

Signing Routes to School: A Process Evaluation



Acknowledgements

The School Signage pilot project was planned and implemented by members of the Waterloo Region Active and Safe Routes to School (ASRTS) Committee. The process evaluation documented in this report was led by two Public Health Planners with the Region of Waterloo.

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Executive Summary

In 2014, a number of public agencies in the Region of Waterloo embarked on a pilot project aimed at encouraging more children to walk or cycle to school. With funding from the City of Waterloo, the Active and Safe Routes to School (ASRTS) Committee erected wayfinding signs and sidewalk markings at eight elementary schools in the City of Waterloo. Signs were placed approximately 400m away from schools, indicating a five-minute walk or a two-minute bike ride from that point. Sidewalk markings contained fun activities such as hopscotch and suggestions to run, hop, or skip.

The ASRTS Committee is comprised of representatives from Region of Waterloo Public Health, Waterloo Region District School Board, Waterloo Catholic District School Board, Student Transportation Services of Waterloo Region, City of Cambridge, City of Kitchener, City of Waterloo, Region of Waterloo, and the Ontario Ministry of Transportation. Its mandate is to plan, support, and encourage school travel planning program and policy initiatives for schools and school children in Waterloo Region. The Committee envisions a community where getting to and from school by active transportation is the preferred means, resulting in an increased level of physical activity.

This report identifies facilitators and barriers to the implementation of the project, reports on the perceptions of students and administrators at the eight pilot schools one year after implementation, and makes recommendations for future organizations interested in implementing similar initiatives.

To obtain this information and form recommendations, we reviewed the minutes of ASRTS Committee meetings and held focus groups with its members, surveyed one classroom of students in each of the eight pilot schools, interviewed principals or other officials from each school, and conducted a visual assessment of the state of the signs and sidewalk markings after one year of wear and tear.

The evaluation identified the following facilitators and barriers to implementing the school signage project:

Facilitators

- Selecting schools with a demonstrated interest or record in promoting active transportation
- Mapping school population to identify best routes
- Involving people familiar with the neighbourhood in identifying best routes
- Communication with residents with properties adjacent to sidewalk markings
- Having a knowledgeable official accompany sidewalk painters

Barriers

- Unclear expectations for participating schools

- Unclear survey questions
- Time required for erecting new sign posts
- Lack of a promotion plan
- Limited availability of teachers and principals

The following themes emerged from students and principals when asked about their perceptions of the project:

- Students had fun interacting with the sidewalk activities.
- Students understood that the project was about making them healthier.
- Students felt the project was most useful for younger (kindergarten-grade 3) students.
- Students and principals emphasized the usefulness of identifying the distance to school from the posted signs.
- Students wanted to see the project expanded to other routes to their schools.
- Students and principals identified several barriers that prevent students from walking or biking to school.
- Some inaccuracies or issues with signs and sidewalk markings were identified.
- There were many creative ideas for enhancing the sidewalk markings and signs.
- Several suggestions for how to support and promote the project better emerged from principals and some students.

The following recommendations are made based on what was learned from the implementation of the school signage project in Waterloo:

1. Expand the project to more schools, and continue to support it in existing schools.
2. Develop promotional materials and programming to help schools promote it to students and parents.
3. Consider integrating school signage initiatives with other initiatives designed to encourage alternative transportation to school (e.g. Walking School Buses, Walk to School Days).
4. When selecting schools for expansion, prioritize early adopters and schools with a lower percentage of bussed students.
5. Reach out to School Councils before implementing the project in their schools.
6. Set clear expectations for schools who want to participate in project.
7. Recruit someone from each school to help identify most-walked routes to school.
8. Consider marking more than three routes to each school.
9. Budget and plan for reviewing and refreshing sidewalk paint annually, if needed.
10. Try to focus on sidewalks/pathways made of concrete rather than asphalt.
11. Plan an impact evaluation of the intervention.

How we did this Evaluation (Methodology)

This report describes a process evaluation of the school signage pilot project. It documents the process used by the ASRTS Committee to implement the project, and reports on the experiences and perceptions of people involved in it – including ASRTS Committee members, as well as students and administrators at the pilot schools. Though some questions about the impact of the intervention were asked of students and administrators, we do not have enough data to make reliable assessments of the project's effect on changes to how students get to school.

The process evaluation addressed the following evaluation questions:

1. What were the facilitators and barriers to implementing the project?
2. What were the students' and principals' perceptions of the intervention?
3. What lessons can we learn from the implementation of the school signage pilot project?

