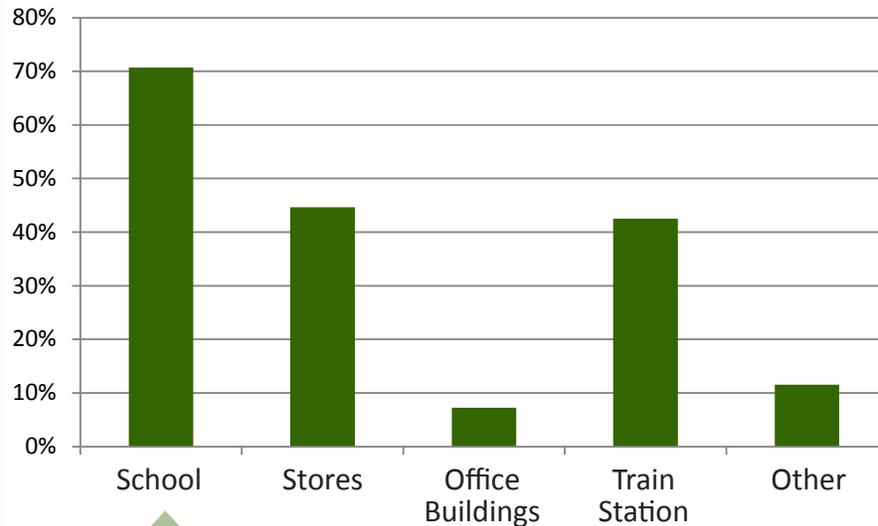
The first step to reducing the barriers to walking, which is a collective desire of the majority of the community, is to provide the accommodations for safe access to users of all types.

Would you like to drive your car less on a daily basis?



Getting to school

If sidewalks were provided, I would you use them to:



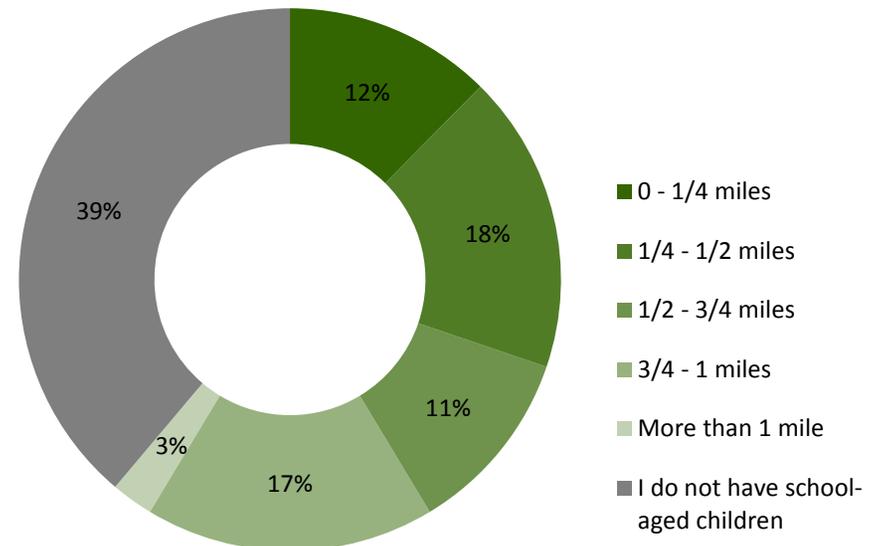
More than 7 out of 10 residents with school-aged children said they would walk to school if sidewalks were provided. Of those residents, half live within 1/2 mile of school, which is a 10 minute walk. Providing sidewalks would encourage dozens of families that live well within walking distance to walk to school, in addition to those that are currently walking to school with their children.

More than 4 out of 10 residents said they would walk to stores and the train station if sidewalks were provided, while office buildings and other locations were much less thought of as places that should be accessible by sidewalks.

Walking to school with young children as a family has many benefits; and for older children can provide a sense of independence (if conditions are deemed safe to walk on a family by family basis). The physical and mental health benefits of walking to school are well documented by the National Center for Safe Routes to School (www.saferoutesinfo.org).

