Merton Safer Routes to Schools

An Interactive Qualifying Project

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Abstract

The purpose of this project was to propose traffic control and structural improvements for the Pollards Hill section of the London Borough of Merton that would decrease the reliance upon the car as a method of transporting children to school. These changes consisted of changes to the road structure of Pollards Hill, changes to school grounds, and programmes to increase the safety and number of children walking to school. These proposals were based on the results of a survey given to school children and their parents, as well as various interviews that were conducted with school officials.

Executive Summary

The goal of our project was to propose changes to Pollards Hill, an area of the London Borough of Merton, that would decrease dependence upon the car as a method of transporting children to school. These changes consisted of road infrastructure changes, modifications of school grounds, and programmes to increase the safety and number of children walking. The proposals were based on the results of a survey administered to students and parents in Pollards Hill, interviews with various school officials, and first–hand observation of the problems.

The survey was administered to five schools in Pollards Hill. Results, from both the parent's and student's surveys, were then used to determine where safety problems currently exist. These surveys were also helpful in giving us ideas for solutions to the problems. The interviews also helped to determine where problems existed and what could be done about them. Finally, our first–hand look at the problems gave us the perspective required to propose changes in Pollards Hill.

The proposals encompass three major types of changes to Pollards Hill. The first change would be a road structure change, for example, the addition of a zebra crossing at a specific location. The second type of change involves changing the layout of the school grounds in some format. Finally, there are also changes involving the creation of programmes to increase usage of non–motorized transportation.

This project was sponsored by the Environmental Services Department of the Borough of Merton. It is going to be used as the basis for a bid to Central Government to obtain money to implement the proposals we have created. However, some of the proposals listed will not qualify for implementation with these funds.

While this is unfortunate, these proposals are still worth looking into, and are therefore included in this project.

Finally, it is worth mentioning that there are many areas where the work of this project could be continued. There are alternatives to the car, other than walking, that could be investigated further. There is also the possibility of a follow–up project to assess the proposals that are implemented and what effect they may have had.

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1.0 Introduction

In many cities around the world, the transportation of children to school is an important issue. The most important factor involved is, of course, the safety of the children on their way to school. In a large city such as London, especially in the Borough of Merton where this project took place, the most convenient way to get to school should be perceived as walking. However, because of the high traffic density, this is not the case. For many parents and children in Merton, the automobile is seen as the most convenient, and safest, method of travel to school.

Merton, one of the thirty-two boroughs of London, has a population of approximately 182,000 people. This is very similar to the population of Worcester, Massachusetts, where our university is located. The major difference between Worcester and Merton is area; Worcester is 2.5 times larger than Merton. With this many people in such a small area, the problem of children being driven to school is magnified. It is no longer just a problem of parents who feel walking is unsafe, but when they choose to drive, it causes major traffic, health, and pollution problems. The goal of this project was to work with an area in Merton and determine how children currently travel to school, why they choose this method of travel, and then propose solutions that would decrease reliance upon cars by increasing the safety of alternate transportation methods.

In order to meet this goal, we determined four objectives. The first was to determine the motivations of parents and their children for driving to school. In order to accomplish this, we had to research survey methods so that we could create a survey that would answer how children travel to school, as well as why they use their current methods of travel. The second objective was to determine which areas in Pollards Hill, the area of Merton that we studied, currently present safety problems.

In order to achieve this, we had to become familiar with the streets and area around each school we studied. Also, as part of this objective, we asked parents to locate areas in Pollards Hill where they felt safety problems existed. The next objective was to determine the perspectives of school officials. We felt that they would be able to give us an objective and uniform perspective of the problem, and its possible solutions. Our final objective was to use the knowledge gathered to propose several feasible solutions to the problem that would lead to an increase in children walking to school.

There are many background topics we researched to prepare for this project. We researched the proper design and administration of a questionnaire. We also looked into transportation research in regards to walking and cycling, as well as Geographic Information Systems, computer software that could be used in displaying the information that we gathered.

This project has the possibility to greatly improve the Pollards Hill area. Based on this project, the Borough Council plans to propose a bid to the Central Government to obtain funds for the next fiscal year. These funds will be used to implement our proposals, based on problem areas that we identify in Pollards Hill. But Pollards Hill is only a small area of Merton. There is also the possibility that our work could be expanded and applied in other areas of the borough as well.

2.0 Background

Created in 1965 from the merger of two boroughs, Merton is one of the 32 boroughs that comprise the greater London area (Grolier). It is located south of the bend in the Thames River in Surrey. Merton is bordered by the boroughs of Croydon to the east, Sutton to the south, Kingston–Upon–Thames to the west, and Lambeth and Wandsworth to the north (BTex Ltd.). At 38 km^2 in area, Merton is geographically smaller than the City of Worcester, Massachusetts, USA, which has 97.4 km^2. However, with approximately 182,000 residents Merton and Worcester have similar populations (Government Statistical Service, US Bureau of the Census).

Merton is chiefly a residential suburb of London, otherwise home to a small amount of textile, toy, and paint manufacturing. Its most famous characteristic is the yearly tennis tournaments held at Wimbledon, which is in the northern section of the Borough (Grolier). Within the borough of Merton, there is a heterogeneous distribution of people. With two large parks, Wimbledon Common and Mitcham Common, and many smaller parks of varying sizes, there are several non-residential pockets spread throughout the borough. Despite this, there is a relatively uniform distribution of schools throughout the borough (BTex).

2.1 Non-motorized Transportation

Because this project involved trying to convince parents to allow their children to walk or cycle to school, it was important to explore how walking and cycling fit into our automobile dominated society.

The advent of the automobile has brought many advantages to transportation, such as the ability to travel long distances in a relatively short amount of time. However, there are many drawbacks to overuse of the automobile. These include

traffic jams and air pollution. In addition, the non-renewable resources that propel these motorized vehicles are dwindling. Therefore, we may need to revert back to "older" forms of transportation in the future in order to save resources and reduce pollution.

2.1.1 Walking

Walking is the oldest and most basic form of human transportation. Even though all modern, industrialized countries now use the automobile as their primary mode of transit, walking remains an integral part of our daily life. We walk around the house, around malls and grocery stores, and around places of employment. Even car trips involve at least a moderate amount of walking. We must walk to get to the car, get out of the car and walk to our destination, and walk again on the return trip (Untermann).

With walking among the most vital aspects of our daily lives, one might expect that being a pedestrian in the modern world would be quite simple. Sadly, this is not the case. Since the early stages of automobile development, town planning has catered increasingly to the car. Over time, this has created a pedestrian environment that is largely unsafe and inconvenient.

Although it is commonly thought that "The pedestrian has the right-of-way," that is largely incorrect. In urban areas, pedestrians are now truly comfortable in only a few select areas: parks, shopping areas, recreational facilities, and college campuses (Untermann). Outside of these areas, the walker is forced onto sidewalks, which are getting narrower or becoming nonexistent. The only way a pedestrian can cross the street is at a crosswalk, which many times cannot be seen by a motorist, forcing the pedestrian to take dangerous peeks into the road to see if traffic is coming. Rural

areas are generally seen as safer areas for pedestrians because of the obvious reason that there are fewer cars. But in many of these areas, there are no sidewalks, so the pedestrian must dangerously walk against traffic. Furthermore, there tend to be fewer pedestrians in rural areas per mile; so rural motorists are not as likely to look out for one. In addition, rural streets tend to have higher speed limits, causing the accidents that do occur between pedestrian and motorist to be that much more severe. All of these factors make rural pedestrianism just as, if not more dangerous, than urban pedestrianism.

Because the automobile has replaced walking as the dominant form of transportation, it can be very difficult to plan for quality pedestrian areas without the restriction of the automobile's mobility, which many have become accustomed to. However, it is not impossible. What follows is a list of factors that must be taken into consideration when planning around the modern pedestrian.

Safety

The first and most obvious concern is that of the pedestrian's safety from cars. In urban areas, this is commonly accomplished by using walk lights at intersections. This ensures that the cars will not be moving when the pedestrians are moving. This appears to be the fairest modern idea, which created a kind of "traffic light" for pedestrians as well as cars. A "scramble" system, commonly used at busy intersections, is a way for pedestrians to cross a heavily used intersection diagonally. Using this method, after every cycle of the traffic lights, red lights appear at all of the roads. Then all of the pedestrian lights turn to "walk," and anyone can get from point A to point B at the intersection during this time. One must plan so that enough time is allotted for even the slowest walkers to cross diagonally. In addition, one must make

sure the time between crossings is not excessive, making pedestrians impatient and want to dangerously cross without the safety of a walk signal (Fruin).

Security

Not only must pedestrians be protected from cars, they must also be protected from each other. A busy walkway that is narrow and poorly lighted can be a haven for pickpockets and other criminals. For security, a sidewalk should have good quality lighting and be wide enough to have unobstructed lines of sight. Television surveillance is another means that is increasingly being used to make pedestrians feel more secure (Fruin).

Convenience

If a pedestrian plan is to be effective, it must include as few obstacles and have as level terrain as possible. Excessive numbers of mailboxes, trash cans, parking meters, and the like can make navigating a sidewalk somewhat uncomfortable. While sometimes these obstacles are necessary, they frequently appear in excessive numbers and can be moved at little expense. A sidewalk must also be wide enough for two-way unobstructed pedestrian traffic. Another aspect of sidewalk convenience that must be taken into account is the necessary presence of enough ramped curbs so that people in wheelchairs, people with baby strollers, and the elderly can move on and off the sidewalk with relative ease (Fruin).

Aesthetics

While not among the *most* vital of concerns, an unsightly walking area can have a dramatic negative effect on its use. Walkway component design is not something that should be haphazardly conceived. There must be an attempt to bring some sort of moderate stimulation to the area. Landmarks such as benches and fountains can help here. Maintenance of the area is even more vital.

Redesigning an area to accommodate the pedestrian is difficult in the automobile era. But attention to these aspects can make pedestrianism successful. Of course, these aspects are not "magic" formulas for guaranteed success. A shift in transportation from car to walking takes a lot of time to plan, and even more to get used to. Patience must be a factor when planning as well.

2.1.2 Bicycling

Walkers are not unique in having numerous problems with the reign of the automobile. Bicyclists are also heavily disturbed by cars. Despite some obvious differences between pedestrians and bicyclists (some of which cause the cyclist to be just as large a problem to a pedestrian as a motorist), bicyclists suffer many of the same problems that pedestrians do. Competition for the right-of-way and lack of planning top this list (Untermann).

With the advent of the multiple-speed bike, making bicycling relatively easy on almost any surface, bicycling should be very enjoyable and common. Unfortunately, this is far from the case. Bicycling today is even less common than pedestrianism, popular only with adolescents, who generally use it as a temporary form of transportation until they get their driver's license.

In urban areas, driving a car often takes longer than bicycling. Despite this, urban bicycling activity pales in comparison with motorist and even pedestrian activity. This is due to the fact that currently, urban bicycling is always uncomfortable and usually dangerous. Planning over the last 30 years has basically ignored the bicycle and concentrated solely on the automobile, chiefly because of the assumption that road improvements that help motorists will help cyclists as well, since they share the road. This is not the case. The "improvements" made to accommodate

the automobile have threatened to eliminate the cyclist. For example, every street widening is obviously planned with the motorist's comfort in mind. These street widenings often decrease the amount of space in which the cyclist has to ride, because the purpose of the widening is usually to provide passing cars with additional space. Over the last 30 years, there has been almost no planning for the cyclist. Since bicyclists are not very well organized, this process shows no signs of stopping (Untermann).

With natural resources dwindling, the bicycle should be thought of as a safe alternative to driving. Since this is hardly the case, planning for cycling for the future is very difficult and expensive. But like pedestrian planning, it is possible to plan for bicycle use if one keeps in mind that every conversion from automobile to bicycle actually *saves* the community money in overall road maintenance.

Many factors must be considered when planning for road improvements that accommodate the bicycle. Common origins and destinations must be recognized. Most obvious amongst these locations are to and from school. Conversion of the aforementioned children to bicycles rather than expensive bussing or parental driving will save the community money. The terrain used should be relatively level. Despite the advent of the multiple speed and "mountain" bikes, few people *want* the road to be bumpy, especially if one is bicycling for practical purposes. Finally, there must be enough space to accommodate many cyclists. A narrow bike path will be uncomfortable, and therefore, little used (Untermann).

While obvious, planning for a bicyclist to store his or her bicycle is often overlooked. One must keep in mind that a safe place to store the vehicle is just as important for cyclists as it is for motorists. Bicycle parking needs to be convenient and safe (Untermann).

A cyclist's safety depends on the motorist as well as the cyclist. Therefore, it is not unreasonable to incorporate pedestrian and bicycle safety in with a driver's education program. This type of program should lessen the amount and severity of motorist-pedestrian/cyclist accidents.

2.2 Worcester

Since the borough of Merton is similar in population to the city of Worcester, it was thought prudent to analyse the system of how students in Worcester get to school. A visit was made to the Parent Information Center for Worcester Public Schools for information. Robert Vartanian, the Student Assignment Officer, explained how complicated the system is.

Those students who live within two miles of their assigned school are not bussed. Those outside that radius have the option to be bussed by one of the school system's 87 buses. Regardless of the child's bussing situation, the child can get to school via other means, such as walking, biking, or having his or her parent drive him or her. There are approximately 16,000 children in Worcester's 40 elementary schools (Kindergarten through sixth grade). These schools are broken up into districts, so that 10 schools are in each district. To make sure that the buses are not overcrowded, each school will start at a given time that is generally different from those of the surrounding areas. This method of staggering the start and end of each school day allow each individual bus to be used for multiple schools. Overall, approximately one-third of the children are bussed to and from school.