To address these questions, the evaluation included these methods:

1. A review of minutes of meetings of the ASRTS Committee (addressing Question #1)
2. Focus group interviews with members of the ASRTS Committee (addressing Question #1)
3. A visual assessment of the state of the physical state of the signs and markings (addressing Question #1)
4. Oral classroom surveys with one junior (grades 4-6) class in each of the eight pilot schools (addressing Question #2)
5. Interviews with the principal of each pilot school (addressing Question #2)

The review of minutes of ASRTS Committee meetings enabled the report authors to compile a timeline of the project's implementation. Focus group interviews with ASRTS Committee members in March 2015 gave the researchers further context, information and a means to assess successes and challenges in project implementation. Appendix A contains a list of focus group questions and the evaluation consent letter distributed to committee members.

A Public Health Planner from Region of Waterloo Public Health visited one classroom in each pilot school to conduct classroom surveys in March and April 2015. These surveys asked students a number of quantitative questions about the mode of transportation students took to school, whether they noticed the signs and sidewalk markings, and whether they remembered school officials talking to them about the project. Students were also asked for their comments on the project and their suggestions for improving

it. The list of classroom survey questions are in Appendix B, along with the evaluation consent letter provided to school principals and teachers.

Interviews were conducted with principals at seven of the eight pilot schools. In the eighth school, a teacher who was very involved in the school's active transportation activities participated on behalf of the principal. Interview questions focused on how much the school promoted the signage pilot to students and parents, their assessment of the project, and suggestions for improving the intervention. A full list of questions is in Appendix C.

Classroom and principal interviews were recorded and transcribed. Quantitative questions were input into a spreadsheet to add up and average responses. Comments were grouped into themes using coloured highlights in a word processor.

Finally, members of the ASRTS Committee visited each of the eight pilot schools in May 2015 to assess the state of the sidewalk markings and wayfinding signs after one year of wear and tear. Committee members used a form asking them to list the location of each sign and sidewalk marking and to comment on the condition of each.

Evaluation Question #1 – Facilitators and Barriers to Project Implementation

The following chronology was put together using information from the review of ASRTS Committee minutes and the focus group interviews with ASRTS Committee members. It identifies several responses to the first evaluation question – facilitators and barriers to the implementation of the project.

Project Chronology

Origins

The idea of a project to explore creative ways to encourage more students to walk or cycle to school emerged from two meetings in 2013 organized by Region of Waterloo Public Health. The meetings, held in February and October 2013, brought together key stakeholders to discuss School Travel Planning. Stakeholders involved included the Cities of Cambridge, Kitchener, and Waterloo, both the public and Catholic school boards in Waterloo Region, Region of Waterloo Public Health, and Student Transportation Services of Waterloo Region. The meetings established key commitments from the stakeholders to work together to encourage active transportation.

Following the October meeting, the City of Waterloo provided funds from its road safety initiatives budget for a pilot project to address key barriers to walking or biking to school. At meetings in December 2013 and January 2014, the ASRTS Committee discussed the idea of erecting signs at the five-minute mark from school. The signs would draw parents' attention to how little time it would take to walk or bike from that location and

act as possible drop-off locations for students to travel the rest of the way to school. They also discussed painting designs on the sidewalks between the signs and the schools to make walking to school more fun for students.

Site Selection

Further discussions about the implementation of the pilot ensued in the early months of 2014. The first task was to select a small number of schools to pilot the project. Schools from both WCDSB and WRDSB were paired within neighbourhoods so that some signs and sidewalk paintings could be used by students from the two school boards. The Committee approached schools that had already expressed some interest in promoting active transportation, both as a way to reward them for their past work and as a way to improve the chances of the intervention having positive results. Invitations were sent to the selected schools, and all eight invited schools agreed to participate.

<p>Facilitator: Select schools with a demonstrated interest or involvement in promoting active transportation</p>
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The following eight schools participated in the pilot:

Waterloo Region District School Board

Empire
Lester B. Pearson
Millen Woods
Westvale

Waterloo Catholic District School Board

Our Lady of Lourdes
St Matthew
St Luke
Holy Rosary

Evaluation Plan

The ASRTS Committee made a plan to evaluate the impact of the pilot project by doing pre- and post-intervention classroom surveys of modes of transportation to school. Each school was asked to conduct “hands-up” surveys of students in as many classrooms as possible. However, due to delays in the project’s implementation (which meant most post-intervention surveys couldn’t happen in the same school year), low participation in the surveys, and confusion in teachers’ interpretation of the questions, the data from these surveys was not reliable enough to be used. As a result, the Committee asked Public Health to conduct classroom surveys in Spring 2015, as described in the Methodology section above.

