

# Guide to undertaking community street reviews



NZ TRANSPORT AGENCY  
WAKA KOTAHI

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The HSC is a New Zealand government agency tasked with promoting health and healthy lifestyles. Living Streets Aotearoa is a non profit incorporated society that works to advocate for walking friendly communities throughout New Zealand. Living Street Aotearoa takes a leadership role promoting the social, environmental and economic benefits of walking as a means of transport and recreation. Abley Transportation Consultants Limited is a private consultancy that offers transportation advice to central, regional and local government as well as private clients.

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# Glossary

<b>Name</b>	<b>Description</b>
<b>Audit</b>	A methodical examination to both quantitatively and qualitatively identify deficiencies against recognised standards to propose solutions.
<b>Community street audit</b>	A process originally developed by Living Streets (UK). Does not include a rating system.
<b>Community street review</b>	A new tool where a community street audit and a rating system are combined to enable walkability to be measured.
<b>Community street review team</b>	This includes everyone taking part in the community street review, including team leaders, deputy team leaders, helpers and participants.
<b>Deputy team leader</b>	A community street review team member assigned to assist the team leader.
<b>Dummy section</b>	An optional first section of a community street review where results are not recorded, to allow participants to become familiar with the community street review process.
<b>Engineering variables</b>	Variables listed on the community street review survey form related to engineering.
<b>Environment variables</b>	Variables listed on the community street review survey form related to the surrounding environment.
<b>Helper</b>	A community street review team member assigned to assist sight or mobility impaired participants.
<b>Legibility</b>	The ease at which an area can be understood and negotiated when travelling from place to place.
<b>Level of service</b>	A qualitative scale from A (best) to F (worst).
<b>Mobility impaired</b>	People who have full vision and are not mobile without aid.
<b>Not impaired</b>	People who have full vision and are mobile without aid.
<b>Participant</b>	Community street review team members who undertake and complete the community street review.
<b>Participant briefing</b>	Introduction and explanation of the community street review survey process to participants by the team leader.
<b>Path length</b>	A section of footpath that is of a uniform environment.
<b>Permeability</b>	The different ways a participant can get from place to place.
<b>Physical environment</b>	The shape and geometry of the street environment.
<b>Rating</b>	A structured tool for quantitatively comparing walkability within different environments.

<b>Name</b>	<b>Description</b>
<b>Review</b>	Combines elements of rating and auditing to quantitatively develop options for improving walkability.
<b>Road crossing</b>	A community street review section that crosses over lanes of a road from one side to the other.
<b>Route</b>	Contains a number of road crossing and path length sections for one community street review.
<b>Section</b>	A single path length or road crossing that makes up part of the route of a community street review.
<b>Section markers</b>	Markers used to identify the start and end of sections.
<b>Surrounding activity</b>	The adjacent land use and potential street activity at the section location.
<b>Team leader</b>	The person who has responsibility for planning, arranging, managing and ensuring the community street review is successfully completed.
<b>Traffic variables</b>	Variables listed on the community street review survey form relating to traffic items.
<b>Uniform environment</b>	An environment that has consistent longitudinal gradient, adjacent land use, surrounding activity and physical environment.
<b>User groups</b>	A group of people who meet specific criteria to test identified issues for the community street review.
<b>Vision and mobility impaired</b>	People with partial or no vision and are not mobile without aid.
<b>Vision impaired</b>	People who are mobile but have partial or no vision.
<b>Walkability</b>	The extent to which the built environment is walking friendly.
<b>Walking</b>	The act of travelling on foot or on small wheels, or assisted by additional aids.
<b><a href="http://www.levelofservice.com">www.levelofservice.com</a></b>	The website where the free walkability level of service calculator is located. Also the place where community street review data is collected with operational and physical data.

# Introduction

## Walkability

Welcome to the new path to walkability. This is a new journey with new terms, new procedures and new viewpoints. This new approach requires a new practitioner tool to allow the measurement of the built environment from the perspective of walking. This new tool is a community street review (CSR). A CSR is a nationally recognised standard for measuring walkability using peoples' perceptions.

Here, the definition of walkability and walkable is - the extent to which the urban environment is walking friendly.

Walking is typically the forgotten mode of transport and few analytical techniques are available to help practitioners identify low-standard walking environments.

Enabling all members of a community to access the transport network is vitally important. For the very young, old or mobility impaired, walking provides the first, last and often only mode of transport. Walking also supports community involvement, health, recreation, meeting and greeting, which are all affected by low-quality walking environments.

Being able to identify low-quality walking environments using different tools, then taking steps to prioritise and action improvements, will help New Zealand meet its overall transport vision.

## Purpose of this guide

The purpose of this guide is to provide an easy-to-read, step-by-step set of instructions on the procedure for undertaking a CSR. This guide also includes instructions that explain the results and outputs from a CSR. Further information on walkability can be found at [www.levelofservice.com](http://www.levelofservice.com).

## Informing and involving others

It is always a good idea in the first instance to have the support of the council prior to undertaking a CSR as they will have the responsibility of actioning any recommendations.

This may spark the interest of council engineers, planners or urban designers to become involved.

It is also worthwhile to inform the police and other appropriate agencies to let them know a CSR is going to take place, and the time and location in case they receive any public enquiries.

## Helping out

The NZ Transport Agency is supportive of CSRs being undertaken in our communities. They lead to a better assessment of the physical attributes of a community, which can help inform broader integrated strategic transport planning. Ideally, we would like to know about CSRs being undertaken before they are actually carried out. We are keen to monitor the uptake of CSRs so that we can look for any improvements that we can make to the guidelines. So if you are considering undertaking a CSR, please contact the nearest NZ Transport Agency office (see [www.nzta.govt.nz](http://www.nzta.govt.nz) for a list of locations).



# Planning

## Introduction

There are many reasons for undertaking a CSR but the procedure is always the same. The same planning is required for a CSR irrespective of the number of people involved. The only difference will be the increased logistical support required for a large group.

## Roles and responsibilities

A CSR team is made up of the team leader, deputy team leaders, participants and helpers. The specific roles are:

- Team leader - takes ownership of the CSR. If required they may appoint deputy team leaders. The team leader will organise and liaise with the participants and prepare and disseminate the results. The team leader will do the participant briefing.
- Deputy team leaders - liaise between the team leader, participants and helpers. This role is important if there are more than about eight participants, as participants then need to split into two or more groups. This is to limit potential congestion and possibly influencing participants' responses. If the team size is small then this position probably will not be needed. Additionally if the team size is very large there might be more than one deputy team leader.
- Participants - answer the CSR questions and return the forms to the team leader or deputy team leader at the end of the survey. Participants can include the team leader and deputy team leader.
- Helpers - assist participants to fill out the forms and may or may not be required depending on the specific user group.