In a densely populated area such as Worcester, one might hypothesize that nearly every child would lie within a two-mile radius of his or her assigned school, especially if the child goes to one of the numerous elementary schools. Therefore, not

many buses would be needed at all. But the Worcester Public School system has a twist, which makes the already complicated procedure of assigning bus routes much more complicated. Every public school in Worcester must be "racially balanced."

Worcester boasts a fairly large population of minorities. Every school must come within fifteen percentage points of its current minority population. For the 1998-1999 school year, 44.1% of the students are minorities. Therefore, every school in Worcester must have somewhere in between 29.1 and 59.1% minority students this year. Since every section of Worcester is not perfectly racially balanced (There tends to be a higher minority population in the inner sections and a higher white population on the outside edges of the city.), some students must be placed in schools that are not the closest to their homes. In some cases, the school is very far away. The students who are bussed to school are largely these students, who must be bussed to the far away school.

Despite this complication, the school system seems to have a good command on the situation. The school has a database of every one of the city's thousands of streets and designates a certain elementary, middle, and high school that fits the street's location and takes the racial balancing aspect into account.

2.3 Geographic Information Systems

A Geographic Information System, or GIS, is a graphical tool for relating various types of data that are identified according to their locations. A GIS is computer hardware and software that is used to manipulate, store and display information that relates to a map or geographic area. This definition covers a broad area, from the simplest of CD-ROM based atlases to the most specialized of applications.

2.3.1 What is GIS used for?

The fact that GIS is graphically based is the key to its power as an analytical and planning tool. When the map is displayed in the GIS, every major item displayed has other data related to it. It is possible to select an object, a school or a road, for example, and gather more information about that object. If you would like to know how many students attend a school, as long as you have that information in your database, you can select that school on your display and be presented with a list of information that would contain the number of students in that school.

2.3.2 Advantages of GIS

All of the information in a GIS can also be presented in a traditional database format. The advantage of a GIS is that you can gain a level of understanding that is difficult to gain from a list of numbers and words. When looking at a list of information, it is hard to glimpse the relationships that exist between the various objects that comprise that list. A GIS can illustrate those relationships graphically. You can plot a route through a city based on the amount of traffic on the roads that comprise that route, and then highlight that route on the map.

A GIS is also useful because it takes away much of the jargon that might stand in the way of presenting information. When you are trying to present information to someone who is not an expert in the field you are dealing with, you can use a GIS-based presentation to show them the information you wish to present without involving them in an explanation of vocabulary and details. While the expert might be able to see relationships quickly, the graphical nature of a GIS can help the

understanding of someone who is not an expert in the field with which you are dealing.

2.4 Survey Methods

We were seeking to determine people's motivations for their transportation methods. In Pollards Hill, students and parents needed to be surveyed to determine why they choose their transportation methods. Once armed with this knowledge, appropriate solutions may be pursued without the risk of being arbitrary or biased. Unfortunately, there is a degree of error in all surveys, as people will consciously or unconsciously respond in ways they believe are favourable. Regardless of whether people would be affected by honestly answering questions or not, such self-response biases will occur. While this is a problem, it is not an obstruction; proper survey design and administration can minimize such biases so they will not have a significant influence on results.

A variety of survey methods are accepted for use in determining peoples' opinions. Some of these are: phone polls, personal interviews, mail surveys, questionnaire–type surveys, and naturalistic observation (Doyle). Phone polls involve researchers contacting subjects by telephone and asking them any necessary questions. Personal interviews involve researchers talking face to face to subjects, asking them all necessary questions. A mail survey is a questionnaire–type survey that is mailed to the subject, who completes it and mails it back to researchers. In contrast, the questionnaire-type survey involves subjects meeting researchers, filling out the survey and handing it back. Finally, naturalistic observation only involves carefully watching subjects and documenting their actions.

2.4.1 Inappropriate Survey Methods

Due to the specific requirements of the Merton Safer Routes to Schools project, it was not appropriate to use all of these surveying methods. Some methods provide more information than needed, others would not provide a sufficient response rate, and several methods require large amounts of time.

When people are contacted as part of a phone poll, they are often preoccupied and either won't answer survey questions or won't spend an adequate amount of time formulating thoughtful responses (Rosnow). Combined with a lack of personal contact, phone polls do not have large response rates, rendering them inappropriate in the Safer Routes to Schools Project.

Personal interviews don't have many applications in this project. Despite the large amount of data that can be obtained from personal interviews, they are very time consuming. The interviewer must also be careful to keep the discussion on track and progressing. Given the time needed to conduct interviews, it was determined to be impossible to interview a significant sample of people in the allotted time (Rosnow).

Mail surveys are valuable in that they allow the subjects time to complete the survey at their leisure while contemplating all answers. However they require time: time is needed for surveys to be mailed, for people to respond, and then for surveys to be mailed back to researchers. There is also a lower response level as there is no personal contact to establish a rapport between researchers and subjects. Mail surveys are also more expensive as postage and printing are not free (Doyle). The combination of these factors in reference to the Safer Routes to Schools Project render mail surveys an inappropriate surveying method.

Naturalistic observation allows researchers to track a subject's actions and behaviour without the subject's knowledge. Since the subject is not aware that they

are being studied, self-report or response biases are eliminated. While this is favourable, it is not appropriate for our research, as it does not allow for determination of subjects' motivations, which is an integral element of the Safer Routes to Schools project (Doyle).

2.4.2 Appropriate Survey Methods

For the Merton Safer Routes to Schools project, questionnaires were determined to be the most appropriate general surveying tool. This method allows researchers to establish a rapport with subjects. This face–to–face meeting enables researchers to convey the urgency and importance of the research to the subject. Through this, higher response rates can be achieved. Additionally, the survey should utilize some open–ended questions, with the remainder being comprised of predetermined answers to give responders an adequate selection of potential responses that can easily be tabulated for data analysis (Rosnow).

Despite their drawbacks, personal interviews are relevant within limitations. Conducting personal interviews with a limited number of school officials can provide an in–depth understanding of the situation from their perspective. While time consuming, conducting these personal interviews will provide a deeper understanding of people's motivations. This is also a good means for determining unforeseen problems and issues with Safer Routes to Schools in Merton.

3.0 Methodology

In order to meet the goals of our project, we had to collect data from five sources. We collected data from school children in Pollards Hill, as well as their parents. We also conducted interviews of school officials. Finally, we examined the area surrounding each of the schools for pedestrian accommodations and safety hazards, and took pictures of important locations.

We used three methods to collect data from our five sources; the first of these was surveying. We created four different surveys, basing them on the age of the children filling them out, as well as one for the parents. These surveys were designed to obtain information needed to meet our project goals, the first of which was to determine the parent's and children's motivations for driving to school. The surveys also had to determine what the current transportation practices of the children were. The second major goal of the surveys was to reveal where safety problems currently exist and what can be done about those problems. The second method we employed was interviewing. The interviews were intended to give us an objective and uniform view of the problem from the Head teachers' perspectives. The final method was an on–site assessment of the geography surrounding each school. This local geography portion was intended to give us a hands-on understanding of the problem.

After the data were collected, it then had to be analysed. The goal of this analysis was to determine what areas in Pollards Hill posed safety problems, and to make proposals to solve these problems. The Borough Council would then obtain funds from the Central Government to implement these proposed solutions.

3.1 Surveys

The main method of data collection was surveying. The survey was administered to two different groups, students and their parents. Before we arrived in London, the Borough Council chose five schools to be studied. Located in the Pollards Hill section of Merton, they are: Sherwood First School, Greenwood First School, Alfred Mizen First School, William Morris Middle School, and Tamworth Manor High School. These schools were chosen because they responded favourably to a poll of all schools by the Borough Council. Another key factor was the close proximity of the schools to each other, and that the Council felt Pollards Hill had serious traffic problems directly related to the schools. There were three steps in the surveying process. We first designed the survey, the next step was to administer the survey, and finally we analysed the data that were collected.

3.1.1 Design

The first step of the design process began in Worcester. We designed two surveys, one for parents and one for children. We then took our two preliminary surveys to two experts. The first was James Doyle, a Professor of Psychology and an expert in surveying methodology. We then reviewed the two surveys with Thomas Shannon, a Professor of Philosophy and a teacher of Ethics. Professor Shannon helped us clarify the disclaimer we used in our survey. Modifications were then made to our surveys based upon the recommendations of these professors.

Once in London, we continued to design and re-design our surveys with the help of Eddy Taylor in the Education and Leisure department and Pete Thomas from Environmental Services. At this point, we decided that four surveys were necessary: one customized for each target population. We then had surveys specific to First,

Middle, and High schools, as well as one for parents. In doing this, we designed the First and Middle school surveys based upon our revised High school version.

Once the First School survey was completed, we tested it by administering it to five children at Sherwood First School. We also tested the Parent survey on a parent who worked at Sherwood. We then revised the surveys based upon the results of these tests. The next step was to administer the survey.

3.1.2 Administration

Administration of our survey varied in the three types of school. In the First schools (Alfred Mizen, Greenwood, and Sherwood), the parent survey was given to all of the children, except those in Year 3, to take home to their parents. It was then returned to school by the children and collected in the following days. The Year 3 students received the parent survey at the same time that we administered the First School Survey. In each of the First Schools, there were 3 classes or fewer in Year 3. We visited classes during school and had the children complete the survey. Because there were 3 of us, we were each able to administer the survey to a different class. We then sent home copies of the parent survey with identification numbers matching the ones the students filled out, allowing us to match parent and student responses. Surveys were given to students at Greenwood and Sherwood during the week preceding a one-week school holiday. Because of this, a reminder letter (Appendix I) was sent home to these parents for those who did not return the survey before the school holiday.

At William Morris Middle School, we administered the survey in the classroom to Year 6 students. At William Morris, there are 5 classes in each year. Because of this, it was not possible to use the same method of administration that we used for the Year 3 students. We had to rely on the teachers to help us administer the survey. The

teachers were given a packet of surveys for their students, with instructions printed on the front of the packet. We then moved between each of the classrooms to assist the teachers while they administered the surveys. For Years 4, 5, and 7, the survey was administered separately by the teachers of those classes. They were given the same type of packets as the Year 6 teachers. The student surveys were collected directly after they were administered, and as with the First schools, the children brought parent surveys home and then returned them to school after it was completed.

For the High school, Tamworth Manor, we only surveyed the students in Year 8. Because there were eight classes in Year 8, we followed the same method that we used for Year 6. The children returned the parent survey to school after it was completed by their parents at home. In each school, the returned parent surveys were collected by teachers and placed in a central location for us to collect.

3.1.3 Analysis

To analyse the surveys, all data were entered into a spreadsheet. Appropriate graphs were then made to assay for correlations between different factors. Totals of responses and percentages were then calculated for survey results.

3.2 Interviews

While we were administering our surveys, we also conducted three face-to-face interviews with Mrs. Pat Beechey (Deputy Head of Greenwood First), Mr. Henry Rogers (Head teacher of William Morris Middle), and Mrs. Viv Tombs (Head teacher of Alfred Mizen First). The purpose of these interviews was to obtain the perspectives of the people, other than the parents and children, who are exposed to these problems every day in Pollards Hill.

3.2.1 Interview Type

We used a type of interview known as the semi-standardized interview, a format that allows adaptation of the questions as the interview proceeds. A standardized interview is inappropriate because it does not establish a rapport, which is necessary, at least in its basic form, with the interviewee. It is also too structured, which does not allow deviation from the questions should the questioner want to delve deeper into a specific area. An unstandardized interview is inappropriate because we need some form of basic questioning so that comparisons can be made (Berg).

For the most part, essential questions and probing questions comprised the interview. The essential questions were structured beforehand and asked of every interviewee (Appendix C). Probing questions were asked in addition to these, in an attempt to elicit a more extensive response from one of the essential questions. The probing questions were unstructured because we could not have anticipated how willing individuals would be to reveal their hopeful solutions from this project.

3.3 Local Geography

The final part of our data collection came from an inspection of the area surrounding each of the five schools. The idea behind this was to determine, from first–hand experience, what problems might currently inhibit children from walking to school, or make it unsafe for those who currently walk.

3.3.1 Design

There are two ways in which we canvassed the local geography. First we came up with the following list of items to look for:

- Crosswalks
- Traffic lights
- Crossing lights
- Lollipop people (crossing guards)
- Parking habits
- Speed of vehicles
- Traffic congestion

Our first step was to travel to the schools during the morning and afternoon when students would be going to and from school. We wanted to gain a first hand experience of the current commuting situation at each of the schools.

Our next step was based upon the results of our parent survey. One of the questions asked them to identify unsafe areas in Pollards Hill. We used a map of the area on our parent survey and asked them to point out places where they felt a safety issue existed (Appendix H). We then travelled to these areas to ascertain how unsafe we felt they were.

3.3.2 Analysis

We felt it was important that we conduct much of this ourselves. We wanted the impressions gathered from collecting the data ourselves. Many of the problems we dealt with had to do with perception. If the roads are perceived safe, then parents will allow their children to walk to school. The goal of our analysis was to develop our own perception of the safety of the area surrounding these schools. We then compared these perceptions with those gathered from the parents and children. Much

of our analysis was done while canvassing the area around the schools. It was based on the perceptions gathered while we collected our data and experienced the commute.

3.4 Proposal Creation

Once all of the surveys, interviews, and local geography canvassing was completed, we analysed all of the data, specifically the problem areas sited by parents. Based on this analysis, we constructed preliminary proposals. These proposals suggested improvements to any hazardous areas that may currently prevent children in the Pollards Hill area from walking to school, or pose a problem for the children that currently walk. They were then taken to members of the Traffic and Transport division of Environmental Services to discuss their possible effects. We were especially looking for the members of Traffic and Transport to help us see all the possible effects of our proposals. After meeting with these officials, we then revised our proposals and presented them to the Borough Council. They will then send a bid to the Central Government for funds to implement our proposals.