<p>Barrier: Unclear expectations for participating schools Barrier: Unclear survey questions</p>
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Identifying Sign and Sidewalk Marking Locations

Based on research indicating the walking pace of 1.22 metres per second calculation¹ for younger pedestrians, the ASRTS Committee decided to place wayfinding signs approximately 400m from schools, which is approximately a five-minute walk or a two-minute bike ride for elementary school-aged children. Planners with the school boards produced school population maps indicating where students lived in relation to the eight pilot schools. These maps helped identify walking routes that could be used by a greater number of students. The limited budget allowed for the installation of signs and sidewalk markings on an average of three routes per school.

Facilitator: Map school population to identify best routes

The committee arranged “walkabouts” to scope out the possible routes, and tried, with varying success, to involve people from the participating schools to accompany them. Walkabouts involving school parents or teachers added new information about the most-walked or most appropriate routes, and helped determine possible sign locations. Signs were installed on existing poles to save money and avoid spending time and resources locating underground utilities. However, in some cases, new posts were required, delaying implementation of the project. City of Waterloo Transportation staff subsequently installed all wayfinding signs.

Facilitator: Involve people familiar with neighbourhood in identifying best routes

Sign Designs

A teacher on the ASRTS Committee agreed to focus test possible sign designs with students from her school, which resulted in helpful input selecting images, such as the style of bike and the age of students portrayed. Figure 1 shows the final design used for the signs, which were 24” by 12”.

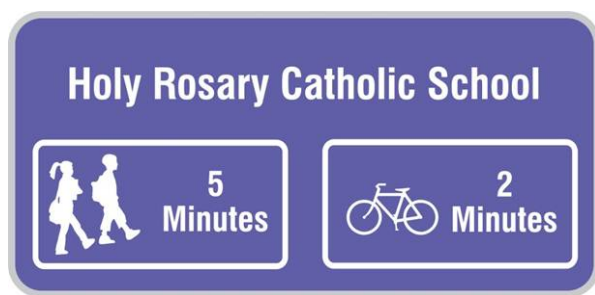


Figure 1: Final sign design used in pilot schools

¹ Knoblauch, R. L., Pietrucha, M. T., & Nitzburg, M. (1996). Field studies of pedestrian walking speed and start-up time. *Transportation Research Record: Journal of the Transportation Research Board*, 1538(1), 27-38. [\[link to article online\]](#)

Sidewalk Paint Choice and Marking Designs

The City of Waterloo hired a contractor to paint the games onto the identified walking routes. The painter had experience in painting similar activities on school play-yards. He designed his own original stencils for the sidewalk markings, including ones that invite students to run, walk, hop or skip by following footsteps, or to play hopscotch (see Figure 2 for an example of the installation). The painter also researched paints for concrete sidewalks versus asphalt surfaces, as this was his first attempt at painting on concrete. It was unclear how different types of paint would stand up over time and changing seasons, so the committee agreed to evaluate the state of the paint one year after installation.



Figure 2: Hopscotch sidewalk marking stencil

Engaging Nearby Residents

Before any signs or sidewalk markings were installed, City of Waterloo staff hand-delivered letters to residents with homes adjacent to the proposed signs and sidewalk markings, informing them of the project. A few residents objected, and these locations were avoided.

Facilitator: Communication with residents with properties adjacent to sidewalk markings

Facilitator: Having a knowledgeable official accompany sidewalk painters

Due to an encounter the painter and his assistant had with one resident while painting the sidewalks (the resident complained loudly about painting on her sidewalk), the committee decided to have one committee member accompany the painter for all subsequent painting sessions. The committee member's role was to interact with residents who had questions about the project. No further resistance was encountered.

Implementation Delays

The project experienced several delays and the signs and sidewalk markings were not installed until June 2014. The late arrival of spring in 2014 made it difficult to get an early start on sidewalk painting. The ASRTS Committee decided to have the painting done during the school day, which limited the actual painting time each day. Also, the installation of the signs took longer than expected because of the requirement to locate and avoid existing underground pipes and wires before installing new posts. This made the possibility of conducting pre- and post- intervention classroom surveys in the same school year, as originally planned, impossible.

Barrier: Time required for erecting new sign posts

Project Promotion

Some schools did some promotion of the project through their school newsletters and emails to parents, while some did not promote the project. The City of Waterloo did some promotion of the project through its Facebook and Twitter accounts in late August, before the new school year began, but little more promotion was done by the school boards or Public Health.

The Committee tried to organize an official public launch of the signage project to coincide with International Walk to School Day on October 8, 2014, but there was little participation from pilot schools. One pilot school (where one of the ASRTS Committee members teaches) had a big event on that day, involving a full school assembly and the Mayor of Waterloo and a Kitchener Rangers hockey player walking to school with students. Although a media release was prepared and sent to local media outlets, there was no take-up in media coverage.