## Selecting the routes

CSRs are usually held on a pre-determined route. Very experienced team leaders may be able to improvise a route while carrying out a CSR, but normally, experienced deputy team leaders and participants would also be required. The following guidance is recommended best practice and includes the planning phase in detail.

The selected route will depend on the reasons for the CSR.

Providing for vulnerable members of the community is also important, and may determine which routes are selected. Selecting routes between well used walking origins and destinations such as bus terminals or rail stations and nearby homes is a sensible starting point as these have the potential to provide for a large number of users. Similarly, routes surrounding community shopping areas and shopping malls would also provide for a large number of users.

There is no minimum number of sections per route although the routes will probably not contain all path lengths and they will not contain all road crossings. A typical route will contain about eight-twelve sections but this is dependent on the time taken for the participants to assess the route.

## Selecting the day and time

CSRs should be held at a time when the most people are walking. This is usually during the middle of the day but can also include the journey to and from work and depends on the surrounding land use and activity. The time selected may also be when the street environment is influenced by a particularly poor variable such as

increased heavy vehicle use or significant vehicle congestion. These are known variables that affect walkability and these events may take place in between high commuter periods.

CSRs can be undertaken at any time but can be affected by traffic conditions, pedestrian congestion and lighting. This is very similar to effects on motorists, e.g. delays and vehicle congestion. CSRs for one location may be held at different times of the day to understand the influence of different variables. For example, a significant influence might be lighting and surrounding activity where a route could have a high level of service during the day but not at night. Route characteristics may change greatly and safety from intimidation or physical attack may significantly reduce walkability.

Other suitable times for conducting CSRs include:

- weekdays
  - 8am to 10am
  - 4pm to 6pm
  - anytime when dark
- Special events, such as sports events or markets.

## Selecting the time of year – suitable weather conditions

The weather is an important factor when comparing CSR locations. This is similar to traffic counts for motor vehicles varying by season, e.g. holiday seasons.

Weather affects the perception a participant will have of a particular section. For example, heavy rain will probably reduce the number of people using the section or conversely, partially sunny days are likely to make the area more active. More active areas are likely to increase walkability although crowded areas are likely to lessen walkability.

To enable comparisons between sections or routes, it is prudent that CSRs only be completed during common weather conditions for the specific season. For example it would not be representative for a CSR to be undertaken on a rainy day in summer, unless rainy days in summer are common.

The main seasonality issue is rainy weather and associated ponding. The purpose of a CSR is not to identify where ponding occurs – this is best undertaken by auditing the area on a rainy day. This is a good example of where an audit is quicker, simpler and potentially cheaper than a CSR. Specific tools should be used for specific purposes and in this example, a brave new tool would not be required.

## Selecting the team

The CSR team will be arranged and motivated by the team leader and deputy team leaders. Level of service is determined for motor vehicles such as public transport, heavy vehicles and private motor vehicles. Similarly, walkability can be determined for different walking groups such as the physically able or less physically able, full-sighted or-sight impaired, and different ages.

The reason for having a CSR will typically determine the make-up of the participant group. If the route being considered is required to service a particular user group, it will be more important to measure walkability for that group. It will also be important to consider the user group with the greatest need including providing for minimum levels of service.

Perceptions of walkability depend on individual responses to a number of questions. Through the CSR process, a number of influences have been identified that affect how individuals perceive the walking

environment. Important influences include a participant's age, mobility, sight and walking experience. Typical responses from participants include:

- Age – older people typically rate sections more harshly than younger people.
- Mobility – less mobile people typically rate sections more harshly than more mobile people.
- Sight – sight-impaired people typically rate sections more harshly than more sighted people.
- Experience – less experienced walkers typically rate sections more harshly than more experienced people.

Different users also have different perceptions of walkability. For example, a middle aged, mobile and full-sighted person that typically drives a car will consider walkability differently to someone who is elderly, less mobile and sight-impaired.

Regardless of these influences, the current potential user groups that walkability and level of service can be broadly considered for are:

1. not impaired – can see, are mobile
2. mobility impaired – can see, are not mobile
3. sight impaired – cannot see, are mobile
4. sight and mobility impaired – cannot see, are not mobile.

The most obvious problem with these user groups is that variables such as age and experience have already been noted as influencing individual perception. Participants all with similar characteristics, other than the main characteristics, such as mobility and sight, are liable to under or overestimate walkability. It is therefore important when forming CSR teams that potential influences such as gender, age or activity are generalised as much as possible.

Undertaking CSRs with a generic user group (e.g. a mix of able-bodied and less able-bodied participants) should be avoided because of the potential for individuals within the group to be significantly affected by troubles encountered by other participants. Rather, if a generic walkability assessment is required, it is probably more appropriate to undertake multiple CSRs using different user groups and then combine the results.

Remember, CSRs are important for all members of the community, especially vulnerable people. Therefore user groups 2, 3 and 4 should not be excluded.

The minimum number of participants that provide a suitable sample size for analysis is five and the minimum age for participation is 13.

# Arranging

## Finding participants and helpers

Other than defining the user group and setting the minimum age of participation, everyone else is a potential participant for a CSR. Make sure that the participants come from a variety of backgrounds, age groups, etc in order to get the most meaningful results.

As a guide, community groups, residents associations, local community centres and citizens' advice bureaus are a good source of finding people. Walking groups, parent teacher associations, kindergartens, schools, police, senior citizens groups, local councillors, ward members, businesses, clubs, etc are also good sources of potential participants. Additionally council engineers, planners and urban designers may be particularly interested, or they may have initiated the CSR itself.

When trying to attract the widest group of participants, it is a good idea to put up posters in the places listed above as well as in the general area that the CSR will take place. This will also have the benefit of advising when, where, and what a CSR achieves. It is often worthwhile promoting the social aspects of CSRs as well as the benefits to the community. Make sure the poster contains contact details for the team leader – including name, postal address, telephone, mobile phone and email address.

Significant encouragement or inducement for participants is not always required as people are often willing to give their time for free to help their community. However, a participant's time is valuable and the team leader and deputy team leaders should be well organised. Sometimes, remuneration for participants might be required but gifts may be a better idea, e.g. book tokens or vouchers.

It may be necessary to employ experts as participants and this will be especially relevant for sight or mobility-impaired participants. Mobility instructors, people from the Royal New Zealand Foundation for the Blind, Vision Impaired Women, Barrier Free NZ Trust, city communities, Disability Reference Group and advocacy groups are a good source of expert advice.

Keep good records of prospective participants' contact details, their age, sight, mobility and familiarity with walking. This will enable you to send them confirmation and advise them of any changes in plans or postponements on the day. Ask people where and how they learnt about the CSR to aid recruitment in the future.