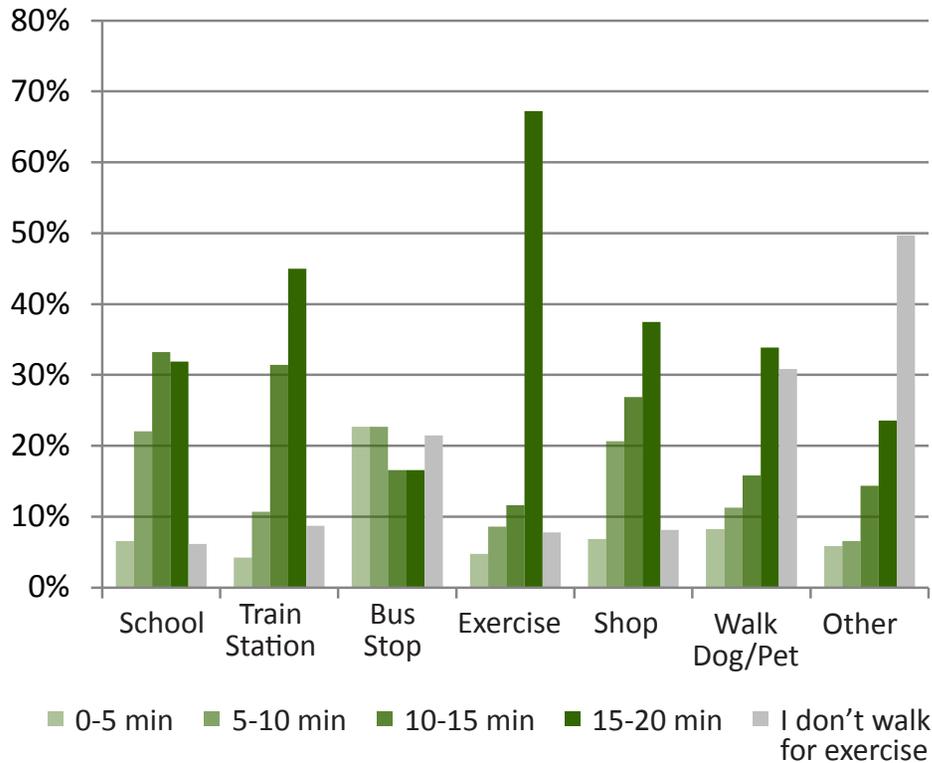
Some of the benefits include improved environmental quality, combating diabetes and other health problems, and getting physical activity; doing this before school can improve academic performance.

Distance from school (for families with school-aged children)

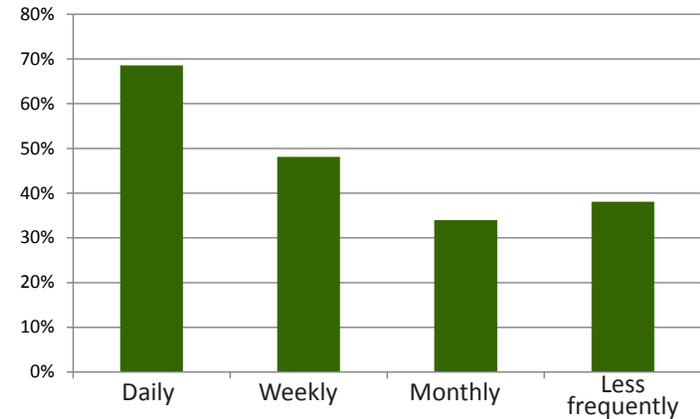


Walking for exercise

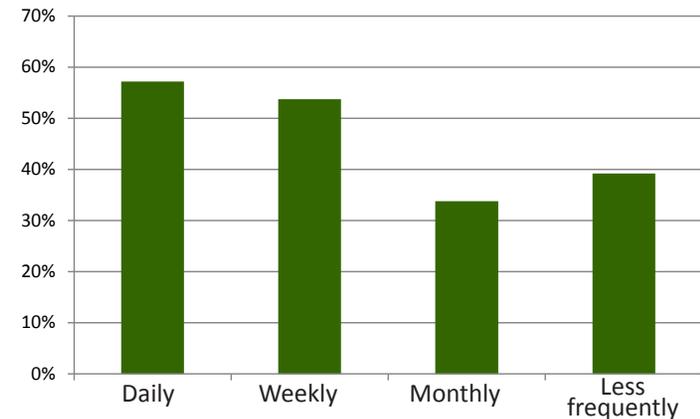
How long would you be willing to walk? To where?