Barrier: Lack of promotion plan

Barrier: Unclear expectations for participating schools

Barrier: Limited availability of teachers and principals

Signs and Sidewalk Markings Assessment

In May 2015, members of the ASRTS Committee visited all installed signs and sidewalk markings at the eight pilot schools to assess their status after one year of wear and tear. Table 1 shows the results of their assessments.

Table 1: Sign and Sidewalk Markings Physical Assessment

	Totals	Percentage of Total Surfaces (of type of surface)
Total walking routes included	25	
Signs		
Total signs installed	24	
Signs in wrong location	1	
Signs in need of repair/replacement	0	
Sidewalk Markings		
Total markings installed	166	
Average # markings per route	6.6	
Total markings installed on concrete	131	
Markings in overall good condition	105	63% (80%)
Markings with mild wear/fading	20	12% (15%)
Markings with moderate-high wear/fading	6	4% (5%)
Markings needing to be repaired	6*	4%* (5%)
Total markings installed on asphalt	35	
Markings in overall good condition	13	8% (37%)
Markings with mild wear/fading	14	8% (40%)
Markings with moderate-high wear/fading	8	5% (23%)
Markings needing to be repaired	3*	2%* (9%)

*These figures are included in others (e.g. markings in need of repair also had moderate-high wear). Therefore the totals do not add up to 166 or to 100%.

The great majority (71 per cent) of sidewalk markings were in overall good repair after one year. Approximately 20 per cent had mild wear or fading, and about nine per cent had moderate-high wear or fading. About six per cent of the markings were in need of repair after a year. Reasons for repair included graffiti, high wear, sidewalk replacement that had removed a portion of the painted activity, and errors in the original marking.

The paint on concrete sidewalks seemed to wear better than on asphalt sidewalks. Eighty per cent of sidewalk markings on concrete sidewalks were in good condition after one year, versus only 37 per cent of markings on asphalt. Sixty-three per cent of markings on asphalt showed mild-moderate wear or fading, compared to only 20 per cent of markings on concrete. It was noted by committee members during their assessments that newer concrete sidewalks appeared to support better wear of sidewalk markings although an assessment of overall sidewalk age or quality was not routinely recorded.

Evaluation Question #2: Student and Principal Perceptions of the Project

The students who participated in the classroom surveys were eager to share their thoughts about the signage pilot. The principals also gave extensive feedback on the project. All of their comments can be grouped into the following themes:

Students had fun interacting with the sidewalk activities.

Asked if the school signage project was a good idea, almost every student who offered a comment was positive about the project. Dozens of students commented on how fun it was to play the activities suggested on the sidewalks. The mostly grade five and six students observed younger children and students enjoying the sidewalk activities (see below). But most weren't afraid to admit that they enjoyed them too.



Figure 3: Grade 6 students

Student comments included:

- “It makes you want to walk because it’s fun.”
- “I have fun with my mom walking along the sidewalk to school now.”
- “This is a great idea. I have fun skipping and running.”
- “This project is good because it’s fun to play on the walk: it makes the walk seem shorter.”

Students felt the project was most useful for younger (primary level) students.

Many of the students surveyed (most of whom were in grade 5 or 6) viewed the project as more appropriate for younger students, and of less interest for students in grades four and higher. While some said the activities were not used by students their age, many talked about examples of younger siblings enjoying the sidewalk markings:

- “My little brother likes it: it helps him with his numbers and letters.”

- “My niece moved from her stroller to walking because she liked the sidewalk markings.”

One student commented that the spacing between the steps on the sidewalk markings better matched the pace of younger students.

Students understood that the project was aimed at making them healthier.

Asked whether they thought the project was a good idea, many students talked about its positive effects on health. “This is a good idea because it makes you healthier and active,” said one student. Other student comments included that the project “encourages children and parents to walk more” and that it make us “more active and healthy on the way to school.”

Students and principals emphasized the usefulness of identifying the distance to school from the posted signs.

Several students and a couple of principals talked about how useful it was to see signs that indicated how long it would take to walk or bike to school. One student claimed to have walked more this year because “the signs remind me that it’s really not that far.” Another said the signs “help you judge how long it would take to get to school.” Another said the signs “encourage parents to drop off kids because it is only a five-minute walk.” One of the principals praised the signs for helping parents understand how close the schools really are.

Students want to see the project expanded to other routes to their schools.

Many of the students expressed a desire to see the signs and sidewalk markings on more routes to their school. In fact, there were dozens of student comments asking for coverage on more streets leading to their school. “I bike to school and I never see any signs from my house to the school,” said one student. “I wish there were signs on my paths to school,” said another. Another student wanted to see paint on more paths, and on both sides of the road.

Students and principals identified several barriers that prevent students from walking or biking to school.