Even though the minimum size for a CSR is five participants, it is advisable to invite at least six just in case a participant drops out at the last minute. It would be disappointing and inconvenient to have to undertake the CSR again. Also, advise participants to dress appropriately for the weather including a coat if it is cold or a hat and sunscreen if it is hot.

When conducting CSRs for mobility or sight-impaired people, the use of helpers is often essential. Helpers can read the questions for sight-impaired participants or carry the clipboard holding the forms for mobility-impaired participants. The deputy team leader can also be a helper. Helpers could be people who have indicated an interest in being a participant at an earlier CSR as they already have a good understanding of the process. Tertiary students also make good helpers because they have flexible timetables. If a helper is unavailable, it is useful to have extra helpers you can call on.

## Information for participants

CSRs are undertaken on roads under normal traffic conditions. All roads are 'open' and there are no special traffic controls or road closures. There are hazards when walking, as there are hazards when travelling in a

motor vehicle. The CSR team needs to understand that the process does not protect participants from harm, no matter how improbable.

It is expected that walking hazards will be very similar between routes although there may be circumstances, such as a night time CSR where security issues may be more prominent. To assist, a sample hazard register is included in Appendix A and the team leader is encouraged to read the hazard register, consider if there are any additional hazards that participants might be exposed to and eliminate, isolate or mitigate all hazards.

Participants should have a full understanding of how to conduct a CSR before arriving at the route and understand how the CSR will proceed. An introductory letter is included in Appendix B and this can be amended and sent to participants in advance. The introductory letter included has instructions on:

- what to wear/bring
- information about the process
- where to meet
- the route
- potential hazards.

## Required equipment

There is very little equipment required. The appropriate number of path length and road crossing forms are required. Copies of the forms are included in Appendix C. Other equipment includes:

- clipboards to hold the forms and to use as a writing surface. One clipboard will be required for each participant
- pens preferably attached to the clipboards
- name badges (optional)
- first aid kit

It is also useful for either the team leader or at least one of the deputy team leaders to carry a:

- camera for recording items of special interest
- mobile phone for emergencies.

## Arranging the forms

It is easiest to organise the forms into the relevant sections, i.e. either path lengths or road crossings, and attach them to the clipboards.

Prepare a master copy of the path length and road crossing forms and insert the date and section number on each form. Depending on the experience of the participants, the first form can be a dummy form to 'tune the eye' and can be either a road crossing or path length. This allows participants to undertake the first section without potentially providing irregular or inappropriate answers on the first 'real' section. The last form in the master copy is the participant detail form that the participant completes at the end of the review.

Photocopying the master replaces the need to insert the date and section number on every form, which saves time. It also aids collation of the forms on to the clipboards. This process does require good pre-planning.

## Having a base

Immediately before the CSR, it is important for the team leader to brief the participants. If the team is small, it can take place on the street. For larger groups, arrange to use a meeting room. If the meeting room is a distance from the start of the route, transport might be required.

A meeting room, although not a necessity, does provide additional benefits. It provides a place where bikes, personal belongings, spare forms and clipboards can be left. Check if the room is lockable and make sure it will still be available when you return. The availability of toilets and tea and coffee facilities is also useful.

# The CSR

## Having fun

Although the CSR process is formal and has a serious objective, from the participant's perspective, the process should be well arranged, simple and fun. If the process is fun and enjoyable, the results will be uniform, the route will be travelled quite quickly and many participants will want to be involved in the future.

## The start of the day

Good preparation and planning will ensure that the day's activities will proceed smoothly. Participants will know:

- where to meet
- how and by what time they will be contacted if the weather is bad
- what clothing to wear
- if they can leave personal belongings at the meeting point
- roughly how long it will take
- the procedure.

The team leader or deputy team leaders will need to bring the equipment to the meeting place. Leaders may also need to bring along any gifts or have made arrangements to send these to the participants. Also, leaders may provide tea, coffee and milk etc if the facilities are available.

If there are a large number of participants, it may be worthwhile placing markers at the start and finish of each section along the route. Use A4 sheets of paper placed in clear plastic slips taped to lampposts or fences. Ask for permission before sticking anything on private or commercial property or ask the council for permission to stick notices on public property. Explain that the notices will be removed at the end of the CSR. If there are a smaller group of participants, the location of each section can be explained on the street.

As markers can be damaged by weather or vandalism, you can instead provide a detailed map that clearly explains where each section starts and finishes. Maps or aerial photography may be available from the local authority and provided free of charge.

It is also useful to provide the survey participants with a copy of the map so they can see where sections start and finish.

## The briefing

All the participants should attend the briefing regardless of previous CSR experience. It is important to provide a high quality briefing as it will affect the participants' responses. A briefing for new participants will take about half an hour, and for experienced participants, allow about quarter of an hour as they will only require a refresher.

Participants may have been given a name badge and a participant number before the briefing. The team leader should speak clearly and with authority and the following items should be noted in this order:

- Welcome the participants, introduce yourself, your deputies and helpers while handing out the clipboards.
- Ask them to quickly introduce themselves and if applicable, their organisation.

- Outline the programme, i.e. how long the briefing will be, where the route starts and finishes and expected completion time. This will be information that the participant should already be familiar with, having been sent this information as part of the preliminary information.
- Discuss the route and explain that the team leader or deputy team leaders will lead each group. Explain that the route is divided into a number of sections and when walking through a section, participants should walk at their normal walking speed and note things they would normally note. Explain that CSRs are interested in their perspective, not the perspective of anyone else. Explain that there are no right or wrong answers – only their opinion.
- Explain that sections are either path lengths or road crossings. Discuss the path length or road crossing forms, how they differ, and that the forms on the clipboards are in order for this particular route. Explain that the forms are to be filled in at the end of each section.
- Reiterate that the forms ask the participant to consider how they feel about the environment as it is today and what changes they think could make the environment more walking friendly. Reinforce the importance of their documented comments.

The team leader may 'role play' a section and fill in a dummy form to allow participants to understand and ask questions in a controlled environment. It is preferable to hold the briefing indoors where it is quiet and there are no distractions. Remember to prompt the participants often, e.g. 'Is there anything you're confused about...', 'Do you understand how to...', 'Did you understand what I said when...' Finally, finish with these few points:

- Ask them to be courteous to other walkers. Let the public pass and try not to block the footpath. Discuss any potential hazards and adhere to road rules. Indicate where they can leave personal items during the CSR and the location of available toilets.
- Finally, encourage them to enjoy the experience, that their personal views are important and to have fun.

## How to lead the team

Although the team leader can be a participant, it is often better that the roles are separated so the team leader can concentrate on organising and leading. This is especially relevant when there are a large number of participants.

Large groups can be daunting to participants and potentially affect their perception and experience of a section. To try and mitigate this, deputy team leaders should limit congestion and not commence walking a section until the section is clear of any earlier teams.

Even if a role play wasn't included in the briefing, it is a good idea to create a dummy section just before the first real section, to 'tune the eye'.