4.0 Results

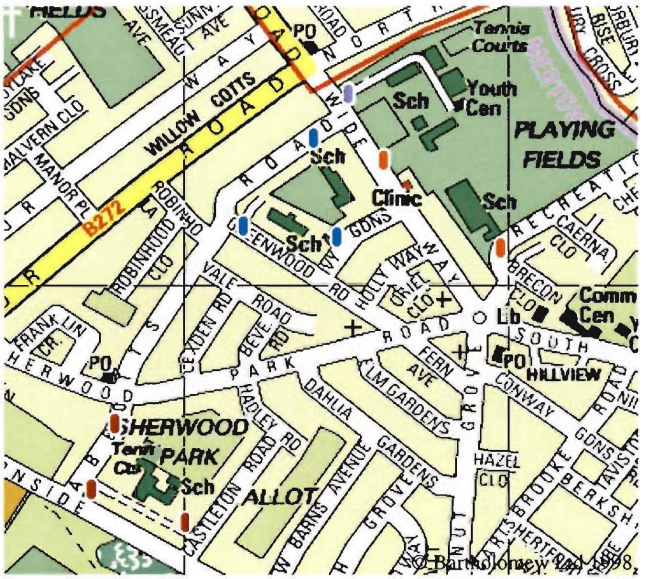
4.1 Results of Local Geography

This section contains pictures of locations that we will be referring to later in the results section, as well as in the proposal section.

School Entrances

The map below shows the locations of the entrances to the schools. Alfred Mizen and Greenwood share the same plot of land. All three entrances allow access to both schools. The William Morris entrance on Wide Way is a back entrance that it shares with Tamworth Manor.

Figure 4-1 Location of School Entrances



Key

- Alfred Mizen
- Greenwood
- Sherwood
- Tamworth Manor
- William Morris

Alfred Mizen Entrance

This is the Abbotts Road entrance to Alfred Mizen First School (Figure 4-2).

Figure 4-2 Alfred Mizen Entrance

Greenwood Entrance

This is the Greenwood Road entrance to Greenwood First School (Figure 4-3).

Figure 4-3 Greenwood Entrance

Sherwood Entrance

This shows the alleys surrounding Sherwood First School (Figure 4-4). Straight ahead in the picture is the staff parking area. On the right is the alley, running from Abbotts Road to Castleton Road that serves as the entrance to the school grounds. The alley on the left runs towards Sherwood Park Road. It is shown again below (Figure 4-5).

Figure 4-4 Sherwood Entrance

Figure 4-5 Sherwood Alley

William Morris Entrance

This is the Recreation Way entrance to William Morris Middle School.

Figure 4-6 William Morris Entrance

Tamworth Manor Entrance

This is the Wide Way entrance to Tamworth Manor High School, closest to Manor Road.

Figure 4-7 Tamworth Manor Entrance

"Green Man" Intersection

This is a four–way intersection where Manor Road, Rowan Road, Northborough Road, and Wide Way all intersect (Figure 4-8). Rowan Road runs to the left in the picture, and Wide Way is barely visible on the right. Manor Road is the road that people are crossing. This intersection is called the "Green Man" intersection because it is the only set of traffic lights in the area with the "green man" pedestrian walk light.

Figure 4-8 "Green Man" Intersection

Pollards Hill Roundabout

This roundabout forms the intersection of five roads (Figure 4-9). The picture is taken from South Lodge Avenue.

Figure 4-9 Pollards Hill Roundabout

Meopham Road

The large road in the picture is Rowan Road (Figure 4-10). Meopham Road is on the left. Oak Row would be directly behind the photographer.

Figure 4-10 Meopham Road

Ivy Gardens

This is Ivy Gardens, looking northward, towards Wide Way (Figure 4-11). The school zone is from the side entrance for Greenwood First and Alfred Mizen First schools. Notice the car parked on the pavement in the school zone.

Figure 4-11 Ivy Gardens

The Estate

The estate is a large housing complex where many students from the schools live (Figure 4-12). The estate is made up of a number of closes, such as Caernarvon Close, which is pictured. These closes run along Recreation Way from the Pollards Hill roundabout to South Lodge Avenue.

Figure 4-12 The Estate

4.2 Results of Interviews

A copy of the essential questions of these interviews can be found in Appendix C.

We started our interviews with the Deputy Head teacher of Greenwood First School. We interviewed Pat Beechey on June 8th. Mrs. Beechey believes that there are many reasons parents drive their children to school. She thinks that "parent shift" accounts for more of this than any other reason. More parents are working today, and many drop their children off on their way to work. Another big reason is parents with children in two or three schools, who have developed a habit of driving their children to school and do not stop this practice when the problem of multiple schools arises. Parents of out–of–borough children obviously do not want to put themselves or their children through the labour of a half–hour walk twice a day. Some parents of children in the estate believe that even a 10–15 minute walk is too much. Nursery children present a unique problem in that their schedule is so short. They only attend school for a half-day, so parents who walk must walk to school with their child and walk back home, only to repeat the process approximately two hours later. Some parents decide to drive those children to school to avoid spending half of their day walking with their child. Another problem is created when poor families see the car as a status symbol. They feel they must "show off" their toy in front of all of the other parents in the area.

Mrs. Beechey also believes the most dangerous area for children walking to school is, by far, Ivy Gardens. This two–way street is very narrow and parking is allowed. For the most part, people park on the pavement because the street would otherwise be too narrow for two-way traffic. She believes it is too narrow anyway. The thought of restricting traffic on the street to only pedestrians was mentioned, but

Greenwood receives many deliveries throughout the day. Making the street pedestrianized would create an entirely new problem here.

Another unsafe area is the Pollards Hill roundabout. This 5–way intersection has no walk lights and the pedestrian islands are not adequate, she says. A surprisingly high number of children must cross streets in the roundabout because many of the children live outside of the immediate area surrounding Greenwood. Many of the families live between Recreation Way and Chestnut Grove.

The issue of cycling was brought up, and Mrs. Beechey called the idea "lethal." She said it was too dangerous for adults to cycle in the area, much less 8 year olds. She said that about the only way cycling might work in this area would be if a bike path was put in from the estate to William Morris and Tamworth Manor.

Mrs. Beechey brought up interesting information during the interview about "Walk to School Week," which is conducted by the Education Department. The week that we gave the surveys to Greenwood School was Walk to School Week. We attended Eddy Taylor's assembly presentation at the school. In this assembly, he stressed the importance of walking to school, as well as the importance of filling out our survey. (This may have contributed to the over 30% response rate from the parents.) Many of the children were quite excited and wanted to walk to school that week, especially if they didn't already.

But apparently, many of the parents drove their children from their house to a location that is reasonably close to school, and then "walked to school" with them from there. So although parents were not parking in the most complained about areas in front of the school, the children were not really walking to school, even though their parents made them think they had.

We interviewed Mr. Rogers, the Head teacher of William Morris Middle School on June 9th. Mr. Rogers mentioned many problems similar to ones Mrs. Beechey mentioned. He also pointed out some problems unique to William Morris. He believes that the primary reason parents drive their children to school is, for the most part, just pure laziness. He feels far too many children who live in the estate are being driven to school every day, which makes Recreation Way very congested. He estimates that 95% of children who attend William Morris live within a one-mile radius of the school, and that generally, students should not be driven such a short distance. But the Pollards Hill area is becoming more car dependent, and some parents feel the need to drive *everywhere*. A lesser factor is some child abductions that have happened in some other schools in the surrounding area. (Not in any of the five schools being studied here.) These abductions are very infrequent but very high profile. When one happens, some parents come to the realisation that it could have happened to their child, and consequently may become more protective of him or her.

Mr. Rogers feels the most dangerous area for his students is Recreation Way. During school opening and closing, there are cars parked all over the pavement and cars generally drive too fast on the road at all times, so when those two factors are combined, it creates dangerous possibilities for children to be hit by a car, particularly at school closing, when most children leave the school at the exact same time and are generally happy and running around because school has just ended. He asked that I come back Friday at around 3:00 to view this first hand.

Other dangerous places were the rear exit onto Wide Way, the "green man" intersection, and the Pollards Hill roundabout. The green man intersection is heavily congested, specifically between the hours of 3 and 4, when children from five schools all exit at this hour. The Pollard Hill roundabout has similar congestion problems

with the added dangers of no green men, no lollipop person, and the natural dangers that exist at any roundabout. He says that there used to be a lollipop person at the roundabout, but for some reason she was moved elsewhere. He would like to see her placed back at the roundabout for school opening and closing. He also suggested there be more speed control (i.e. bumps) on Recreation Way.

On June 11th, we interviewed Mrs. Viv Tombs, Head teacher of Alfred Mizen First School. She also brought up many of the same problems discussed by Mrs. Beechey. This is especially important because Alfred Mizen and Greenwood share a plot of land. Mrs. Tombs feels the primary reason many parents drive their children to school is that the parents are not organised; they leave everything until the last minute and end up driving their children to school out of convenience. In addition, the buses in the area are inconsistent, especially the 152 to and from the estate, where many of the children live. Another factor is laziness. Parents must accompany their small children to school, and some parents (and children) do not want to "waste energy" on a 5 to 15 minute walk. Parents' dropping their children off on their way to work presents another problem.

The most dangerous place for her students is Abbotts Road. There are many cars parked on the pavement and some parents even attempt to drive their children up the alley to the school, even though it is prohibited.

Earlier in the year, a voluntary one-way system was created by the school that included both Abbotts Road and Ivy Gardens. This created a less dangerous environment for about two days, but then parents became stingy and decided to drive both ways on the street. She believes that both streets should be one way, but this decree must come from the council, otherwise parents would not obey it.

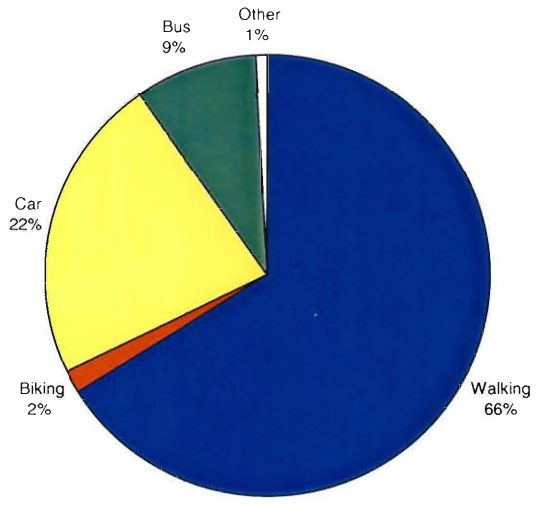
One other thing that Mrs. Tombs mentioned was the impending change to the school system in Merton. In 2002, the schools will shift from a 3–tier system to a 2–tier system. They will no longer have First, Middle, and High schools. Instead, they will have Primary and Secondary schools. When this happens, Greenwood and Alfred Mizen will become one school for children age 3–11.

We had hoped to interview the Head teachers of Tamworth Manor High School and Sherwood First School, but due to our time constraints, this was not possible.

4.3 Results of Surveys

From our analysis of the surveys, we have found an overall trend in the transportation of children to school. Overall, 66% of all students walk and 22% travel by car (Figure 4-13). This situation is complicated by rain, when 36% of all students travel to school by car.

Figure 4-13 Current Travel Methods (All Schools)



Overall, only 8% of students feel their travel to school is unsafe. Only 19% responded that they had ever been late because of "traffic jams". When asked if they travel to and from school with "friends or others", 58% of students reported that they "always" or "often" do. However, there is inaccuracy in this finding, as some of the First School students did not consider their parents as "friends or others." Because of this, we altered the Middle and High School surveys to read "Do you travel to school with parents, friends, or others." In terms of safety, only 14% of students report having experienced a "fright". We will now discuss each of the surveys in turn, starting with the First Schools.

4.3.1 First Schools

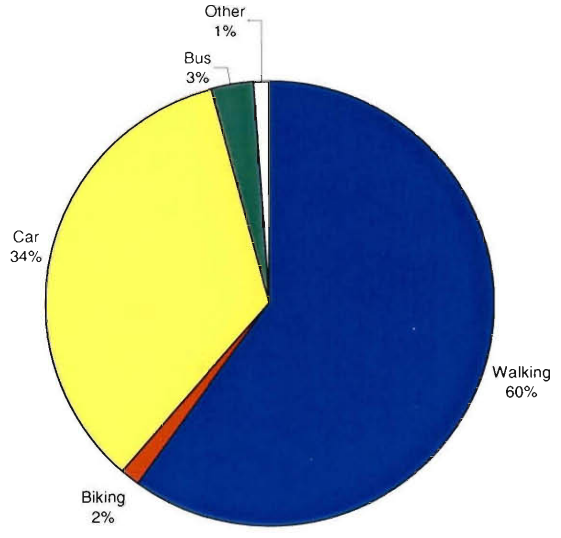
A copy of the First School Survey can be found in Appendix D.

The number of survey responses from each First School was approximately the same. Our analysis found similar responses from each of the schools on most questions. As a result, statistics will be given for all First Schools unless otherwise mentioned.

Question 1

When asked how they currently get to school, 60% of students reported they walk, and 34% came by car (Figure 4-14). Six students take the bus, with four of these six coming from the neighbouring borough of Croydon. Three individuals reported that they biked to school, although this must be considered cautiously as bicycling is not allowed for these students. One unique student rollerbladed to school, and another student reported that her primary method of transportation was running, from Brecon Close to Greenwood.