How often do you or your family members walk within your neighborhood?



How often do you or your family members walk for exercise?



While some day-to-day necessities are already done on foot, residents said they are willing to walk distances of 1/2 - 3/4 mile (10-15 minutes) for many of the activities they were asked about. Residents said they were more willing to walk exercise than any other activity. In addition to the table above, many residents stated in the open ended comments that they would walk 30 minutes or more for exercise, which is approximately 1.5 miles or more. Walking such a distance is safer on sidewalks.

One of the benefits of creating a pedestrian network is that those currently walking for exercise will be safer, and those not walking for exercise may be encouraged to do so if there is a safe network of sidewalks for them to use. In the case of this project area, providing sidewalks to and between schools can offer residents a safe way to get to the school yards, where they could stay to exercise safely removed from traffic. Providing safe places to walk can have health benefits for the community.

Technical Feasibility Analysis

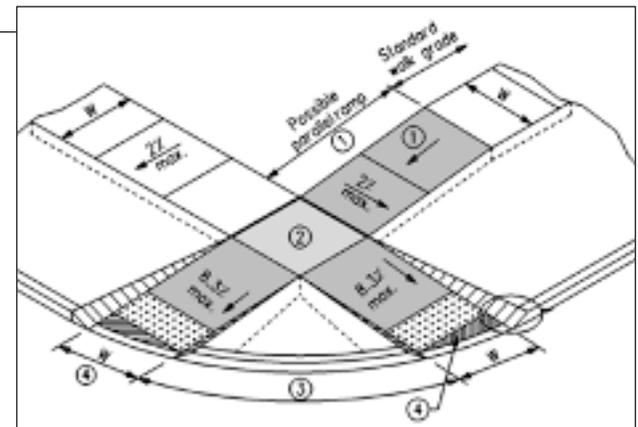
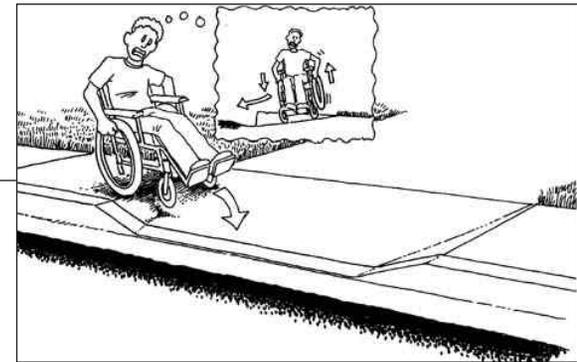
TECHNICAL FEASIBILITY ANALYSIS

Our review of a technical feasibility route included many factors that affect implementations of sidewalks, and demonstrates where is technically feasible to implement sidewalks, based on the following criteria:

- Pedestrian travel routes
- Assumed right-of-way (not based on a detailed survey)
- Vehicle sight lines
- Ability to relocate obstructions (utility poles, fire hydrants, etc)
- Drainage considerations

Public Right-of-Way Accessibility Guidelines (PROWAG), which calls for:

- 4' minimum clearance not including curb, free from obstructions and protruding objects
- Driveway aprons that maintain a level grade for pedestrians
- Pedestrian access ramps at corners, with tactile warning strips and appropriate slopes
- Firm, level surfaces with less than 1/2" vertical discontinuity
- Limited cross slope: less than 2%