In a similar way to all the other road crossings or path lengths, ask the participants to walk through the dummy section at their normal walking speed and take an interest in things they normally would. At the end of the section ask the participants to turn, look back at the section, and answer the questions relevant to the path length or road crossing. The team leader or deputy should check the quality of the completed forms and ask questions of the participants to confirm they understand the prompts and questions. When complete, the group starts the first section and if appropriate, another group would then start the dummy section. The process continues until the entire route is completed.



## The public

The public will naturally be curious. They might find it interesting, amusing or slightly threatening and their response might be to ask questions or in extreme cases complain to the local council, road controlling authority or maybe even the police.

As members of the public, all the participants are allowed on public property. Another member of the public cannot legally halt a CSR. However, if a member of the public becomes abusive or threatening, the CSR should be halted and the situation diffused. In very extreme cases, the team leader would make an emergency telephone call to the police.

Generally the public will simply want to know what is going on. Participants should explain that a CSR is in progress and refer any questions to the deputy or team leader.

## The end of the day

At the conclusion, thank the participants for their contribution and explain to them what will happen next. The participants may be interested to know what the CSR will be used for and that that will relate to the reason the CSR was originally commissioned.

Before departing, the clipboards and pens should be collected and the path length and road crossing forms confirmed as being completed for each participant. It is also important to check that the last form on the clipboard, the participant detail form, is completed in full. Remove any section markers if these were used.

Now is the best time to arrange payment for any employed deputy team leaders, helpers or participants. If appropriate, this is the time to present participants with a gift.

# Results

## Introduction

The results of a CSR include determining level of service, listing the importance of the various improvement variables and collating participant commentary. Together these elements meet the overall objectives of a CSR. Taken in isolation they do not provide the full picture and are likely to limit the understanding of the walking environment. To gain the most from the CSR process, it is important to consider all of these elements as part of the overall result.

## Level of service

Level of service is rated from 'A' to 'F', 'A' being the best operating conditions and 'F' the worst. Level of service is only one part of the process – taken in isolation from the variables or participant commentary it only provides the coarsest product from the CSR process.

A level of service represents a numerical score as a grade, in a similar manner as a student might be marked on an exam, i.e. C or above signifies a pass of varying quality and D or below signifies a fail of varying quality. Typically, level of service is defined in detail for each grade. For walkability, this is not possible given the differences between participants' perceptions of 'very good', 'good', 'slightly good', 'bad', 'slightly bad' or 'very bad'. For simplicity an A is considered very good and an F very bad. Neutral represents the bound between C and D and neither represents a pass or fail.

The conversion between the participants' perceptions and level of service is shown in Table 2.1 below.

**Table 2.1** Level of service comparisons

Opinion	Score	Pass/fail	Numerical grade	Level of service	Represented by colour
😊 Very good	7	Pass	$\geq 6$	A	Green
Good	6		$\geq 5$ and $< 6$	B	Green
Slightly good	5		$> 4$ and $< 5$	C	Green
😊 Neutral	4		$= 4$	N	White
Slightly bad	3	Fail	$\geq 3$ and $< 4$	D	Yellow
Bad	2		$\geq 2$ and $< 3$	E	Blue
😞 Very bad	1		$< 2$	F	Red

# Variables

The variables listed on the CSR path length and road crossing forms provide an opportunity to increase the understanding of improvements that might be possible for a section. Read in conjunction with level of service, it provides an opportunity to understand what variables influence particular characteristics. Again, taking the variables in isolation from level of service or the various commentaries only provides some of the answers and limits the usefulness of the process.

Because the street environment is varied, a number of the variables will not be necessary or applicable in a number of locations. When undertaking the calculations below, 'none', which means that the variable would not change the participants overall walkability opinion, is assigned a nil importance or zero. The significance of 'a lot' or 'a little' is difficult to define but for the purposes of assisting practitioners to increase understanding of potential improvements and benefits; 'a lot' is considered to have twice the significance of 'a little'. The value of the variable significance is shown below in table 2.2.

**Table 2.2** Variable comparisons

<b>Variable opinion</b>	<b>Numerical score #</b>
None	0
A little	1
A lot	2

The actual score that a variable achieves is somewhat irrelevant. Rather the CSR calculations assign each variable a percentage score based on the number of participants and the numerical scores shown in table 2.2. A score of 100% means that all participants responded with 'a lot', 50% means that on average participants responded with 'a little', and 0% means that on average participants responded with 'none'. The percentage score is calculated using average scores, so two 'a lot' responses and two 'none' responses would produce the same as four 'a little' responses.

# Comments

The commentary components of the path length and road crossing forms, i.e. steps 3 and 5, provide the substance to both the level of service and variables components. It is probable the commentary will provide the greatest insight into participants' perceptions. These provide an opportunity for participants to explain why they answered a question in a particular way as numbers and figures alone would not provide enough detail to allow improvements to be implemented.

Comments should be referred to when explaining why people considered a particular section the way they did. Positive and negative comments should be included as they explain what things are done well, what lessons can be learnt, and what improvements are required.

# Calculations

The CSR calculations can seem onerous but it is not absolutely necessary for team leaders to do it themselves. The local council can complete the calculations or they can be done automatically if the details are input into the [www.levelofservice.com](http://www.levelofservice.com) website. There are three workbooks to aid the calculation of both level of service and the importance of the variables. The workbooks aid calculation but they still require manipulation of numbers, looking up equivalence factors and some manual calculations.

The use of a calculator is recommended but the calculations themselves are simple and example worksheets are included to aid the process. The website [www.levelofservice.com](http://www.levelofservice.com) contains a free calculator that undertakes the level of service calculations automatically. It is preferable that all data is entered into the website to remove potential mistakes.

The level of service calculator available on the website [www.levelofservice.com/calculator.php](http://www.levelofservice.com/calculator.php) provides a simple and quick interface for entering the overall characteristics of a CSR. The calculator takes users through three phases when entering the data. This produces an overall level of service for each section and an overall level of service for the review. Each CSR is saved on the website and the reporting page will also provide a unique URL so that the results can be accessed again at a later date.

Conducting further analysis beyond using the web-based calculator requires the use of all the following workbooks. Alternatively, the website undertakes these calculations for users if they have a username and password. Contact the NZ Transport Agency if you want a username and password. All three workbooks are needed to analyse the importance of particular variables and comments.

A diagram showing how the CSR forms and calculations fit together is shown in figure 1.

## Workbook 1

Data from steps 2 and 4 of the path length and road crossing forms is entered into Workbook 1. Workbook 1 is copied and completed as many times as necessary for each section.

Completing Workbook 1 requires the user to enter the details for either a path length or a road crossing depending on the section type. Responses for characteristic and improvement variables are completed in the appropriate cells. Using table 2.1, the related level of service value is derived and completed.