Figure 4-14 Current Travel Methods

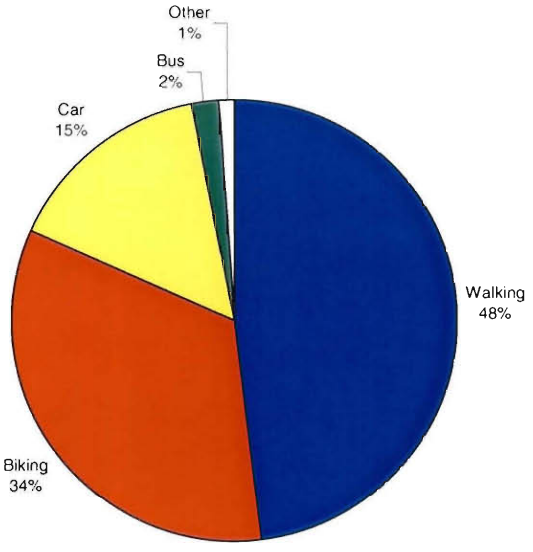


Question 2

Only 15% of the students responded that they would like to come to school by car (Figure 4-15). This is less than half of the 34% who currently travel this way. Unfortunately, these data are not completely accurate. Students at Greenwood and Sherwood were surveyed during Walk to School Week. Alfred Mizen students were surveyed two weeks later. Impressionable children at Greenwood and Sherwood may not have ticked that they would like to come by car because, during that week, it was not the popular thing to do. More accurate responses most likely came from Alfred Mizen, where most children probably forgot about Walk to School Week. To illustrate this, only 10% of Greenwood students and only 4% of Sherwood students responded that they would like to come to school by car. In contrast, 33% of Alfred Mizen students responded the same.

Overall, at the First Schools 49% of children reported that they would like to walk to school. The most surprising result from this survey was that over one–third of these students want to cycle to school. The reasons they gave for this were largely dependent on their current mode of travel. Those who currently came by car wanted to help the environment, much like those who wanted to change from car to walking. However, many students wanted to change from walking to biking. The most predominant reason given was that it is "faster". A maturity factor probably exists here as well, since biking appears more "grown–up" than walking to young children.

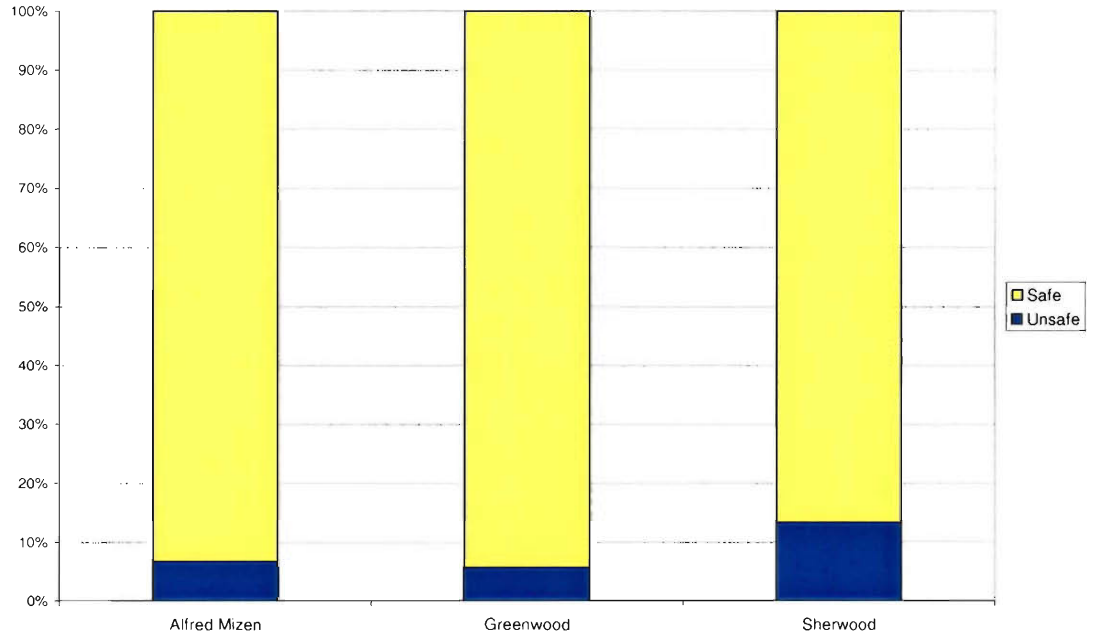
Figure 4-15 Desired Travel Methods



Question 3

Nearly all children at Alfred Mizen and Greenwood (93–94%) report that their trip to school is safe. However, only 87% at Sherwood report that their trip is safe (Figure 4-16). This is likely a result of the streets and alleys adjacent to the school. There is a high amount of automobile traffic on the streets surrounding the school and the only access is through narrow alleys.

Figure 4-16 Travel Safety



Questions 4 & 8

When we created the survey, we thought this information would be useful. We now realise that to be of any use, these questions would have to be more specific. Therefore, we omitted these questions from our analysis.

Question 5

Thirty-five children (19%) reported that they had been late to school because of traffic jams. Oddly, 11 of these children also reported that they walked to school. Those students probably misinterpreted this question. Consistent with the well–known irregularities of the area buses, four out of the six students who ride a bus responded "yes" to this question.

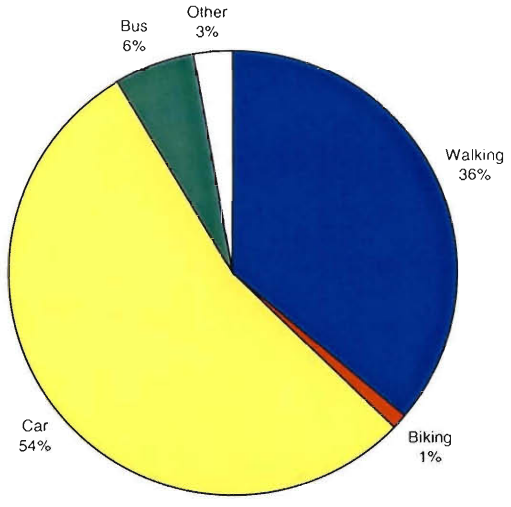
Question 6 & 7

As stated earlier, this question was misinterpreted by many students who did not consider their parents as "friends or others." Thus, only 30% of the students answered "always," but judging from corresponding parent responses, this number should be closer to 100%.

Question 9

Not surprisingly, almost twice as many children travel by car when it is raining (Figure 4-17). Although this is an important statistic, it is nearly impossible to prevent this many cars from being on the road in bad weather. Parents do not want their children to get wet, and this is a factor we can do nothing about.

Figure 4-17 Travel Methods When Raining



Question 10

Another determination of student safety was to ask if they have had any "frights" on their way to school. The rates for this were generally low, at 11% overall, including less than 10% at both Alfred Mizen and Sherwood. Of all frights, 79% are motor vehicle related, and only one child reported a fright involving a "stranger."

4.3.2 Middle School

A copy of the Middle School Survey can be found in Appendix E.

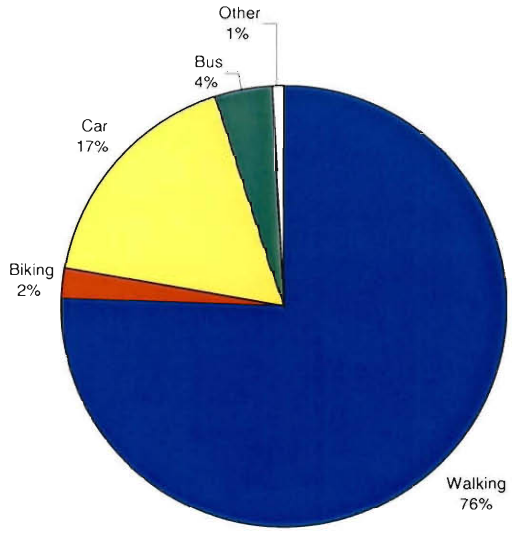
Since William Morris Middle School has almost 600 students, it was not feasible to analyse all of the surveys. We therefore decided to analyse all of the surveys from Year 6 (138 students) only. For this section, any statistical references to "William Morris" refer to Year 6 at William Morris Middle School.

Question 1

William Morris has the highest percentage of children who walk, at 76%, which is 10 percentage points above the average (Figure 4-18). The reason for this astoundingly high proportion probably lies in the school's location. William Morris is located on Recreation Way, the same street as the estate, where approximately half of William Morris students come from. Children who live on Brecon Close or Caernarvon Close are literally across the street from the school. The rest of the estate is slightly further away, but still within a five-minute walk. The other schools that we surveyed also have high numbers of children living in the estate, but do not enjoy the close proximity to the area that William Morris has.

Of those who do not walk, most come by car. Only 6 children come by bus. Apparently, 3 children come by bike, even though school rules prohibit it. These children are either breaking these rules or lying.

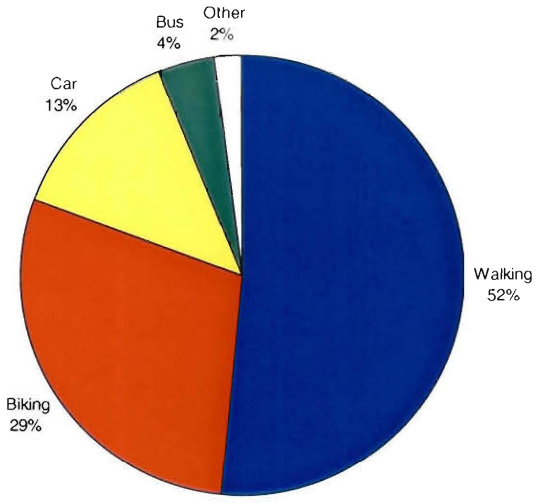
Figure 4-18 Current Travel Methods



Question 2

Many children would like to see the "no bike" rule eliminated (Figure 4-19). Over one-quarter of William Morris children would like to cycle to school. This large percentage is similar to the First schools' response to this question. Many want to ride because they just got a new bike or because it is "faster than walking." Many parents feel these children are naïve because almost 40% of parents at William Morris are uncomfortable with children travelling to school by bike.

Figure 4-19 Desired Travel Methods



Question 3

Only 16 students (12%) regarded their trip to school as "unsafe." Many of these children walk to school and must cross at least one street at the Pollards Hill roundabout.

Questions 4 & 8

Questions 4 and 8 on the Middle School survey were identical to Questions 4 and 8 on the First School survey, and as previously mentioned, were not specific enough to be helpful.

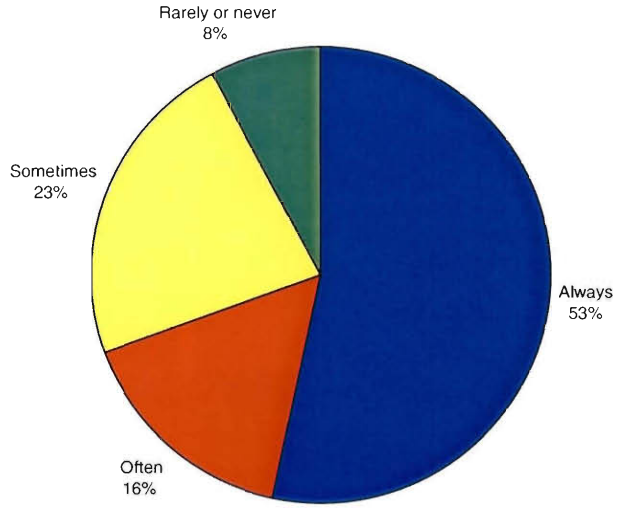
Question 5

Nineteen children reported that they had been late because of traffic jams. Not surprisingly, all of these children come to school via the bus or car. Interestingly, only 30 children travel by bus or car, so of those that take a bus or car, almost two-thirds have been late because of traffic.

Questions 6 & 7

The difference in accompaniment when going to and from school was very small. Therefore, the two questions are combined in (Figure 4-20). Only about half of the students "always" come to school with others, but with so many schoolchildren in such a small area, one would think that almost no children are truly walking to school "alone," as there are probably many children within a few feet of those that travel alone.

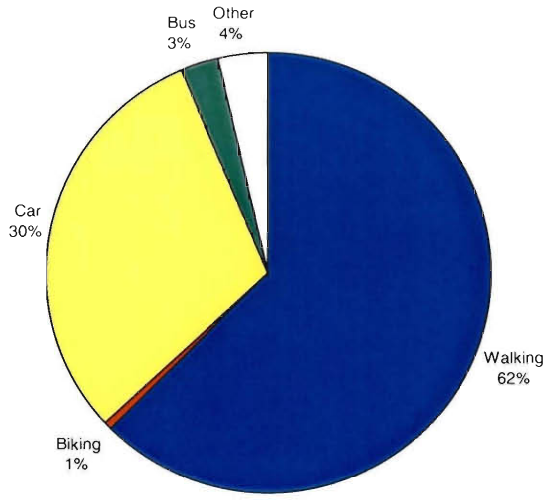
Figure 4-20 Travel With Others



Question 9

Like First School students, almost twice as many children travel by car in bad weather (Figure 4-21). As stated before, this adds to the already menacing traffic problem in front of the schools, but little can be done to prevent this.

Figure 4-21 Travel Methods When Raining



Question 10

A disturbingly high number (almost one-fifth) of children said that they had had a fright on their way to school. Most of these frights were due to cars driving too fast on the road or nearly hitting children. Other frights included bullying, scary dogs, or suspicious people.