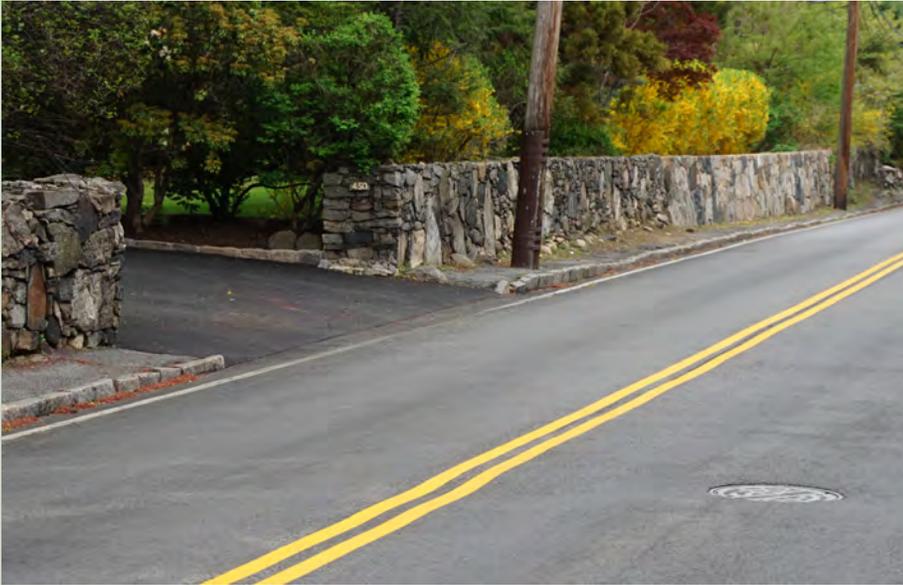


Fort Hill Road between Longview Drive and Ardsley Road



Fort Hill Road between Longview Drive and Ardsley Road

Key constraints



The stone retaining wall on west side of Fort Hill Road cannot be moved. There are also utility poles along the west edge of the road. It is used as a retaining wall, holding back several feet of earth lined with trees behind it. Across the street is a 4 foot clear area along the roadway, which could better accommodate a sidewalk.

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There is poor sight visibility for northbound drivers until approximately 150' north of Maple Ridge Court. T-Intersection of Scarsdale Farm Road (viewed looking north) provides best site lines for a pedestrian crossing. The proposed sidewalk route is shown in red. Once on the east side of the street, the sidewalk would need to clear the utility lines in the wide area along the roadway.

Fort Hill Road between Longview Drive and Scarsdale Farm Road (looking south)

PROPOSED



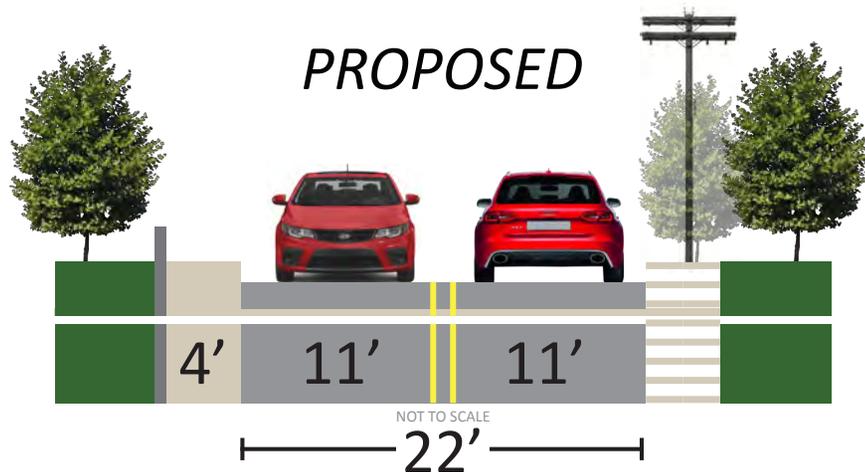
Existing Conditions:

Utility lines and trees scatter the area along the west side of the roadway between Longview Drive and Scarsdale Farm Road. On the east side of the street, there is a clear area of 4-5 feet, with occasional obstructions that are relatively minor. Obstructions include two fire hydrants, roadway signage, landscaping and driveway aprons.

Technically Feasible Solution:

Working with the lack of utility lines and trees, and the generally clear conditions, a sidewalk could be installed with the use of minor retaining walls and reconfiguration of driveway aprons. While the conditions are clear south to Maple Ridge Court, a crossing is recommended at Scarsdale Farm Road to address the limited sight distance.

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Fort Hill Road between Scarsdale Farm Road and Ardsley Road (looking south)