Many students and principals identified safety as a reason parents don’t allow their children to walk or bike to school. Several safety concerns were identified: busy streets which are too dangerous for young children to cross alone; a lack of crossing guards to help children cross busy streets; absence of sidewalks; and fear of strangers or bullies. Another barrier mentioned by several students and principals was late school start times. Many parents leave for work prior to the beginning of the school day so they don’t have time to walk their children to school before work. Other parents enroll their children in before-school childcare, and they feel uncomfortable allowing them to walk or bike at times as early as 7 or 7:30 a.m. Other barriers mentioned included hectic schedules

which lead parents to want to get children to school quickly via their car; bad weather conditions; and parental tendencies give in to children's requests to be driven.

Some inaccuracies or issues with the signs and sidewalk markings were identified.

Some students commented on the travel time listed on the signs and claimed they were inaccurate because they could walk the distance in less than five minutes. One mistake in a sidewalk marking was identified: a number was painted upside down. A couple of students noted that the footsteps on the sidewalks were too small and close together for their body size (and one student said the footsteps were too far apart). Others mentioned areas where the sidewalks were uneven or where the paint was wearing off.

There were many creative ideas for enhancing the sidewalk markings and signs.

Students were full of ideas of how to change the sidewalk markings and signs to make them more fun and encourage more students to walk or bike to school. Students suggested that the signs add images of scooters to reflect other active modes of transportation, and also suggested adding how long it would take to travel the distance by car, to give people a comparison. Another student suggested making the signs bigger so that students could see them better.

Several suggestions emerged around adding more activities and challenges to make the walk more fun. Suggestions included adding challenges like "how fast can you run to school from here?" and "how many signs have you seen on your walk?" Others wanted to see trivia questions on signs, jokes, music, or reminders to bring your homework. A few students suggested using different coloured paint to make the designs more interesting.

Several students pointed out that the sidewalk markings didn't speak to children on bicycles, and suggested ways to make cycling more fun. Suggestions included a bike ramp, a squiggly bike (or scooter) line, and a bike maze.²

Several suggestions for how to support and promote the program better emerged from principals and some students.

Almost all of the principals interviewed said that more could be done to promote the signs and sidewalk markings, and suggested several ways of doing so.

Announcements, articles in school newsletters and emails sent to parents, school assemblies, signs and posters throughout the school, as well as Facebook and Twitter posts were all suggested. Several principals suggested that they would be much more

² Municipal by-laws in the three cities in the Region of Waterloo prohibit skateboards and bicycles with wheels greater than a 50cm diameter from riding on sidewalks, so this would need to be taken into consideration if action were taken to address these students' suggestions.

likely to do these promotions if someone provided sample resources that they could use such as posters, newsletter articles, Tweets, etc.

Many principals and students mentioned the success of “Walking Wednesdays”, which have been popular in the many schools in the Region. On these days, the school encourages as many students and staff to walk as possible, and in some schools the classroom that reports the highest number of walkers wins a prize.

The idea of helping parents organize walking school buses was identified by several principals. One suggested that planners at the School Boards could help by sharing maps of where students live so that the school could suggest routes for the walkers. One school has trained a number of students who wear bright safety vests and invite other students to walk with them. One principal felt that the presence of students with vests on the sidewalks helps slow neighbourhood traffic.

Other suggested initiatives to complement the school signage project include:

- investing in more bike racks so students can lock bicycles and scooters safely;
- incorporating the project into classroom teaching since it ties into the curriculum well;
- recruiting School Council members and the community (e.g. neighbourhood associations, faith groups) in the project so they help support and promote it.

Impact of the Intervention

Classroom surveys were conducted with one junior (grade 4-6) class in each of the eight pilot schools in March and April 2015. The questions asked students about their mode of transportation to school in the current school year compared to the year before the signage pilot was implemented, and whether students noticed the signs and sidewalk markings or remembered school officials talking to them about the project. Table 2 shows the results of these surveys.

Table 2: Classroom Surveys

	Count (n=219)	Percentage
Driven to school today	54	24.7%
Took school bus to school today	44	20.1%
Walked to school today	103	47.0%
Biked to school today	11	5.0%
Used other modes to get to school today	1	0.5%
Did not answer question	6	2.7%
Total	219	100%

	Count (n=219)	Percentage
Walk or bike more this year than last year	71	36%
Walk or bike the same now as last year	127	64%
Noticed ASRTS street sign	141	64%
Noticed ASRTS sidewalk markings	217	99%
Remembers school official discussing project	49	22%

Over half the students had used active transportation to school on the day they were surveyed (47 per cent walked, five per cent biked). Over one-third (36 per cent) of the students reported walking or biking more this year than last year. This may seem to indicate a strong positive impact of the signage intervention, but some caveats should be mentioned. First, there could be some self-reporting bias, since it was clear that the point of the intervention was to encourage more walking and biking to school. Second, it was not an anonymous survey (students raised their hands in front of their teacher and their classmates), so some students may have felt pressured to report positive behaviour changes. Third, the students surveyed were mostly grades 5 & 6 (10-11 years old) where parents often start feeling safer about having them walk or bike to school on their own, so students may have started walking or biking on their own independent of the intervention.