The improvement variables are entered into the appropriate cells and the sum of the scores is converted to a percentage score by dividing the 'sum of variable scores' by two times the 'total number of responses', and then multiplying the result by 100. The equation is shown in figure 2. The three highest percentage scores are ranked.

Example calculations for Workbook 1 are shown in figure 3, figure 4, and figure 5. Blank workbooks for Workbook 1 are included in Appendix D.

## Workbook 2

Workbook 2 summarises the results of the Workbook 1 sheets and calculates the overall level of service for the route. It enables a level of service value for each characteristic and a rank for the three best and worst characteristics of the review to be calculated. Workbook 2 also includes a calculation for the improvement variables. Workbook 2 ranks the top three improvement variables for the route.

Workbook 2 requires an average for all values to be calculated for each section and characteristic type. For example, the overall walkability is the average of all respondents' scores for overall walkability from Workbook 1 that relate to the section being considered. A completed Workbook 2 is shown in figure 6. When the average values have been calculated, they are to be converted to a level of service using table 2.1. When all the sections have been assessed, an average of overall walkability is able to be calculated to give the overall walkability for the route.

The variables section of Workbook 2 requires a sum of the scores given for each variable from all sections of the survey. The sum of the scores is then converted to a percentage score. The top three improvement variables can then be ranked for the route.

Blank workbooks for Workbook 2 are included in Appendix E.

## Workbook 3

This workbook summarises each section and the path length and road crossing forms responses in step 3 and step 5 including problems and opportunities identified by the participants. One workbook should be completed for each section.

To complete Workbook 3, copy the level of service and variable percentage scores from Workbook 1 into the appropriate boxes in Workbook 3, then copy the comments from each participant. A template for both a path length and road crossing is included in workbook 3 and use as appropriate. An example of Workbook 3 is shown in figure 7.

Blank workbooks for Workbook 3 are included in Appendix F.

# Summary

## Telling people the results

It is important that the results are collated and the public are told about outcomes and results including the participants, wider community, local councillors, council officers and other practitioners.

In addition to the basic understanding of walkability provided by Workbook 1, Workbook 2 and Workbook 3, a level of service spatial diagram can be produced. The production of this diagram involves extracting the level of service value for each section from the results provided in Workbook 2 and drawing the sections onto an aerial photograph or map of the area where the CSR was undertaken. The colour indicating the section path length or road crossing is the colour related to the specific level of service, these colours are shown in table 2.1. An example has been produced and is shown in figure 8.

It is expected the results will be principally distributed at two levels of detail:

1. The reports with the highest level of detail will include workbooks for all sections. The higher detailed report is intended for local authorities and entities with an interest in analysing multiple sets of results in order to prepare plans for walkability improvements within an area.
2. The reports with a lower level of detail will probably only include a single results sheet that summarises the results of a single CSR. This set of results will provide feedback to participants and also members of the public who may inquire about the review. It may include the summary level of service for the route and some of the interesting findings including comments and improvement options. This single sheet of results should be attached to a cover letter thanking participants for their participation or thanking other members of public for their interest. To assist, a sample letter is included in Appendix G. This should be modified to suit specific requirements.

Combinations of the results will be distributed as needed based on the information requested. Over time, the results of earlier reviews should be followed up to find out what action has been taken with the conclusions.

## Conclusions

At the conclusion of the CSR, participants will have a better understanding of their community, they would have actively contributed towards a better environment and be keen to engage in further community consultation. The information that the process provides will enable practitioners to consider, prioritise, and design better walking environments.

# Appendix A: Hazard register

<b>CSR hazard register</b>	
Residential <input type="checkbox"/>	Street: Location:

Hazards	Describe harm that could occur	Is it a significant hazard? (Yes/No)	Eliminate? Isolate? Minimise? Advise ?	Control action

Signed \_\_\_\_\_

Date \_\_\_\_\_

Completed example

<b>CSR hazard register</b>	Residential <input checked="" type="checkbox"/> - - - - - - - - - -	Street: <i>Rongotai Road, Kilbirnie</i> Route description: <i>Begin outside the Post Shop on Bay Road, majority of route on Rongotai Road.</i>
----------------------------	---	---

<b>Hazards</b>	<b>Describe harm that could occur</b>	<b>Is it a significant hazard? (Yes/No)</b>	<b>Eliminate? Isolate? Minimise? Advise ?</b>	<b>Control action</b>
<i>Weather including heat, sun and cold</i>	<i>Sunburn Dehydration Hyperthermia/Hypothermia</i>	Yes	<i>Minimise Advise</i>	<i>Drink plenty of water Cover up and wear a hat/ sunscreen/sunglasses Plan review for cooler part of the day Wear clothing appropriate for weather</i>
<i>Uneven surfaces Rough footpath</i>	<i>Injury due to falling</i>	Yes	<i>Minimise Advise</i>	<i>Identify problem areas and advise review team Mark all major obstructions on review map</i>
<i>Vehicles</i>	<i>Injury due to impact</i>	Yes	<i>Minimise Advise</i>	<i>Review team to be advised to be cautious and not obstruct pathways or roadways. Obey traffic rules and regulations</i>
<i>Noise Fumes</i>	<i>Hearing damage Smoke inhalation</i>	No	<i>Advise</i>	<i>Advise participants of the risk involved.</i>
<i>Cyclists skateboarders</i>	<i>Injury due to impact</i>	Yes	<i>Advise</i>	<i>Review team to be advised to be cautious and not obstruct pathways or roadways. Obey traffic rules and regulations</i>
<i>Security</i>	<i>Intimidation or physical threats</i>	Yes	<i>Minimise Advise</i>	<i>Travel as group Team leader will have mobile phone for emergency</i>

Signed \_\_\_\_\_ *Signature*

Date 15 July 2007



# Appendix B: Community street review user instructions

Dear \_\_\_\_\_

Thank you for agreeing to participate in a community street review.

## Introduction

A community street review (CSR) tests the walking environment using a group of people to offer commentary regarding good and bad street design. Different commentary is recorded that allows for street improvements to be identified, considered and later prioritised for possible implementation.

The CSR is innovative in that it doesn't just consider the physical aspects - it embraces a holistic approach, including wider social factors.

It is essential that you answer the question forms as honestly as possible, remembering that there is no right or wrong answers - the forms are designed to capture your perception of the walking environment that you are reviewing.

You can learn more about the CSR process at [www.levelofservice.com](http://www.levelofservice.com).

## Important information

<b>Who is invited</b>	You. We are interested in the views of all people that use footpaths, including male and female, old and young. You do not need to be a regular user - opinions of less experienced users are equally valuable.
<b>When it takes place</b>	_____
<b>Where we are initially meeting</b>	_____
<b>When it will finish</b>	_____
<b>Postponement</b>	If the weather is bad and we consider that weather would adversely affect the safety of participants or the survey results, the CSR will be postponed. We will contact you by _____ before _____ on the day of the survey to let you know of a postponement.
<b>What to bring:</b>	Clothing appropriate for the weather and comfortable walking shoes.