PROPOSED

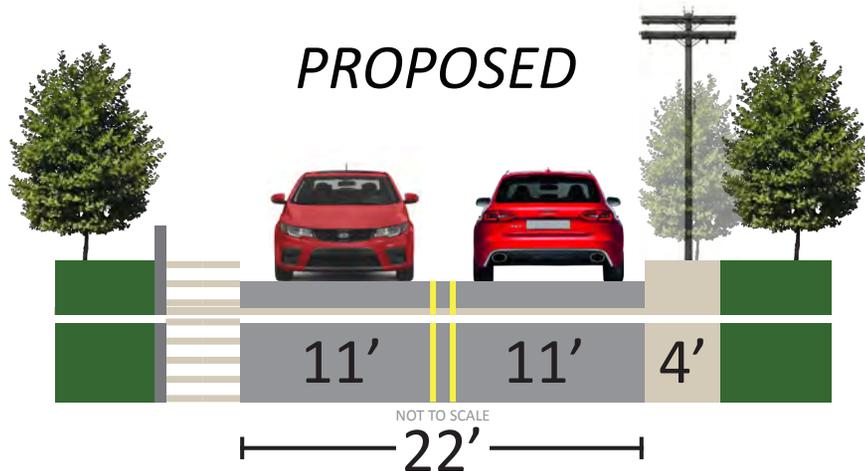


Existing Conditions:

An asphalt walkway begins on the west side of Fort Hill Road at Ardsley Road. As it continues north, it varies in width, becomes obstructed and is in poor condition. Between Maple Ridge Court and Scarsdale Farm Road, trees and utility lines are also in conflict here. In this same section of Fort Hill Road, driver visibility is also poor.

Technically Feasible Solution:

The clear area that exists for the existing walkway could be expanded, as needed, to accommodate a 4' sidewalk. Two fire hydrants that are found along the west side of Fort Hill road would need to be relocated. Between Maple Ridge Court and Scarsdale Road, installing a sidewalk requires some tree removal, and potentially the relocation of one or more utility pole.



At the south end of Fort Hill Road, the sidewalk route would continue on the south side of Ardsley Road. If implemented, a crosswalk would be provided for pedestrians to safely connect to the rest of the sidewalk network.

Fort Hill Road between Longview Drive and Ardsley Road

PROPOSED



Ardsley Road between Highland Road and Central Park Avenue



Ardsley Road from Highland Road to Central Park Avenue

Key constraints



An asphalt path exists along most of the north side of Ardsley Road. The condition varies, with some asphalt patches that make the surface uneven. There are also utility poles on both sides, which would have to be circumvented.



Approximately .2 miles west of Central Park Avenue, there is a steep driveway that meets Ardsley Road on the inside of a curve. This driveway would need to be redesigned if a sidewalk were installed on the north side of Ardsley Road. Despite the driveway, the north side of Ardsley Road is the most feasible side to implement sidewalks due to the relatively clear conditions compared to the south side of Ardsley Road, which has trees along the roadway, as well as utility poles (which are found on both sides).

Ardsley Road from Highland Road to Fort Hill Road (looking west)



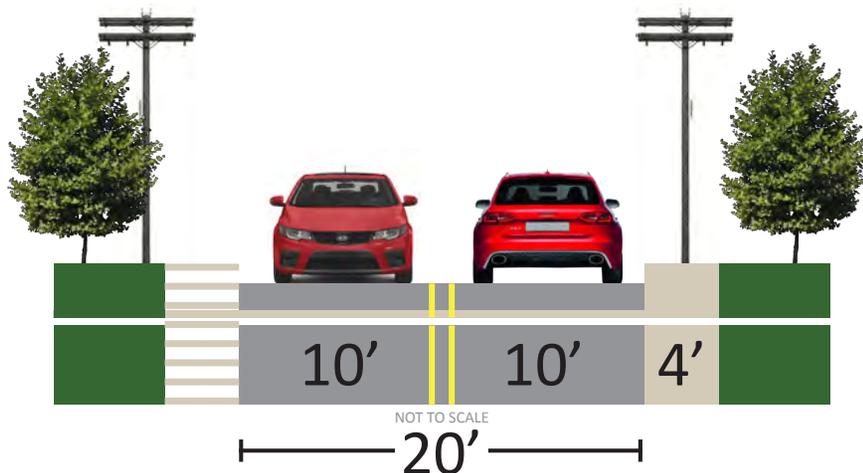
Existing Conditions:

The north side of the road has a 3 1/2 - 5 foot paved area that is generally clear and free of obstructions. There are, however, 3 fire hydrants, in addition to 3 catch basins that would be relocated/modified with the installation of new sidewalks.