4.3.3 High School

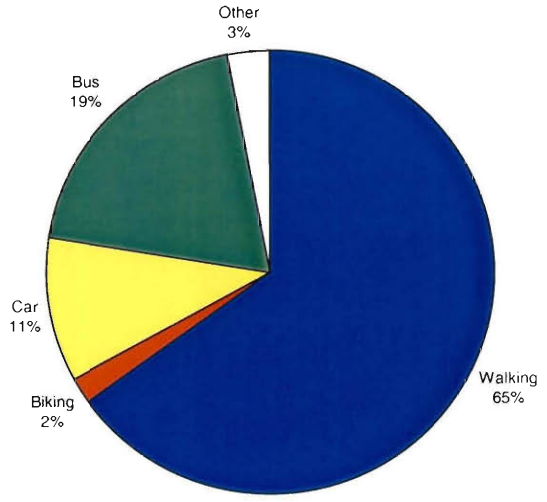
A copy of the High School Survey can found in Appendix F.

Like William Morris, Tamworth Manor High School has far too many children for a complete survey and analysis of the entire school. Therefore, the Council scheduled us to survey Year 8 (160 students) only. For this section, statistical references to "Tamworth Manor" refer to Year 8 at Tamworth Manor High School.

Question 1

Not surprisingly, Tamworth Manor has the lowest percentage of children that travel by car (11%) (Figure 4-22). Children in this age group (12–13 years old) are not old enough to drive a car, but are old enough that they do not want or need their "Mommy and Daddy" to drive them to school. The most popular method for travelling to school was walking, especially for students who lived close to the school. Almost one–fifth of students come to school via one of the various buses that stop in the area. This method was especially popular for children who live in other areas of Mitcham, as well as children from Streatham Vale and several out–of–borough students.

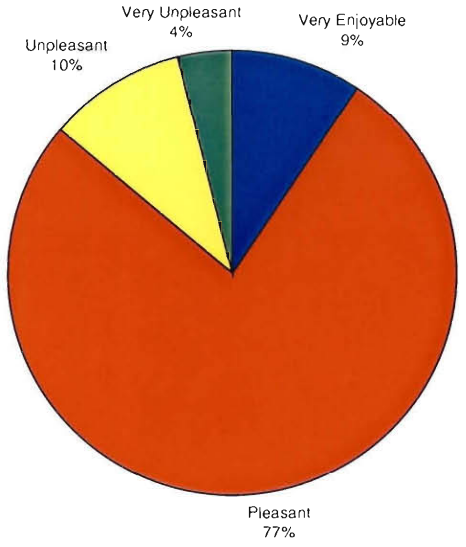
Figure 4-22 Current Travel Methods



Question 2

86% of students rated their journey as "Pleasant" or "Very Enjoyable" (**Figure 4-23**). Most who said their journey was "Unpleasant" or "Very Unpleasant" either walked a long distance alone or rode a bus. All 17 children who came by car rated their trip as "Pleasant" or higher. Only 3 students biked to school.

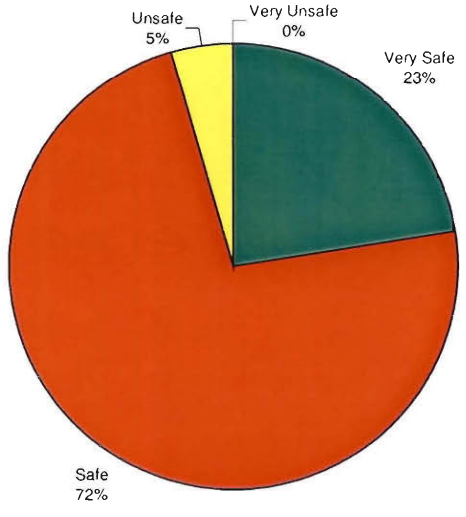
Figure 4-23 Travel Enjoyment



Question 3

Only 7 students (5%) rated their trip to and from school as "Unsafe," (Figure 4-24) No one believed it to be "Very Unsafe." Not surprisingly, these answers oftentimes matched up well with the previous question. Many of those who thought their journey was "Very Enjoyable" also felt "Very Safe." Most of those who felt unsafe either rode a bus or walked alone.

Figure 4-24 Travel Safety



Question 4

Almost one–fifth of students would like to come to school another way. The most popular reasons included: "Biking/car is quicker than walking," "Buses are unreliable," and "I would like to walk, but it is too far."

Question 5

Over 70% of Tamworth Manor students own a bicycle. Of those that do, 64% are allowed to cycle on main roads. Puzzlingly, only 3 of these 71 children take advantage of this and cycle to school. This low percentage may largely be due to the fact that there are no facilities for bicycle storage. In fact, several students cited this as a reason for not biking to school.

Questions 6 & 7

By themselves, these questions are largely unhelpful. We used them as comparison gauges. For instance, part of our analysis on questions 2 and 3 took into account travel distances.

Question 8

Almost a quarter of the students reported they had been late because of traffic jams. Over half of these responses came from students who took buses to school. Bus unreliability is nearly a universal complaint throughout Mitcham. Students, parents, and Head teachers have complained about them, and we have experienced this unreliability first–hand as well.

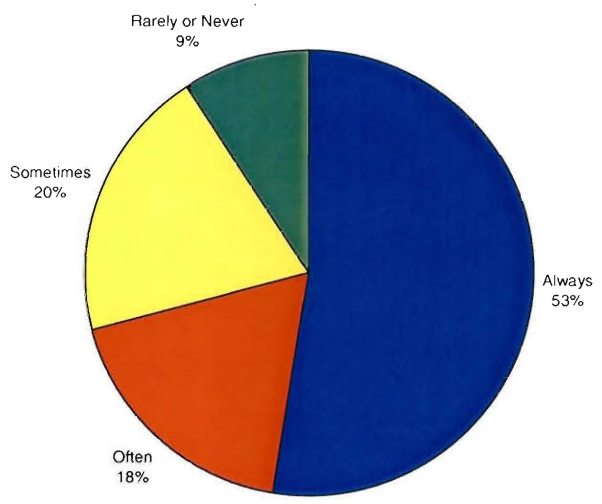
Question 9

Responses to this question did not surprise us with any new information. Many complained about motorists driving too fast, the fact that there are no bike storage facilities, and the occasional bully complaint.

Questions 10 & 11

Responses to these questions almost exactly parallel the responses we received from William Morris. See Questions 6 & 7 in the Middle School Section and (Figure 4-25).

Figure 4-25 Travel With Others



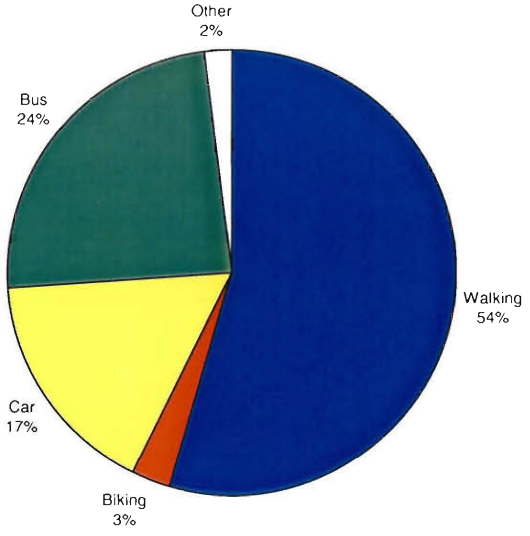
Question 12

This question was not helpful in our analysis. See Question 8 in the First School Section.

Question 13

Surprisingly, only 20 fewer students walk to school when it is raining . Not only are travel methods in the rain largely unchangeable, we should also be appreciative of the fact that only 17% of students come to school by car when the weather is bad (Figure 4-26).

Figure 4-26 Travel Methods When Raining



Question 14

Not surprisingly, the most popular answers to this question were "easier", "quicker", or "close to school". This type of answer was common amongst all of the methods. Walkers also brought up reasons such as "exercise", "less pollution", and "all of my friends walk." The second most popular response among those who get to school by car was the fact that their parents went on to work directly after dropping them off.

Question 15

14% of Tamworth Manor students reported that they have had a "fright" on their way to school. The types of frights listed by these students are very similar to those listed by students at William Morris (4.3.2 – Question 10).

Question 16

A few students had some questions or comments most of which asked why we were doing this survey. Some students requested school buses, and there was also a request for a zebra crossing near Meopham Road.

4.3.4 Parents

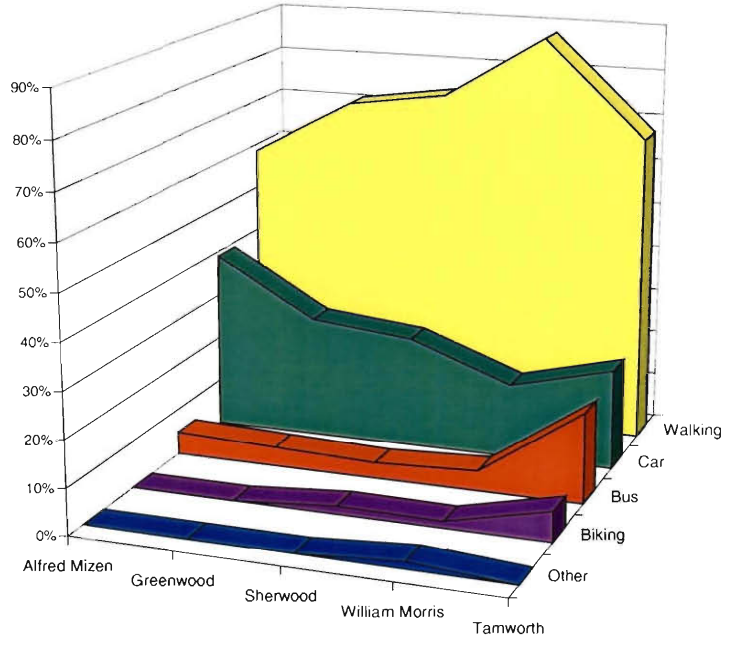
A copy of the Parent Survey can be found in Appendix G.

The Parent Survey was administered to parents from all of the schools. Because only one survey was created, the analysis below includes responses from all schools, unless otherwise noted.

Question 1

The information obtained from this question yielded no surprises (Figure 4-27). Most parents said that their children walked, consistent with our student survey data. Unfortunately, we neglected to insert an instruction on this question that said to "Tick only one" like we did on the student surveys, preventing us from making clear comparisons of this question.

Figure 4-27 Current Travel Methods



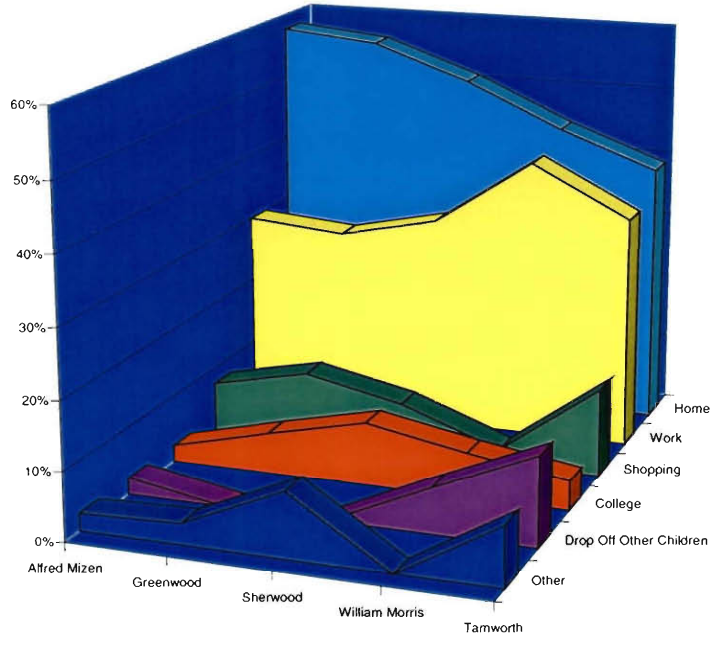
Question 2

We had intended for this question to ask where parents went after they dropped their children off, if travelling by car. We chose to sort out responses by the method of travel to school, before analysing.

Of parents who drive their children to school, 36% went directly home afterwards, 48% went directly to work, and 5% went shopping. Of the parents who walk to school with their child, 26% went to work afterwards, 54% went home, 6% went to college and 8% went shopping (Figure 4-28).

Among parents who drive, continuing on to work is not the overwhelming reason for driving. Almost an equal number of parents go home after dropping their child off. It is also possible that Walk to School Week may have interfered with the answers to this question. Many parents may have parked farther from the school than normal, and walked a short distance with their child, then returned to their car and driven on to their next destination.

Figure 4-28 After Dropping off Children



Question 3

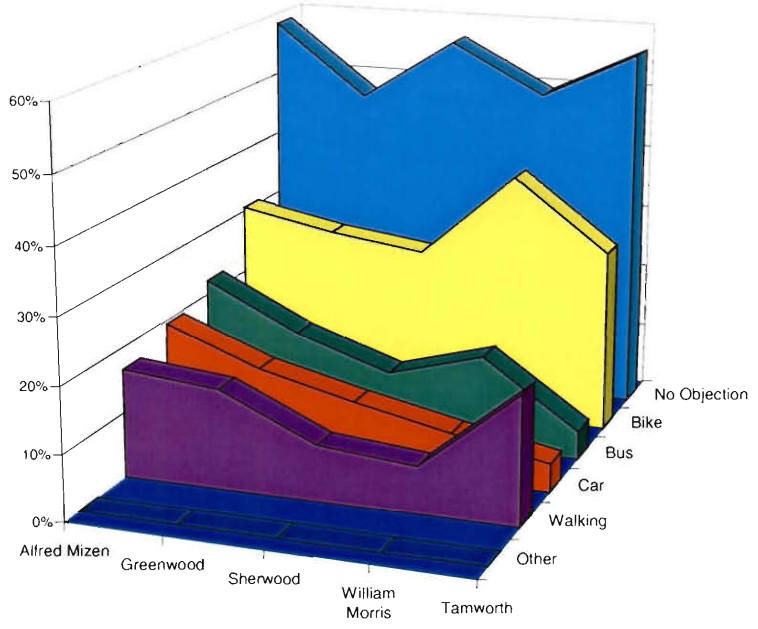
Surprisingly, 52% of the parents that responded had no objections to any methods of travel to school (Figure 4-29). Many parents had two or more objections, therefore these percentages will not add up to 100%. Biking was the most "uncomfortable" method of travel for parents of all five schools, especially at William Morris, where almost 40% objected. Almost every parent having a problem with cycling responded that it was "too dangerous for children".