There is no question that students in the pilot schools were very aware of the project. Virtually all (99 per cent) of the students surveyed were aware of the sidewalk markings, and almost two thirds (64 per cent) had noticed the street signs. Some students and teachers noted that the signs were too high for many students to notice, and speculated that the signs were probably directed at drivers on the street.

Interestingly, only 22 per cent of students remembered any adult official (e.g., teacher, principal, educational assistant) at their school mentioning the project or its goals to them. However, comments from students demonstrated that they were quite aware of and supportive of the project's aims.

Evaluation Question #3: What Lessons can be Learned from this Pilot?

Based on the input received from students and principals in the pilot schools, and members of the ASRTS Committee, this report recommends the following:

1. Expand the school signage project to more schools, and continue to support it in existing schools.

Though this evaluation is unable to make a reliable assessment of the impact of the intervention on walking and cycling rates of students in the pilot schools, it is clear that it is very popular amongst both students and school administrators. It made the walk to school more enjoyable for many students, and educated many about how little time it can take to walk or bike to school. As one principal said, “there really is no downside to this project: it should be in every school.”

2. Develop promotional materials and programming to help schools promote it to students and parents.

The ASRTS Committee should produce a package of promotional materials to share with all schools participating in the school signage project (existing and new) to help them encourage parents and students to make use of the signs and sidewalk markings and take active modes of transportation to school. Teachers and principals have many demands on their time, so even when they are supportive of the project, they may not have the time to promote the project if they have to develop promotional content themselves. The Committee should consider producing articles for school newsletters, emails, announcements, news releases, ideas for school assemblies, signs and posters, and content for Facebook and Twitter posts. Schools should also be encouraged to share activity ideas back to the committee and with other schools that incorporate the sidewalk designs.

3. Consider integrating school signage initiatives with other initiatives designed to encourage alternative transportation to schools (e.g., walking school buses, walk to school days).

Walking school bus routes (where adults lead walking groups of children) could be organized along routes where signs and sidewalk paintings are located. The wayfinding signs erected in this pilot project could be identified as “walking school bus stops” for families who live further away. This would be an additional support for families who would like to encourage their children to walk to school.

4. When selecting schools for expansion, prioritize early adopters and schools with lower percentage of bussed students.

The ASRTS Committee was pleased with its criteria for selecting schools to participate in its pilot and recommends a similar approach for the future. As long as

funds limit implementation of the signs and sidewalk markings, schools should be selected based on demonstrated interest/success in promoting active transportation and the percentage of students they have which are bussed (the lower the better). Attempts should be made to find pairs of nearby schools so that there can be some savings in the installation of signs and sidewalk markings, and so that the neighbourhood can be more involved. Ideally, the signage and sidewalk project should connect to other active transportation activities the school already engages in. For schools new to implementing such activities, they should be provided support to also start a process to plan and implement other activities and work towards developing a school travel plan.

5. Reach out to School Councils before implementing school signage project in schools.

A few ASRTS Committee members and principals recommended making presentations to School Councils before implementing school signage projects in the future. The councils can be a good source of potential volunteers to help identify optimal routes and help promote the project to parents and students.

6. Set clear expectations for schools who want to participate in the project.

Principals/schools should be given clear expectations of their roles as a condition for their participation in the project. Expectations should include helping to promote the project, identifying parents or teachers to help identify best routes and champion the project, and participating in media releases or other means of communicating the project to the public. The ASRTS Committee should also identify what it will do for the school, including installing the signs and sidewalk markings, providing sample promotional material, etc.

7. Recruit someone from each school to help identify the most-walked routes to school.

Though information from school planners showing the home location of students is very useful, neighbourhood residents can also help identify the most appropriate and popular walking routes to school. Participating schools should be asked to commit to identifying a teacher or parent champion to help the committee select the best routes.

8. Consider marking more than three routes to each school.

The sidewalk markings were very popular in the eight pilot schools, and students whose routes to school did not have signs and markings felt left out. Signs and markings would help spread the benefits of the project to more students and have the potential to encourage more students to use active transportation. As budget permits, the committee should seek to mark more than three routes per school.

9. Budget and plan to inspect and refresh sidewalk paint annually.

The pilot project found that several sidewalk markings had worn off or had been dug up within one year of their installation. Plans should be made to conduct annual reviews of the sidewalk markings to identify areas in need of repainting/repair. This task could be taken on by a committee at each participating school providing clear directions and data collection tools are provided by the ASRTS Committee partners.