Technically Feasible Solution:

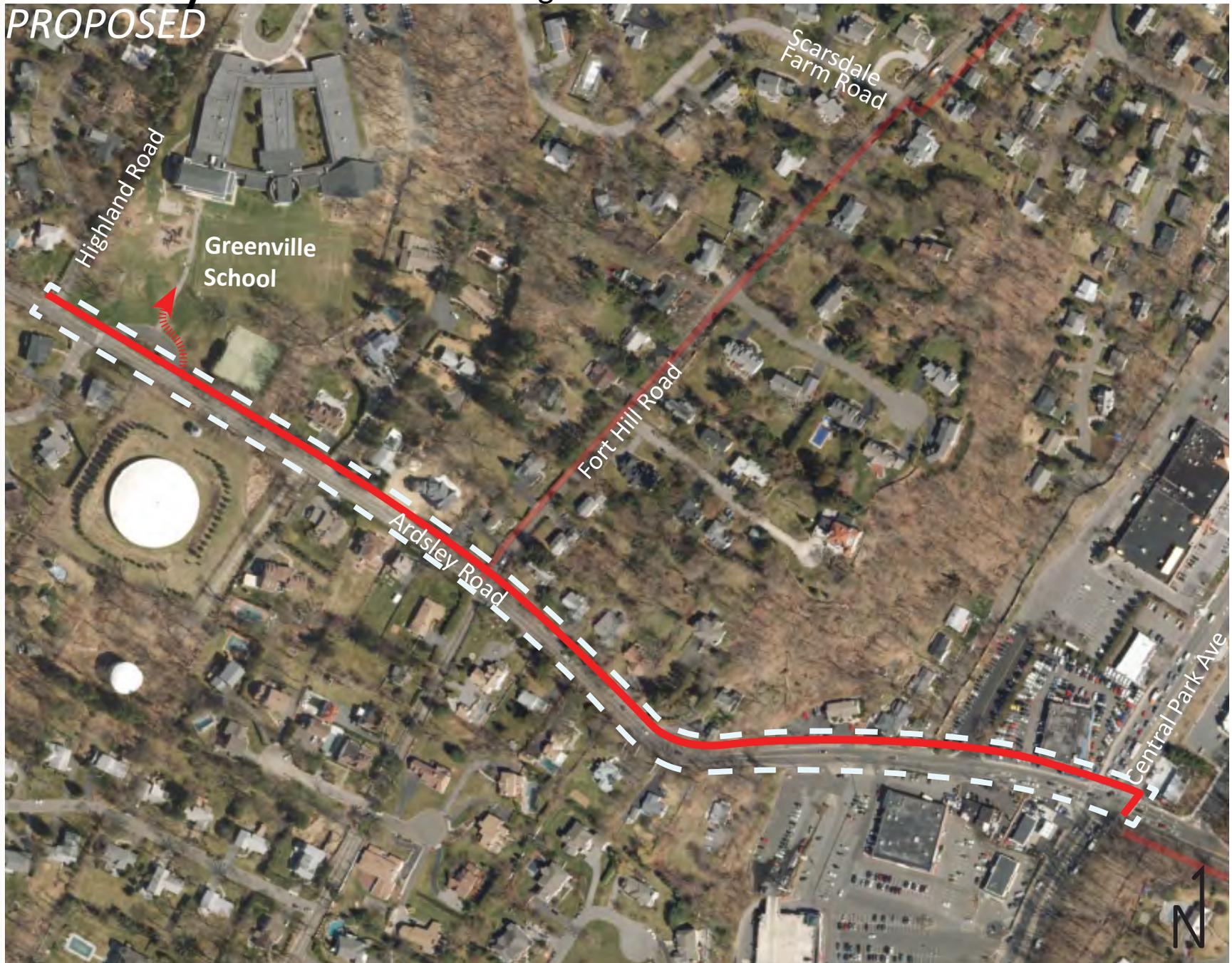
The clear area that exists on the north side that is currently used by pedestrians is the most continuous, and could be paved with a curb without a great deal of excavation. The sidewalk would occasionally have to pass around utility poles, but the fire hydrants could be relocated.

With the addition of a curb, a brief drainage analysis should be conducted to ensure that stormwater runoff is managed properly. If conditions permit, the installation of green infrastructure treatments to manage stormwater on-site should be considered as a first course of action. Because there is a stormwater system there (though the capacity is unknown), sustainable stormwater features should have an overflow threshold to allow water to enter the traditional stormwater system in peak storm conditions.