"Walking", "car", and "bus" were each reported as being "uncomfortable" by approximately 12% of parents overall. However, this figure was not consistent amongst the three types of schools.

The car was cited as being "uncomfortable" by 14% of First School parents, compared with 7% of Middle School parents, and 4% of High School parents. This is probably due to the distance that each type of student must travel. In Merton, there are many more First Schools than Middle or High Schools. Thus, many First School children do not have to travel as great a distance as they will when they attend Middle or High School. Because of this, many parents felt the car to be unnecessary and therefore objected to it.

Similarly, many High School parents felt "uncomfortable" in letting their child walk to school great distances. Consequently, one–fifth of these parents objected to "walking". Also, because of distance and maturity, most parents of High School children did not feel "uncomfortable" with the bus. The few objections here were mainly complaints about unreliability.

Figure 4-29 Uncomfortable Travel Methods



Question 4

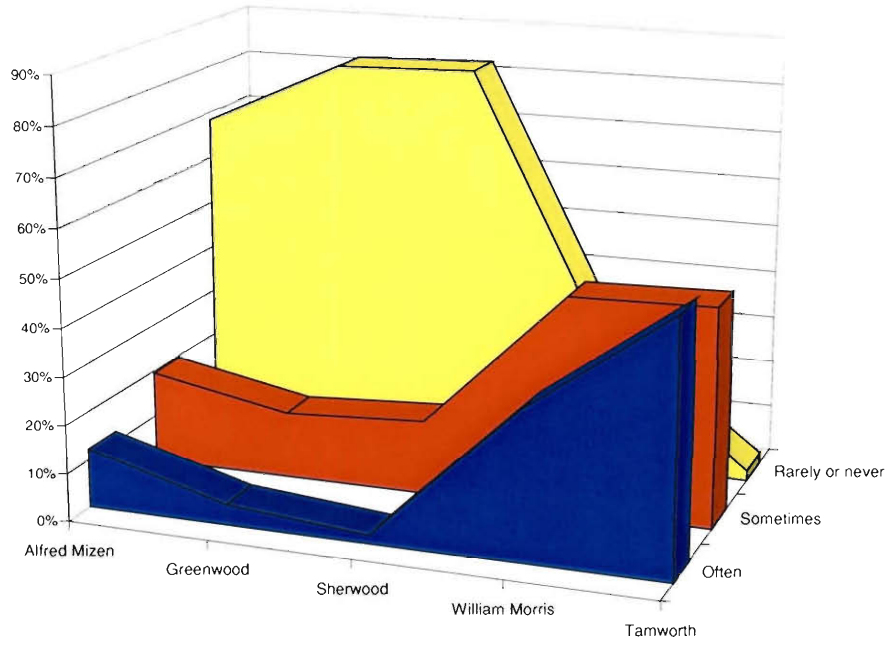
Over half (54%) of the parents gave us specific areas where they had a problem. The major areas given are represented on the map in Appendix H.

Questions 5 & 7

For Question 5, 19% responded "often," 28% responded "sometimes," and 53% responded "rarely or never" . Obviously, many of the "rarely or never" responses came from parents of the First school children, and most of the "often" responses came from parents of High school children.

One child between all of the First Schools, does not go to and from school with an adult. At William Morris 65% of the children travel without an adult, and at Tamworth Manor this number rises to 84%. This parallels question 5, in that children are allowed out by themselves as they get older.

Figure 4-30 Allowance of Children Out Alone



Question 6

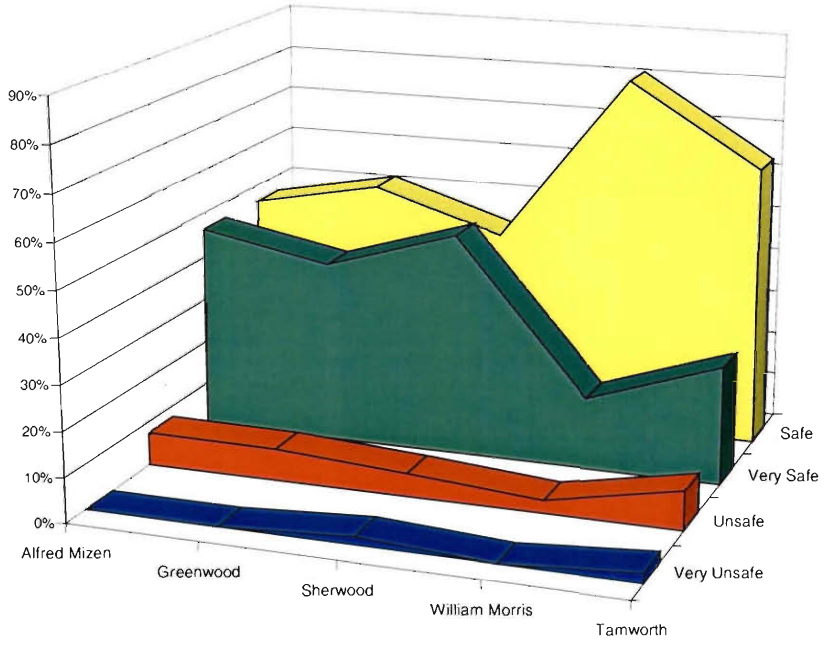
We asked the parents if they had any specific reasons for how their child travelled to school, and 45% responded "yes" and explained their reasons. Of the rest 52% responded "no" and 3% did not respond at all. Almost all of the reasons parents described were the same reasons pointed out in at least one of the three Head teacher interviews. Many First School parents want to ensure that their child gets to school safely, regardless of the means of travel. Many other reasons involved distance from the school, whether it is walking for those that live close, or bus or car for those that live far away. Many parents who drove their children to school also claimed that the school is on their way to work.

Question 8

The overwhelming majority (93%) of parents responded "very safe" or "safe" (Figure 4-31). Almost half of First School parents deemed their child's trip to school as "very safe," compared with only one–fifth of Middle and High School parents.

The reason for this disparity lies in the previous question. Since almost every child in the First Schools comes to school with an adult, parents would most likely consider the trip "very safe". ('How much safer can the journey be?' parents think.) However, since most Middle and High School students do not travel with an adult, most parents do not consider the journey "very safe," but "safe," which, apparently, is adequate for them.

Figure 4-31 Relative Safety Travelling to School



Question 9

Almost all parents whose children walk want their children to continue doing so. In addition, some parents who drive their children to school wish their children could walk, but this is not possible due to distance and various other factors. Many parents of First School children answered "With/By an adult," implying that the method of transportation was irrelevant, so long as an adult was present. Twenty-three parents wished that there were school buses.

Questions 10 & 11

These two questions were not very useful in our analysis. Since we had every survey marked in accordance with which school it came from, the ages we received came as no surprise (3–8 for the First Schools, 10–11 for Year 6, 12–13 for Year 8). Since only one child had a disability that limited means of transportation, we cannot make any general statements on this topic.

Question 12

Obviously no one who answered "none" to this question drove their child to school. Surprisingly, a much higher percentage of those with only one car drove their child to school as those with two or more cars, lending credibility to the "car as a status symbol" thought mentioned by the Head teachers.

5.0 Proposals

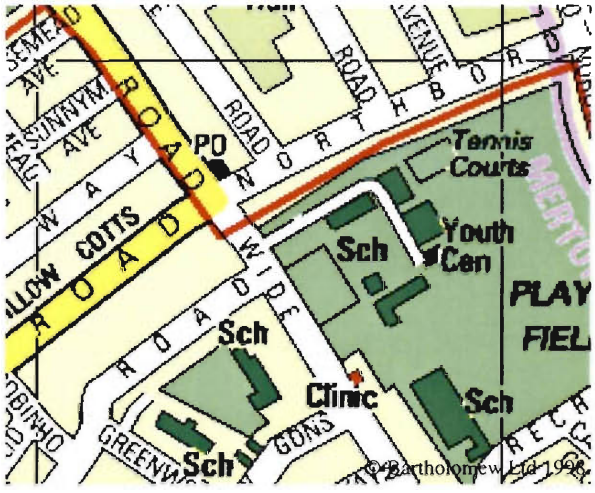
Appendix A contains a map of Merton, and Appendix B contains a map of Pollards Hill.

There are three main types of proposals: changes to the structure of the roads, changes to school grounds, and programmes to increase the safety and number of children walking or cycling. These proposals consist of changes suggested by parents and Head teachers, as well as our observations. The proposals that we have created cannot be implemented solely by a bid to Central Government. Some of these proposals require the schools' or Borough Council's assistance for implementation. These proposals are as important as the road structure changes, despite the fact that money from Central Government cannot be used to implement them.

In order to create our proposals, we had to address the concerns that make parents choose to drive. The overwhelming concern from parents was the safety of their child's trip to school. This is addressed in two ways by our proposals. First, the structural changes will make the roads and schools safer for children. Second, the programmes to increase walking and cycling address the parent's perception of safety. While the structural changes might make the streets safer, parents will not necessarily notice. To make an impact on the number of parents driving, they must perceive that it is safer.

5.1 Proposal 1 – "Green Man" Intersection

Figure 5-1 "Green Man" Intersection



At the intersection of Wide Way, Manor Road, Northborough Road, and Rowan Road (Figure 5-1, Appendix B), there appears to be a 90 second cycle. First, cars coming from Wide Way and Rowan Road have a green light for 40 seconds, and then cars on Manor Road and Northborough Road have a green light for the next 40 seconds. Next all walk lights are green for 10 seconds.

The walk light is not long enough. Ten seconds does not give slow pedestrians enough time to cross. Also, parents have complained that cars run the red lights, and move at the first sign of the red light/yellow light combination. This means that the actual amount of safe crossing time is closer to 5 seconds. Because of this, many children run across the intersection even at a green walk light.

This problem is amplified by the number of children who go to Tamworth Manor and ride bus 118. The 118 stops on Rowan Road, at the corner with Manor Road. Tamworth Manor is on Wide Way opposite Abbotts Road. This is diagonally across from the bus stop. The children are thus forced to either cross diagonally or wait through two walk cycles. Because the children do not want to wait 3 minutes to travel across the intersection, many run across the street without the safety of a walk light. From our observation, they make it because there is not enough traffic to warrant a 40 second green light. However, this is still a dangerous practice which should be eliminated

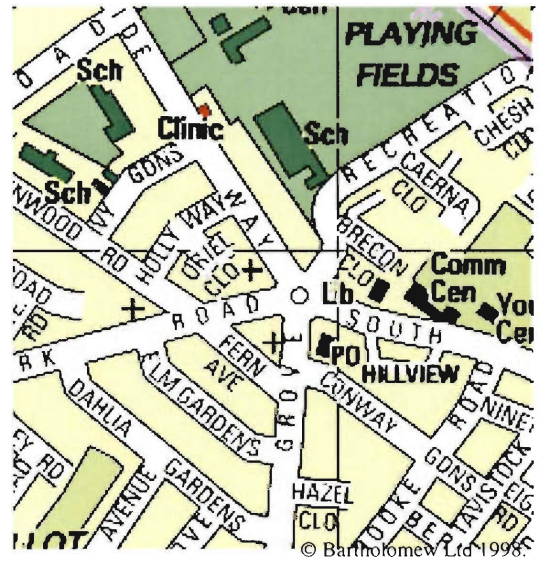
What we propose is a new light cycle. The cycle would work as follows:

1. 30–35 second green light for Wide Way and Rowan Road

2. 1–2 second all red
3. 1–2 second red/yellow combination for Northborough Road and Manor Road
4. 30–35 second green light for Northborough Road and Manor Road
5. 2–3 second all red
6. 20 second scramble walk light
7. 2–3 second all red
8. 1–2 second red/yellow combination for Rowan Road and Wide Way

5.2 Proposal 2 – Pollards Hill Roundabout

Figure 5-2 Pollards Hill Roundabout



The Pollards Hill roundabout is a focal point for pedestrian movement in the area (Figure 5-2). Five relatively heavily trafficked roads converge here, making it hazardous for pedestrians to cross.

There are no safe pedestrian crossing facilities at the roundabout. The present pedestrian islands are considered too small, or non–existent in the case of Chestnut Grove. The only exception to this is the pedestrian island on South Lodge Avenue, which is considered adequate.

Danger to pedestrians is increased due to the driving habits of motorists using the roundabout. While some drivers were courteous enough to let small children cross, most sped past, especially drivers exiting the roundabout. The speed of cars is

considered excessive, especially when driving directly across the roundabout, such as cars going from Wide Way to South Lodge Avenue.