10. Try to focus on sidewalks made of concrete rather than asphalt.

Assessments of sidewalk markings after one year of wear and tear in the eight pilot schools showed that the wear and fading was much worse on asphalt sidewalks than on concrete ones. If future sidewalk markings use the same paint as used in this pilot, efforts should be made to focus on concrete sidewalks. Alternatively, different paint could be used on asphalt pathways.

11. Plan an impact evaluation of the intervention.

To properly assess the impact of the school signage project, an impact evaluation is required. An impact evaluation would require a sampling of students from all grades before and after implementation of the project, asking about their mode of transportation to school that day. The “before” and “after” surveys should be done over several days with varying weather conditions to avoid biases due to other events or bad weather influencing the results. The surveys can be done with simple hands-up counts in classrooms, but the questions should be designed by someone skilled in evaluation research and either conducted by the researcher or teachers who are provided relevant training in how to conduct surveys. For increased rigour, a control group of schools that do not receive the intervention should also do the same surveys on the same days.

Conclusion

This report has summarized the feedback from principals and select students of eight schools who implemented a school signage pilot project. Their feedback was overwhelmingly positive about its potential for encouraging more children to walk or cycle to school. Their feedback, along with analysis by the members of the ASRTS Committee who implemented it, allowed the report to identify many facilitators and barriers to the project’s success.

The report makes eleven recommendations based on this information which should be taken into account by others wishing to implement similar initiatives. Chief among them is a recommendation to continue to support the project and expand it into new schools, as it has the potential to influence more students to use active transportation to get to and from school. A proper impact evaluation should accompany expansion into new schools to assess the extent of its influence.

Appendix A: ASRTS Committee Focus Group Questions and Consent Letter

Participants

- ASRTS Committee members, including representatives from all partners:
 - Waterloo Catholic District School Board
 - Waterloo Region District School Board
 - City of Waterloo
 - City of Kitchener
 - Region of Waterloo
 - Student Transportation Services of Waterloo Region
- Sidewalk painting contractor

Questions

- How did you support pilot schools before, during and after implementation?
- For each of the major decisions/milestones – What worked well? What would you have done differently next time?
 - decisions/milestones include:
 - selection of 8 pilot schools
 - decision on sign design and locations
 - installation of signs and sidewalk paintings
 - hands-up counts before/after intervention
 - official launch on Walk to School Day
- What did you do to promote use of the signs and sidewalk prompts by students? How did that work? What could/should have been done differently?



Re: Evaluation of School Signage Pilot Project

March 2015

Dear Potential Research Study Participant:

Public Health is assisting the Active and Safe Routes to School Committee (ASRTS) in Waterloo Region to conduct an evaluation of the School Signage Pilot project which it implemented in eight schools in Waterloo in 2014. We would like to request your participation in this study, which should take an hour of your time.

The evaluation will be fairly straightforward: we will conduct a focus group with willing members of the ASRTS planning committee, and request to interview the principals of each of the eight pilot schools. The feedback from all study participants will be recorded and summarized in a way that keeps all individual comments anonymous. A final report will describe the barriers and facilitators to the pilot project's implementation, and make recommendations for future efforts to increase students' use of active transportation to get to and from school.

Participation in the study is voluntary: you may refuse participation, or decide to withdraw at any time. Your decision of whether to participate will not affect your relationship with Public Health or the services it delivers to schools. The benefit of your participation is the contribution to learning from the experience of the pilot and improving future efforts to increase use of active transportation to get to and from school.

You may worry about the risk of your comments being shared publicly and attributed to you. We will ensure the confidentiality of your comments. If we think it may be possible for someone to identify you as the author of a comment, we will either ask your permission to use it in the report or not include it.

If you understand all of the above, and agree to participate in this study, please let me know, and we can arrange a time for the focus group. Thank you for your consideration.

Sincerely,

Marc Xuereb, Public Health Planner
519-575-4400 x.5872
MXuereb@regionofwaterloo.ca

P.S. I'm happy to answer any questions you may have about this research.

Appendix B: Classroom Survey Questions and Consent Letter

Focus group participants:

- One Grade 4-6 class from each of the eight pilot schools (we will ask the principal of each school to suggest a class that has the fewest students who take the school bus to school)

Focus group questions:

Hello, my name is _____. I'd like to ask you a few questions about how you get to school. We're trying to find out if there are things we could do that would make it easier for students to walk or bike to school. There are no right or wrong answers today: I just want to find out how you actually get to school, so we can tell if our efforts to get more people walking and biking are working. If you don't want to answer a question, you don't have to.