Ardsley Road between Highland Road and Central Park Avenue

PROPOSED



Ardsley Road between Central Park Avenue and Seely Place and Seely Place between Ardsley Road and Seely Place Elementary School



Ardsley Road from Central Park Avenue to Seely Place

Key constraints



The existing asphalt walkway along the south side of Ardsley Road, east of Central Park Avenue is the most suitable pedestrian surface out of all of the non-concrete sidewalks found in the project area. However, driveway aprons crossing sidewalk area create inconsistent surface for pedestrians. Rather than maintaining the pedestrian walkway at the proper cross slope, the walkway dips down at the driveway, exceeding the design criteria.

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Minor obstructions would need to be addressed during design, including the manhole cover, parking signage, utility pole strain pole, and School Speed Limit sign with flashing beacon, all shown in the photo to the left.

Ardsley Road from Central Park Avenue to Seely Place

PROPOSED



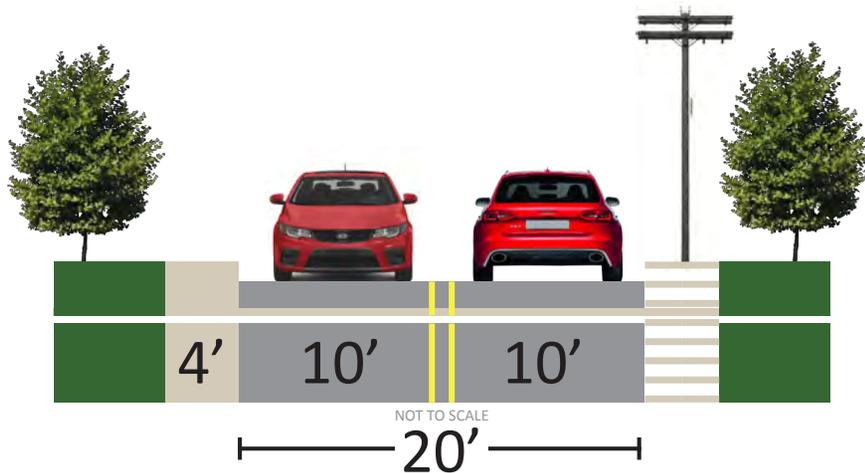
Existing Conditions:

There is an existing crosswalk along Central Park Avenue that lands on the southeast corner of Central Park Avenue and Ardsley Road. The asphalt area on the south side of Ardsley Road starts off with only 2 1/2 feet of asphalt paving, but this could be expanded. This area quickly widens to provide 4 1/2 feet from curb to cobblestone planters (shown in the photo to the left), which has some traffic and parking signs. Other moderate conflicts include a utility strain pole, a School Speed Limit signage and flashing beacon and a fire hydrant, all of which are within the existing paved walkway.

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Technically Feasible Solution:

The narrow (2 1/2') asphalt walkway at Central Park Avenue could be widened to accommodate a 4 foot sidewalk. Along the stone planters, there is sufficient space to provide a sidewalk without moving the planters. It is recommended that a local community group maintain low-maintenance plantings to serve as a gateway to the community east of Central Park Road. Uniform driveway aprons would be needed to create to maintain the level of the sidewalk.



Seely Place from Ardsley Road to Seely Place Elementary School



The crosswalk across Ardsley Road (west side of intersection), leading to the northwest corner of Seely Place (shown to the left) lands with insufficient space for pedestrians to cue. Parked cars create driver blind spots with limited sight distance, and force northbound pedestrians into the oncoming moving lane as they walk towards Seely Place Elementary School.

There is also limited sight distance for drivers on Ardsley Road approaching Seely Place in the westbound direction, making the existing location of the crosswalk safer, as it is further from the limited sight distance.

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Despite school pedestrian signage in the roadway, and the driver speed feedback sign, vehicles were observed consistently exceeding the speed limit during site visits. The intersection of Seely Place and Ardsley Road, (shown to the left) is a major school crossing, with families approaching from the east and west along the south side of Ardsley Road.