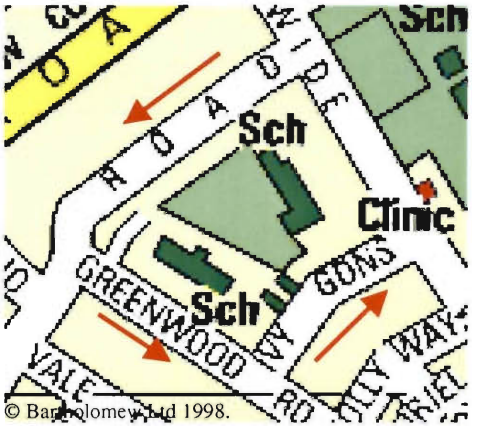
Parking creates further problems. Many cars park on both sides of the road too close to the roundabout. In one case, a car was partly parked within the circulatory area of the roundabout. The worst case of this type of parking was observed on Chestnut Grove, the only road with no pedestrian island. All pedestrians crossing Chestnut Grove did so between parked vehicles. This is considered among the most dangerous ways of crossing a road, especially for young pedestrians who could easily be masked by parked vehicles

According to many of the parents who have sited this area as a problem, there used to be a "lollipop person" (crossing guard) that controlled pedestrian and motorised traffic. For reasons unknown to us, this procedure has been discontinued. We propose that consideration be given to increase the size of existing islands at the roundabout, except for South Lodge Avenue. Consideration should also be given to adding an adequate island at Chestnut Grove. Also we suggest that the "lollipop person" be reassigned at the roundabout during school opening and closing hours. In addition, the law against parking close to the roundabout should be strictly enforced. Finally, some small humps should be added across the five roads where they enter the roundabout.

5.3 Proposal 3 – One Way System

The entrance to Alfred Mizen is on Abbotts Road, and the entrance to Greenwood is on Greenwood Road. There is also an entrance to both schools on Ivy Gardens. When we observed the opening and closing of school at Greenwood and Alfred Mizen, we immediately noticed the dangers associated with this set-up.

Figure 5-3 One-Way Streets



Abbotts Road is not particularly wide. Cars are parked on both sides of the road, and traffic travels in both directions. Greenwood Road has a similar size as Abbots Road and has the same problems. In the mornings, cars must wait outside the school entrances for cars travelling in the opposite direction to pass. Parents parking in the same area to drop children off at the schools compound this problem. The existing arrangements at Ivy Gardens are considered worse. The road itself is barely wide enough for two-way traffic. Even though the road is so narrow, parking is still allowed, and this leads to cars being parked on the pavement, thereby restricting pedestrian access. Because the road is so narrow, there is the same problem with cars having to stop to let traffic in the other direction continue past.

We propose an anticlockwise one–way road system surrounding these two schools. Abbots Road, from Wide Way to Greenwood Road, would become one–way with traffic flowing in a southwesterly direction (Figure 5-3). Greenwood Road would be one–way from Abbotts Road to Ivy Gardens, and Ivy Gardens would be entirely one–way. Also, to prevent pavement parking, bollards or other barriers should be placed alongside the entrances to these two schools.

This proposal may create new problems because people tend to drive faster on one-way streets, due to the fact that it appears safer (no oncoming traffic). Because of this, we suggest that a hump system be placed on these three roads as well.

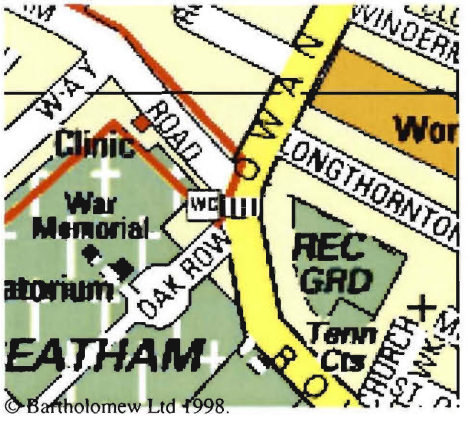
5.4 Proposal 4 – Recreation Way

During our interview with Mr. Rogers, he said that cars drive too fast on Recreation Way. Several parents have mentioned this as well. We propose that a hump system be installed on Recreation Way in order to calm traffic. In addition, many parents have noted that cars park on the pavement during school opening and closing. Therefore, bollards should be placed along the pavement in front of the school.

5.5 Proposal 5 – Zebra Crossing on Rowan Road between Meopham Road and Oak Row

Despite this area being almost half a mile from the nearest school we surveyed, this location was noted as a safety problem by several parents and students (Figure 5-4). One student also suggested that a zebra crossing be placed here. After inspecting this area ourselves, we concluded that consideration be given to the addition of a zebra crossing facility in this area.

Figure 5-4 Oak Row/Meopham Rd.



5.6 Proposal 6 – Zebra Crossing on Wide Way between Abbotts Road and Ivy Gardens

Several parents, as well as Mr. Rogers, have identified Wide Way as a safety problem. Despite having two school entrances, Wide Way does not have any zebra crossings. We propose that consideration be given to adding a zebra crossing facility on Wide Way near the William Morris school entrance.

5.7 Proposal 7 – Alfred Mizen Entrance

At the Abbotts Road entrance to Alfred Mizen, parents have been known and seen to drive directly into the school entrance. They do this in the morning and afternoon, even with children and parents walking down the same entrance.

The solution to this problem comes from Greenwood. At Greenwood they have a post that can be raised to block car access to the entrance. At school opening and closing, they raise this post so that cars cannot drive down the entrance. We propose that Alfred Mizen install the same style of post.

5.8 Proposal 8 – Sherwood Alley

To prevent motorists from driving down the alley between Abbotts Road and Castleton Road a movable post, similar to the one at Greenwood's entrance, should be placed in this alley adjacent to the school parking lot.

5.9 Proposal 9 – Human School Bus

Many parents have mentioned the idea of a school bus that would transport their children to school. Surrey County has implemented the novel idea of a "human school bus" or "walking bus." This "bus" is led by an adult, with an additional adult

in the rear. Children walk to school in this "bus", which picks up additional children at their houses on the way to school. This allows children to walk to school in a safe and organised manner.

We propose that a similar plan be instated for the Pollards Hill schools. This idea would be particularly useful for the First schools, where the children cannot go to school unattended, but whose parents may not want to take a half hour out of their day walking with their child to and from school.

5.10 Proposal 10 – Cycling to School Promotions

Almost one–third of First and Middle school students want to cycle to school, but it is prohibited. Since cycling is allowed at Tamworth Manor, one could reasonably assume that cycling to school for Year 8 students would be relatively prevalent. However, only 3 out of the 71 children allowed to cycle on main roads utilise this privilege to cycle to school. The reason for this discrepancy must lie in how little cycling to school is promoted. There are no bike racks at Tamworth Manor, just a fence to which bikes are chained. In addition, cycling in the Pollards Hill area is considered hazardous, as there is little room on the roads for cyclists to ride safely. This proposal, probably our most ambitious, could be used as the beginnings of a campaign to promote cycling to school as a healthy, and safe option.

We propose that a cycle lane be placed from Recreation Way to Northborough Road, running behind Tamworth Manor and William Morris. To promote its use, bicycle racks should be placed at Tamworth Manor and William Morris. Hopefully, this will promote children from both the estate and Streatham Vale to cycle to school.

If successful, this proposal should be extended to begin a large–scale programme to promote cycling to school. Although currently close to one–third of

parents feel uncomfortable with their child cycling to school, if it is popular enough, additional cycle lanes should be placed not only in the Pollards Hill area, but also other areas of Merton. Optimistically, this programme could make cycling to school both safe and convenient, even for First School children, who appear to be most enthusiastic about the concept.

6.0 Conclusions

The purpose of this project was to propose changes that will decrease dependence on the car as a method of transporting children to school. Our proposals will hopefully make the roads safer for the children that currently walk to school, as well as making it safer for more children to start walking to school.

One of the most surprising results of our survey was the parents' response rate. When we arrived in Merton, we were told to expect a poor response rate from the parents in Pollards Hill. We were told we would be lucky to get 15% of the surveys returned. Yet we received over twice that amount. From William Morris, we had a response rate of 50%. This seems to indicate that parents care a great deal about the effects this project could have. Any of the above proposals could have a great impact on Pollards Hill because the parents will be looking for changes in the near future. The hardest part in making these changes have a lasting effect is getting people to notice them.

Geographic Information Systems is an area that we were unable to make use of in this project. We had hoped to be able to use a GIS to keep track of where the children lived, and the path that they took to school. Unfortunately, we were not able to do this with the GIS that Merton currently has in place. An upgraded GIS would have been extremely helpful to this project. If the Borough Council had the ability to store the residences of every school–age child in a GIS, combined with where that child goes to school, it could be a very useful planning tool. This updated GIS could be especially useful in light of the changes to the school system that are approaching. This 2–tier system could cause many changes in how children travel to school. An updated GIS might be useful in anticipating some of those changes.

There are a few areas where the work of this project could be continued. A follow–up project could determine how successful changes to Pollards Hill have been. It would be interesting to see if there is a change in the practices of parents and children. Two of our proposals have the possibility of being projects in themselves. The "Human School Bus" would have to be tested on a trial basis to determine if it would be successful in convincing parents to allow their children to walk to school. If successful, it could then be implemented on a larger scale. The cycling programme would require similar planning and testing before complete implementation.

Overall, we have achieved our goals. We determined that the parents' major motivation was the safety of their child's trip to school. The proposals we have created address this concern in two ways. First, the structural changes will make the roads a safer place for children to walk. Second, parents' perceptions of safety will be changed by the visual nature of our programmes. Hopefully, Pollards Hill will become not only a safer place for walking but also less polluted and congested from traffic.

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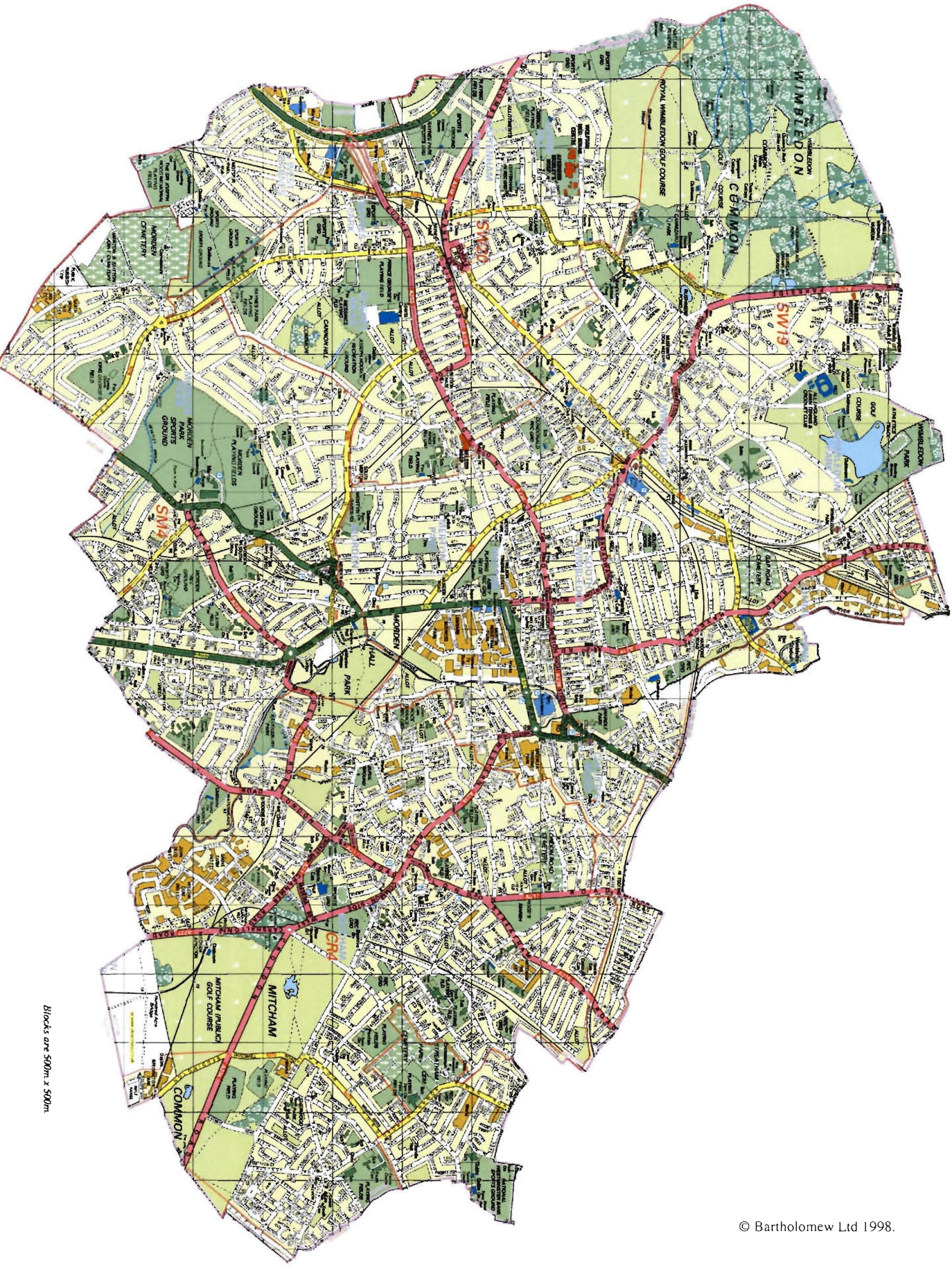
Expert Resources:

James Doyle. Assistant Professor, WPI: Surveying & Psychology.

Robert Vartanian: Student Assignment Officer, Worcester Public Schools

Appendix A: Map of Merton



Blocks are 500m. x 500m.