## On the day

### Before

Before commencing the survey, we will issue you with everything you need. There will be a health and safety briefing as well as a brief review of these instructions.

Although we will be walking through a length of street environment as a group, the responses that you give on the survey questionnaire are yours. Please do not discuss your responses with anyone unless you are requiring the assistance of a reader-writer who is helping document your answers.

### **During**

We will walk a section of the CSR which will either be a 'path length' or a 'road crossing'. We will consider the questions in the survey forms. The questions for path lengths and road crossings vary slightly.

Whether the section being considered is a path length or a road crossing will determine which form type is completed. When all users have completed a section, we will proceed to the next section. Once all the questions are answered for a section, please turn the sheet over to start a new form for the next section of the survey. In total, we will assess about 600m of street environment per day including path lengths and road crossings. The assessment will probably take about two hours.

### **After**

Immediately after the assessment you will be given a participant details form to complete. Hand it to the team leader before leaving. All other materials should be returned at the same time.

### **Guidance**

The review will be conducted on roads under normal traffic conditions. All roads are open and there are no special traffic controls or road closures. Therefore, all traffic rules and regulations must be obeyed.

There is a level of hazard when walking, and participating in a CSR does not exclude you from these everyday risks. You can withdraw at any stage.

If you are under the age of 18, you should have the permission of your parent or guardian to participate.

### **In case of an emergency**

The team leader and a number of participants will have mobile phones that can be used in an emergency. A first aid kit will be available on site although in case of emergency call 111.

Finally, have fun, be careful and thanks for participating.

Regards

**Appendix C – Community Street Review Forms 2009**

# COMMUNITY STREET REVIEW

## Information

### Site:

Date: \_\_\_\_\_ Location: \_\_\_\_\_

Weather (tick box)       Raining                       Sunny                       Windy

Land Use (tick box)       Residential                       Suburban shopping                       Commercial retail

Description of Route:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### Sections:

Start time: \_\_\_\_\_ Start point: \_\_\_\_\_

Section number	End time hh:mm	Path length (tick box)	Road crossing (tick box)	Temporary issues (tick box)	End point
1	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
2	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
3	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
4	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
5	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
6	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
7	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
8	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
9	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
10	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
11	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
12	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
13	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
14	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
15	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

### Team Leader:

Your name: \_\_\_\_\_

Organisation: \_\_\_\_\_

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

### Comments:

Any other

# COMMUNITY STREET REVIEW

## Path Length

### Step one:

Your name: \_\_\_\_\_ Participant number: \_\_\_\_\_  
 Date: \_\_\_\_\_ Section number: \_\_\_\_\_

### Step two:

What is your opinion of the Section? (tick box)

		Very Bad	Bad	Slightly Bad	Neutral	Slightly Good	Good	Very Good
		☹			☺			☺
<b>Overall</b>								
<b>Walkable</b>	"I feel this Path Length is walking friendly"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Characteristics</b>								
<b>Safe from traffic</b>	"I feel safe from traffic danger"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Safe from falling</b>	"I feel safe from trips, slips, and falls"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Obstacle free</b>	"I was able to move around unhindered by physical features"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Secure</b>	"I feel safe from intimidation or physical attack"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Efficient</b>	"I was not impeded by others"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Pleasant</b>	"I enjoyed being in this place, to interact with others and it wasn't just for movement"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Step three:

What problems did you identify? (write comment)

### Step four:

How much would your 'Walkable' opinion change if the following variable was improved? (tick box)

		None	A little	A lot
<b>Traffic Variables:</b>	More priority over motor vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	More separation from roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fewer cyclists or skateboarders etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Better view of vehicles crossing path	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Less traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Engineering Variables:</b>	More direct route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Gentler side slope across path	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Gentler slope along path and or no steps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	More or better tactile and visual aids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Better street lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Smoother and more even surface quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wider path	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Environment Variables:</b>	Better streetscape or public art	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Better landscaping or more greenery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cleaner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fewer footpath obstructions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	More seats, drinking fountains etc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	More street activity and natural surveillance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Step five:

What opportunities did you identify? (write comment)

# COMMUNITY STREET REVIEW

## Road Crossing

### Step one:

Your name: \_\_\_\_\_ Participant number: \_\_\_\_\_  
 Date: \_\_\_\_\_ Section number: \_\_\_\_\_

### Step two:

What is your opinion of the Road Crossing? (tick box)

		Very Bad	Bad	Slightly Bad	Neutral	Slightly Good	Good	Very Good
		☹			☺			☺
<b>Overall</b>								
<b>Walkable</b>	"I feel this Road Crossing is walking friendly"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Characteristics</b>								
<b>Safe from traffic</b>	"I feel safe from vehicle danger"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Safe from falling</b>	"I feel safe from trips, slips, and falls"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Delay</b>	"I crossed without having to wait for lights, traffic or others"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Direct</b>	"I did not have to detour to use this crossing"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Obstacle free</b>	"I was easily able to enter the crossing and crossed unhindered by physical features"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Step three:

What problems did you identify? (write comment)

### Step four:

How much would your 'Walkable' opinion change if the following variable was improved? (tick box)

		None	A little	A lot
<b>Traffic Variables:</b>	More priority over motor vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Slower traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Less traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Better view of approaching traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Engineering Variables:</b>	More direct route	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Narrow roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Gentler slope of kerb crossing approach/exit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	More or better tactile and visual aids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Better street lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Smoother and more even surface quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wider kerb/gutter crossing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Advance 'walk' signal before motor vehicles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Longer 'walk' signal time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Audible 'walk' signal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Add traffic island	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Less delay waiting to cross	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Step five:

What opportunities did you identify? (write comment)

# COMMUNITY STREET REVIEW

## Characteristics Guide

Very Bad ☹️	Bad	Slightly Bad	Neutral 😐	Slightly Good	Good	Very Good 😊
----------------	-----	--------------	--------------	---------------	------	----------------

### Path Length

<b>Safe from traffic</b> "I feel safe from road vehicle danger"	I felt very unsafe in this environment. I was fortunate not to be injured by traffic.	I felt neither safe or unsafe.	I felt very safe in this environment. I did not feel at risk of injury from traffic.
<b>Safe from falling</b> "I feel safe from trips, slips, and falls"	I felt very unsafe in this environment. I felt I was lucky not to be injured from falling.	I felt neither safe or unsafe.	I felt very safe in this environment. I did not feel at risk of injury from falling.
<b>Obstacle free</b> "I was able to move around unhindered by physical features"	My movement was severely restricted. I often had to negotiate obstacles.	I felt neither hindered or unhindered.	My movement was totally unrestricted I never had to negotiate obstacles.
<b>Secure</b> "I feel safe from intimidation or physical attack"	I felt very threatened in this environment. My personal well being was at risk.	I felt neither secure or insecure.	I felt very relaxed in this environment. My personal well being was not at risk.
<b>Pleasant</b> "I enjoyed being in this place, to interact with others and it wasn't just for movement"	I felt the environment was only functional. I could not linger in this environment.	I felt neither welcome or unwelcome.	I felt the environment was very inviting. I wanted to linger in this environment.
<b>Efficient</b> "I was not impeded by others and the section was direct"	I felt I was excessively delayed or directed away from my destination.	I felt my travel was neither efficient or inefficient.	I felt I was able to travel at the pace I wanted or go where I wanted.