Seely Place from Ardsley Road to Seely Place Elementary School (looking east)

PROPOSED

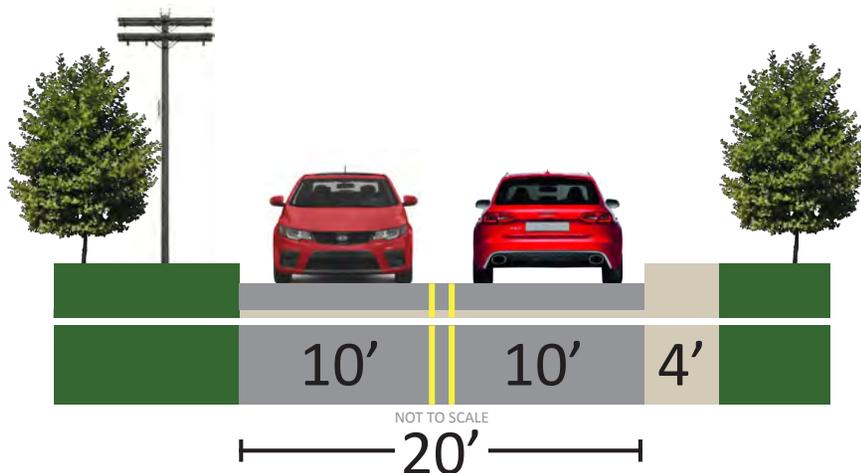


Existing Conditions:

The existing crosswalk aligns with west side of Seely Place. Traffic volumes along Ardsley Road are relatively high during peak hours. Pedestrians walk properly against traffic (northbound) on Seely Place towards the school, but leaving the school, pedestrians walk with their backs to traffic in the road. Landscaping and stonework intrudes intermittently onto the flat grass area along west side of the street, is not continuous or adequate for all users.

Technically Feasible Solution:

A sidewalk, if installed, would likely be placed on the west side of Seely Place to accommodate the crossing of Ardsley Place, and would require the alteration of some encroaching stonework and/or landscaping within the Town right-of-way. A roadway boundary survey is required to determine the exact location of the Town right-of-way.



The northwest corner of Seely Place and Ardsley Road should be reconstructed to extend as far east as possible while allowing vehicles to turn east onto Ardsley Road, to allow for a pedestrian waiting area. The investment into expanding this corner would be warranted considering the high traffic volumes and proximity to an elementary school, to which families currently walk.

Ardsley Road between Central Park Avenue and Seely Place and Seely Place between Ardsley Road and Seely Place Elementary School

PROPOSED



Feasible Sidewalk Route

PROPOSED

The route below was found to be feasible for implementation, based on the criteria outlined in this report. This route connects many of the residential areas to local retail, two schools, bus stops and forms part of the connection to the local commuter rail station, with minimal crossings. The cost of implementing this route can be found in the next section. Should the Town decide to proceed with implementation of these sidewalks, the next step would be to secure a detailed engineering survey to better understand the right-of-way boundaries that delineate public from private property.



Order of Magnitude Cost Estimates

Order of Magnitude Cost Analysis

The summary of Conceptual Costs below represents the estimated cost, based on conceptual level planning, of implementing sidewalks on each of the sections of road indicated. These costs include the following (where applicable):

- New curb, sidewalk, handicap ramps, driveway aprons, signs; lawn and pavement restoration; mailbox relocation.
- Modifications to existing catch basins and replacement of pavement markings, as necessary.
- Work zone traffic control, clearing and grubbing, mobilization (approx. 4%) and contingency (approx. 20%).

The unit costs used for these estimates are generally based on average weighted bid prices from similar NYSDOT contracts. For the purposes of these cost estimates, it is also assumed that this work shall be publically bid as one (1) contract per location.

Fort Hill Road between Ardsley Road and Longview Road	2,000 Linear Feet	\$387,200
Ardsley Road between Highland Road and Central Park Avenue	2,500 Linear Feet	\$318,800
Ardsley Road between Central Park Avenue and Seely Place	1,300 Linear Feet	\$198,100
Seely Place between Ardsley Road and Seely Place Elementary School	950 Linear Feet	\$258,260

Potential Funding Sources

Potential Funding Sources

Should the Town decide to move forward implementing any of the sidewalks under consideration, the programs below should be considered as potential funding sources:

- Transportation Alternatives Program: Federal program administered by NYSDOT.
- Safe Routes to School Program: State program offering technical assistance for communities that are developing and implementing projects and programs; some grant funding available.
- Multi-modal Program: State program; requires projects to be nominated by a Legislative Member or the Governor.
- Consolidated Local Street and Highway Improvement Program (CHIPS): State program administered by NYS Office of State Comptroller.