1. I'm going to start by asking you how you got to school today. I'm going to ask you to put up your hand when I ask the question, and I'd like you to keep it up until your teacher can count how many of you have your hand up. OK? Only put your hand up once.
 - a) Please put up your hand now if you were driven in a car to school today.
 - b) OK, now put up your hand if you took the schoolbus today.
 - c) Now put up your hand if you walked to school today.
 - d) Did any of you ride your bike to school today? Put up your hand if you did.
 - e) Did I miss anyone? Yes, how did you get to school today?
2. Now I want to show you a couple of pictures. First, take a look at this one [street sign]. Have you ever noticed a sign that looks like this on your way to school? Please put your hand up if you've noticed it and keep it up until your teacher has counted how many of you have your hand up.
3. Now take a look at this one [sidewalk paint]. Have you ever noticed yellow painting on the sidewalk between your home and the school that looks like this, or this [show examples of different sidewalk designs]? Please put your hand up if you've noticed any one of these sidewalk markings and keep it up until your teacher has counted.
4. Now I want you to think about what your teacher or any other adult in the school may have done to talk to you about the signs and sidewalk markings. Please put

up your hand if you can remember your teacher or the principal or any other teacher in the school talking to you about these signs or sidewalk markings. Keep it up until your teacher has counted!

5. So, tell me: did the signs or the sidewalk paint change how you come to school? Did any of you start walking or biking more often to school since the signs and sidewalk markings were put up, or do you still get to school the same way you did last year? Remember, there are no wrong answers here: we just want to know what you actually did.
 - a) Please put up your hand if you walk or bike more often to school now than last year because of the signs and sidewalk markings.
 - b) Put your hand up now if your travel habits to school are the same this year as last year.
6. Now I want you to talk to me. I want to hear what you think of what we were trying to do. Do you think the signs and sidewalk markings are a good idea? Should we put them up at other schools? Why or why not?
7. Do you have any ideas for how we could do a better job of convincing students to walk or bike to school? Perhaps you have ideas for ways to improve what kinds of designs are on the sidewalks, or where the signs are? Or other ideas besides signs and sidewalk markings?
8. Do you have any other comments about how the signs and sidewalk markings were used by students or other people in the neighbourhood?



Re: Evaluation of School Signage Pilot Project

March 2015

Dear Teacher:

Public Health is assisting the Active and Safe Routes to School Committee (ASRTS) in Waterloo Region to conduct an evaluation of the School Signage Pilot project which it implemented in eight schools in Waterloo in 2014. We would like to request your participation in this study.

I would like to visit your classroom for 20 minutes, and request your assistance in a hands-up survey of your students and a conversation asking them for some feedback on the pilot project. I would ask three yes/no questions and two multiple choice questions which the students would answer by raising their hands. If you agree, you would record the number of hands up for each question. Then I have two open-ended questions for the students: I would like to record the answers to this part.

The feedback from your students will be recorded and summarized in a way that keeps all individual comments anonymous. A final report will describe the barriers and facilitators to the pilot project's implementation, and make recommendations for future efforts to increase students' use of active transportation to get to and from school.

Participation in the study is voluntary: you and your students may refuse participation, or decide to withdraw at any time. Students may choose to not participate simply by not raising their hand. The benefit of your participation is the contribution to learning from the experience of the pilot and improving future efforts to increase use of active transportation to get to and from school.

You may worry about the risk of your comments being shared publicly and attributed to you. We will ensure the confidentiality of your comments. If we think it may be possible for someone to identify you as the author of a comment, we will either ask your permission to use it in the report or not include it.

If you understand all of the above, and agree to participate in this study, please contact me and we can set up a time for me to visit your classroom. Thank you for your consideration.

Sincerely,

Marc Xuereb, Public Health Planner
519-575-4400 x.5872

MXuereb@regionofwaterloo.ca

P.S. I'm happy to answer any questions you may have about this research.

Appendix C: Principal Interview Questions

Participants

- Principals of the eight pilot schools

Questions

1. How did you become involved in the project? What motivated you to participate?
2. What are the barriers to students using active transportation to get to/from school? Did the signage pilot project address some of them? If so, how?
3. How have you incorporated the signs and sidewalk prompts into other school activities/curriculum/initiatives?
4. Do you think there are better ways to get students to use active transportation? If so, what are they?
5. What did you do to promote the use of signs and paintings with parents and schools?
6. What additional supports might have helped ease the implementation of the project?
7. Is this a project worth replicating in other schools? Why/why not?
8. What would you do differently if you were implementing it for the first time again in your school?

Waterloo Region School Signage Pilot Project Timeline

Purpose: To use wayfinding information (signs, sidewalk painting) to encourage more children to walk or cycle to school