### Road Crossing

<b>Safe from traffic</b> "I feel safe from road vehicle"	I felt very unsafe in this environment. I was fortunate not to be injured by traffic.	I felt neither safe or unsafe.	I felt very safe in this environment. I did not feel at risk of injury from traffic.
<b>Safe from falling</b> "I feel safe from trips, slips, falls"	I felt very unsafe in this environment. I felt I was lucky not to be injured from falling.	I felt neither safe or unsafe.	I felt very safe in this environment. I did not feel at risk of injury from falling.
<b>Obstacle free</b> "I was easily able to enter the crossing and crossed unhindered by physical features"	I felt my movement was severely restricted. I often had to negotiate obstacles.	I felt neither hindered or unhindered.	I felt my movement was totally unrestricted I never had to negotiate obstacles.
<b>Delay</b> "I crossed without having to wait for lights, traffic or others"	I felt I was excessively delayed at the road crossing.	I felt the time waiting to cross the road was neither too long or too short.	I felt I was not delayed using the road crossing.
<b>Direct</b> "I did not have to detour to use this crossing"	I felt my route was indirect. I was directed away from my destination when crossing the road.	I felt my route was neither direct or indirect.	My route was direct to my destination. I was directed towards my destination when crossing the road.

# COMMUNITY STREET REVIEW

## Participant Details

### About you:

Your name: \_\_\_\_\_ Participant number: \_\_\_\_\_  
Your age:  <18     18-29     30-39     40-49     50-59     60-69     ≥70  
Your gender:  Male     Female

### Your vision:

What was your vision when undertaking the survey?  
 Unable to see (blind)     Some vision     Corrective lenses or unaided vision (good vision)

### Your mobility:

What was your level of mobility when undertaking the survey?  
 Unable to walk unaided (wheelchair, walking stick/s)     Walk unaided but with difficulty (shuffle and/or balance problems)  
 Walk unaided but can not run     Can run but only for a very short distance  
 Good mobility (Can walk and run up to 2km)     Very mobile (can run further than 2km)

### Your experience:

How often do you normally walk on footpaths per day?  
 Not at all     A little     A lot

How familiar were you with the study area before undertaking the survey?  
 Not at all     A little     A lot

How much time do you spend walking on footpaths per day?  
\_\_\_\_\_ Minutes

Are you used to walking in this sort of environment?  
 Not at all     A little     A lot

### Your impression:

	Very Bad ☹	Bad	Slightly Bad	Neutral 😊	Slightly Good	Good	Very Good ☺
Overall, how would you rate today's Route?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall, how would you rate the organisation of the surveys?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall, how well do you consider the briefing was undertaken?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Comments:

Any other



**Appendix D – Workbook1**



**Appendix E – Workbook2**

**LEVEL OF SERVICE**

**Path Length**

Section	Overall	Characteristics					
	Walkable	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
Average							

Section	Overall	Characteristics					
	Walkable	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
Sum							
Top 3							

**Worst Characteristic**

Section	Characteristics					
	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
Sum						
Top 3						

**Best Characteristic**

Section	Characteristics					
	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
Sum						
Top 3						

**Road Crossing**

Section	Overall	Characteristics				
	Walkable	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
Average						

Section	Overall	Characteristics				
	Walkable	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
Sum						
Top 3						

Section	Characteristics				
	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
Sum					
Top 3					

Section	Characteristics				
	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
Sum					
Top 3					

Route



**Appendix F – Workbook3**

Location:

Date:

Section:

Path Length:

Environment:

Path Length	Walkable		Safe from Traffic	Safe From Falling	Obstacle Free	Secure	Efficient	Pleasant		Section Count
LOS	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Problems:

Improvements:	<input type="checkbox"/>	Priority over motor traffic	<input type="checkbox"/>	Better street lighting
	<input type="checkbox"/>	More separation from roadway	<input type="checkbox"/>	Smoother and more even surface quality
	<input type="checkbox"/>	Fewer cyclists or skateboarders etc	<input type="checkbox"/>	Wider path
	<input type="checkbox"/>	Better view of vehicles crossing path	<input type="checkbox"/>	Better streetscape or public art
	<input type="checkbox"/>	Less traffic	<input type="checkbox"/>	Better landscaping or more greenery
	<input type="checkbox"/>	More direct route	<input type="checkbox"/>	Cleaner
	<input type="checkbox"/>	Gentler side slope across path	<input type="checkbox"/>	fewer footpath obstructions
	<input type="checkbox"/>	Gentler slope along path / no steps	<input type="checkbox"/>	More seats, drinking fountains etc
	<input type="checkbox"/>	More or better tactile and visual aids	<input type="checkbox"/>	More street activity or natural surveillance

Opportunities:

Location:

Date:

Section: Road Crossing. Environment:

Road Crossing	Walkable	Safe from Traffic	Safe From Falling	Obstacle Free	Delay	Direct	Section count
LOS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Problems:

Improvements:	<input type="checkbox"/>	Priority over motor traffic	<input type="checkbox"/>	Better street lighting
	<input type="checkbox"/>	Slower traffic	<input type="checkbox"/>	Smoother and more even surface quality
	<input type="checkbox"/>	Less traffic	<input type="checkbox"/>	Wider kerb/gutter crossing
	<input type="checkbox"/>	Better view of approaching traffic	<input type="checkbox"/>	Advance "walk" signal before motor vehicles
	<input type="checkbox"/>	More direct route	<input type="checkbox"/>	Longer "walk" signal time
	<input type="checkbox"/>	Narrow roadway	<input type="checkbox"/>	Audible walk signal
	<input type="checkbox"/>	Gentler slope of kerb crossing/approach exit	<input type="checkbox"/>	Add traffic island
	<input type="checkbox"/>	More or better tactile and visual aids	<input type="checkbox"/>	Less delay waiting to cross

Opportunities:



# Appendix G: Sample letter

Date

Participant's name

123 Street Name

Suburb

City and Code

Dear participant,

## Community street review feedback to participant

We would like to take the opportunity once again to thank for your involvement in the community street review.