Appendix B: Map of Pollards Hill

Blocks are 500m x 500m

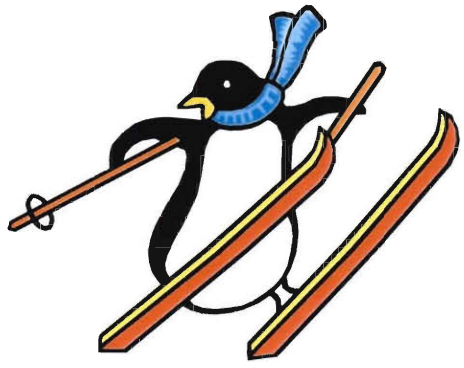
Appendix C: Essential Interview Questions

- Are you aware of the Safer Routes to Schools Project?
- Why do you believe some parents choose do drive their children to school, specifically in the Pollards Hill area?
    - What kinds of problems stem from this?
    - What do you think should be done about this?
- What do you feel the borough council should do about a road or area that is seen as a problem, especially in regards to safety?
    - Are there any areas in Pollards Hill that you feel are a problem?
- Do you feel that the Pollards Hill area is safe enough for children to travel to school alone? /with friends? /with an adult?
    - Is there a certain age when children should be allowed to travel alone?
- If you had a child and lived in Pollards Hill, how would your child travel to school?

Appendix D: First School Survey

Merton Safer Routes to Schools Student Survey

All personal information will be held confidential. If there are any specific questions you are uncomfortable answering, skip them. If you have additional comments or thoughts not asked by a question, feel free to write in the blank space or on the back of this sheet.



Full Name: _____

Age: _____

Are you?

☐ Boy

☐ Girl

Address: _____

_____

_____

_____

_____

1. How do you get to school most often? (tick only one)

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

2. How would you like to come to school?

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

- Why would you like to come to school this way?

_____

_____

_____

3. Is your trip to school safe or unsafe?

☐ Safe ☐ Unsafe

4. Do you go home from school the same way you go to school in the morning?

☐ Yes ☐ No

5. Are you ever late to school because of traffic jams?

☐ Yes ☐ No

6. Do you travel to school with friends or others?

☐ Always
☐ Often
☐ Sometimes
☐ Rarely or never

7. Do you travel home from school with friends or others?

☐ Always
☐ Often
☐ Sometimes
☐ Rarely or never

8. Would you prefer to walk to school with friends?

☐ Yes ☐ No

9. How do you come to school if it is raining?

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

10. Have you ever had a fright on your way to school?

☐ Yes ☐ No

- If yes, please explain. _____

_____

_____

Thank you for participating in our survey.

Appendix E: Middle School Survey

Merton Safer Routes to Schools Student Survey

All personal information will be held confidential. If there are any specific questions you are uncomfortable answering, skip them. If you have additional comments or thoughts not asked by a question, feel free to write in the blank space or on the back of this sheet.

Full Name: _____

Age: _____

Are you?

☐ Boy

☐ Girl

Address: _____

_____

_____

_____

_____

1. How do you get to school most often? (tick only one)

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

2. How would you like to come to school?

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

- Why would you like to come to school this way?

_____

_____

_____

3. Is your trip to school safe or unsafe?

☐ Safe ☐ Unsafe

4. Do you go home from school the same way you go to school in the morning?

☐ Yes ☐ No

5. Are you ever late to school because of traffic jams?

☐ Yes ☐ No

6. Do you travel to school with parents, friends, or other people?

☐ Always
☐ Often
☐ Sometimes
☐ Rarely or never

7. Do you travel home from school with parents, friends, or other people?

☐ Always
☐ Often
☐ Sometimes
☐ Rarely or never

8. Would you prefer to walk to school with friends?

☐ Yes ☐ No

9. How do you come to school if it is raining?

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

10. Have you ever had a fright on your way to school?

☐ Yes ☐ No

- If yes, please explain. _____

_____

_____

Thank you for participating in our survey.

Appendix F: High School Survey

Merton Safer Routes to Schools Student Survey

All personal information will be held confidential. If there are any specific questions you are uncomfortable answering, skip them. If you have additional comments or thoughts not asked by a question, feel free to write in the blank space or on the back of this sheet.

Full Name _____

Are you?

☐Boy

☐Girl

Age: _____

Address: _____

_____

_____

_____

1. How do you get to school most often? (tick only one)

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

2. How enjoyable would you rate your journey to and from school each day?

☐ Very Enjoyable

☐ Pleasant

☐ Unpleasant

☐ Very Unpleasant

3. How safe would you rate your journey to school/home?

☐ Very Safe

☐ Safe

☐ Unsafe

☐ Very Unsafe

4. Would you rather travel to school another way?

☐ Yes ☐ No

- If you would, please explain, _____

_____

_____

_____

_____

5. Do you own a bicycle?

☐ Yes ☐ No

- If yes, do your parents let you cycle on main roads?

☐ Yes ☐ No

6. How far do you travel to get to school in the morning?

☐ up to half a *mile*

☐ between half a *mile* and one *mile*

☐ 1-2 *miles*

☐ 2-3 *miles*

☐ 3 *miles* and over

☐ not sure

7. Do you travel a different route home from school?

☐ Yes ☐ No

- If yes, how far do you travel?

☐ up to half a *mile*

☐ between half a *mile* and one *mile*

☐ 1-2 *miles*

☐ 2-3 *miles*

☐ 3 *miles* and over

☐ not sure

8. Are you ever late to school because of traffic jams?

☐ Yes ☐ No

9. Is there anything that would prevent you from traveling to school a different way?

☐ Yes ☐ No

- If yes, what? _____

_____

_____

_____

10. Do you travel to school with parents, friends, or other people?

☐ Always
☐ Often
☐ Sometimes
☐ Rarely or never

11. Do you travel home from school with parents, friends, or other people?

☐ Always
☐ Often
☐ Sometimes
☐ Rarely or never

12. Would you prefer to walk to school with friends?

☐ Yes ☐ No

13. How do you get to school when it is raining?

☐ Walking
☐ Biking
☐ Car ride
☐ Bus ride
☐ Other _____

14. Why do you choose the way you currently get to school?

_____

_____

_____

15. Have you ever had a fright on your way to school?

☐ Yes ☐ No

- If yes, please explain. _____

_____

_____

16. Do you have any comments or questions about this survey?

_____

_____

_____

_____

Thank you for participating in our survey.

Appendix G: Parent Survey

Merton Safer Routes to Schools Survey

Hello. We are a group of university students from Worcester Polytechnic Institute in Worcester, Massachusetts, USA. Worcester is a city an hour away from Boston. We are working with the Borough of Merton on a project that is part of our requirements for graduation. This survey is an important part of our project. We thank you in advance for your participation.

If you complete and return this survey, you will be entered in a lottery for a £10 Smith's Book Token.

All personal information will be held confidential. If there are any specific questions you are uncomfortable answering, skip them. If you have additional comments or thoughts not asked by a question, feel free to write in the blank space or on the back of this sheet. You may also contact Pete Thomas in Environmental Services. His phone number is 0181 545 3192.

Parents: If you receive multiple copies of this survey from your children it is not necessary to complete duplicate surveys (unless your children travel by different means).

Merton Safer Routes to Schools Parent Survey

1. How does your child travel to school:

☐ Walking

☐ Biking

☐ Car ride

☐ Bus ride

☐ Other _____

2. If you dropped your child off at school this morning, where did you go next?

☐ Home

☐ Work

☐ Shopping

☐ College

☐ Drop off other children

☐ Other _____

☐ Can't remember

3. If you are uncomfortable with any of these ways of getting to school, please tick them:

☐ Walking

☐ Bike

☐ Car

☐ Bus

☐ Other _____

- Please explain what makes you uncomfortable:

_____

_____

_____

_____

_____

_____

4. Are there any specific intersections, streets, or any other places, where you feel there is a safety problem?

☐ Yes ☐ No

- If yes, please explain where the place is and the problem.

_____

_____

_____

_____

_____

_____

_____

_____

5. Do you allow your child out on their own?

☐ Often

☐ Sometimes

☐ Rarely or never

6. Do you have any specific reasons for the way your child goes to school?

☐ Yes ☐ No

- If yes, please explain. _____

_____

_____

7. Does your child go to and from school with an adult?

☐ Yes ☐ No

8. How safe do you feel your child is when travelling to/from school?

☐ Very Safe

☐ Safe

☐ Unsafe

☐ Very Unsafe

9. In the best possible situation, how would you like your child to travel to school?

_____

_____

_____

_____

10. How old is your child? _____

11. Does your child have a physical disability that limits their methods of transportation to school?

☐ Yes ☐ No

12. How many cars, if any, do you own or have regular use of?

☐ None

☐ One

☐ Two or more

We would now like some personal information to help us organize our survey. This information will be used to enter you in the £10 Book Token lottery.

13. Are you:

☐Mother

☐Father

☐Guardian

☐Other _____

14. Family Name: _____

15. Address (please include postcode):

_____

_____

_____

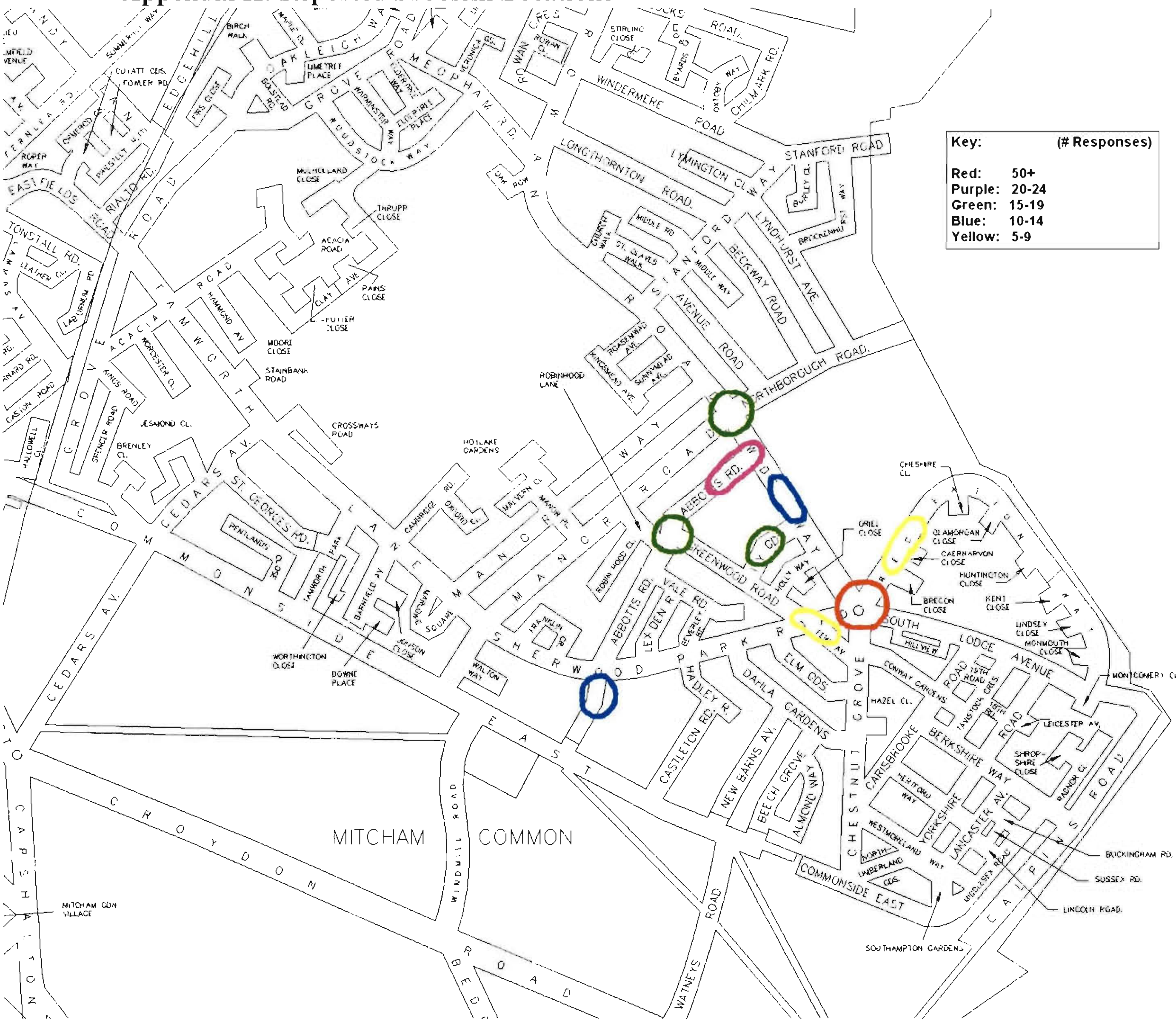
_____

Please mark an X on the map below anywhere you feel there is a safety problem for your child on their way to school.

Return Date: Please return to school with your child within two days.

Thank you for your participation.

Appendix H: Reported Problem Locations



Appendix I: Reminder Letter

Merton Safer Routes to Schools Survey

Hello. A week ago we sent home a survey for you to fill out. If you have already filled out the survey and returned it to school with your child, thank you very much. If you have not filled out your survey, we would ask that you do so, within the next two days. We realise that over the half-term holiday you may have forgotten about the survey. There is still a chance to win a £10 Smith's book token.

Thank you again for your participation.

Appendix J: Harper Collins Letter

HarperCollinsCartographic
Bartholomew TimesBooks Collins Nicholson

Mr Peter Thomas
Environmental Services
London Borough of Merton
London Road
Morden
Surrey
SM4 5DX

23 June 1999

Dear Mr Thomas

COPYRIGHT CLEARANCE FOR SAFER ROUTES TO SCHOOLS

I refer to your telephone conversation with my colleague, Colin Arthur and advise that you may reproduce 100 copies each of pages 178, 180-1, 191, 200-1 at approximately 40 x 40mm free of charge. Please ensure to have the following credit on each reproduction:

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Yours sincerely,

Sharon Boyle
Contract Support Assistant

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