Some of the data that we collected has been entered into a database at [www.levelofservice.com](http://www.levelofservice.com). I have attached a copy of the summary results for your information. The balance of the data has been sent to the council for their detailed analysis. I have asked to be kept informed of the results which I would expect in a couple of weeks.

We hope you enjoyed participating in a community street review and look forward to inviting you to participate again in the future.

Yours sincerely,

Community street review team leader

This page intentionally blank

Date

Council

PO Box 12-345

Suburb

City and Code

Attn: Council officer

Dear council officer,

### **Community street review feedback to council**

I recently led a team of participants and completed a community street review. The review involved eight participants and comprised three sections made up of two paths lengths and one road crossing.

Some of the data that we collected has been entered into the database at [www.levelofservice.com](http://www.levelofservice.com). I have attached a copy of the summary results for your information.

The balance of the survey data is attached for further analysis that I would ask that the council complete. I have written to the participants of the survey informing them that council should complete the balance of the analysis within a couple of weeks. When completed, please forward me a copy of the results. Please also note that the NZ Transport Agency would also be interested in obtaining a copy of the results. The full methodology regarding data analysis can be found at [www.levelofservice.com](http://www.levelofservice.com).

We would welcome being invited to contribute further. If you have any questions please contact me.

Yours sincerely,

Community street review team leader

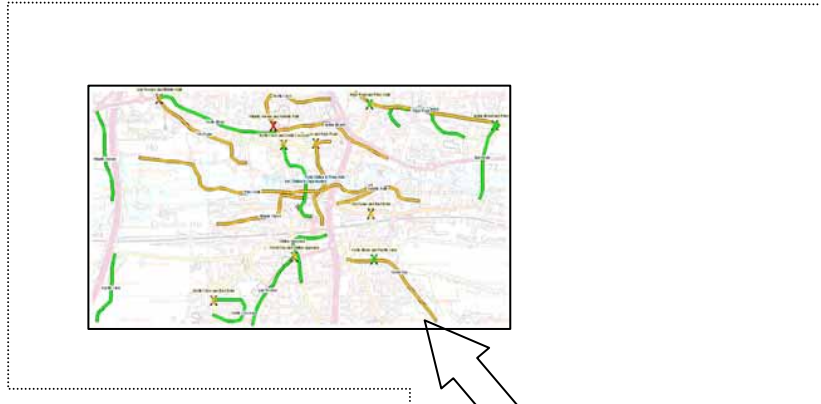
# Appendix H – Figures

**Figure 1 How the workbooks fit together**

**Road Crossing Forms**

**Path Length Forms**

**Outputs**

A form titled "COMMUNITY STREET REVIEW" with various input fields and checkboxes for road crossing data.A form titled "COMMUNITY STREET REVIEW" with various input fields and checkboxes for path length data.

*Individual scores for each Section*

*Individual comments for each Section*

Three overlapping spreadsheets showing data tables with colored cells (blue, yellow, red) representing scores for different sections.A spreadsheet showing summary data, including "average scores for Route" and "average scores for Sections".A large spreadsheet containing detailed data, including individual scores and comments for each section, and a summary table.

**Workbook 1 + Workbook 1 + Workbook 1**

**Workbook 2**

**Workbook 3**

*average scores for Route*

*average scores for Sections*

**Figure 2** Equation to calculate variables' percentage score

$$\text{Percentage Score} = \left( \frac{\text{Sum of Variable Scores}}{2 \times \text{Total Number of Responses}} \right) \times 100$$

**Figure 3 Example Workbook 1 – Section A**

PATH LENGTH								SECTION: A							
Step two: What is your opinion of the Section?								Calculate: Level of Service							
Participant	Overall	Characteristics						Overall	Walkable	Characteristics					
	Walkable	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient			Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
John	7	5	2	3	5	4	2	A	C	E	D	C	N	E	
Mike	7	6	2	2	1	5	1	A	B	E	E	F	C	F	
Sally	5	1	3	5	7	7	6	C	F	D	C	A	A	B	
Betty	5	4	4	4	2	5	2	C	N	N	N	F	C	E	
Bruce	6	6	3	6	3	3	7	B	B	D	B	D	D	A	
Neil	4	3	4	5	1	2	7	N	D	N	C	F	E	A	
Michelle	5	3	5	5	3	6	1	C	D	C	C	D	B	F	
Selina	6	6	5	4	2	3	6	B	B	C	N	E	D	B	
Average	5.6	4.3	3.5	4.3	3.0	4.4	4.0	B	C	D	C	D	C	N	

Step four: How much would your 'Walkable' opinion change if the following variable was improved?																		
Participant	Traffic Variables					Engineering Variables						Environment Variables						
	More priority over motor vehicles	More separation from roadway	Fewer cyclists or skateboarders etc	Better view of vehicles crossing path	Less Traffic	More direct route	Gentler side slope across path	Gentler slope along path and or no steps	More or better tactile and visual aids	Better street lighting	Smoother and more even surface quality	Wider path	Better streetscape or public art	Better landscaping or more greenery	Cleaner	Fewer footpath obstructions	More seats, drinking fountains etc	More Street activity and natural surveillance
John		1			1	2		1	2	2			1		2	1		
Mike	1			1		2			2	2	1		1	2	1	1	1	1
Sally	2	1	2	2	2	1	1	2	1	1				1	2	2	2	
Betty		1	2		1	2	2	1	1	1				2		1		
Bruce	1	1	1		1	2	2	2			2		1	1	2		2	
Neil		2	1	1	2	2	2	2	1		1		1	2	1			
Michelle	1			1	2			1	1	2			2	1	1		2	
Selina	1	2	2			2	2	2	1	1	1		1		2	2	1	
Sum	6	8	8	5	9	13	7	10	7	7	7	5	9	7	9	8	6	
% Score	38%	50%	50%	31%	56%	81%	44%	63%	44%	44%	44%	31%	56%	44%	56%	50%	38%	
Rank					3	1		2					3		3			

Figure 4 Example Workbook 1 – Section B

ROAD CROSSING							SECTION: B													
<b>Step two: What is your opinion of the Section?</b>							<b>Calculate: Level of Service</b>													
Participant	Overall	Characteristics					Overall	Walkable	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct	Overall	Walkable	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
	Walkable	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct														
John	5	1	2	5	3	4	C	F	E	C	D	N	C	F	E	C	D	N	N	
Mike	1	7	2	5	1	4	F	A	E	C	F	N	D	D	F	A	N	N	A	
Sally	3	3	1	4	4	7	D	D	F	N	N	A	E	F	A	A	E	E	N	
Betty	2	1	7	7	2	4	E	F	A	A	A	E	A	N	D	B	N	F	F	
Bruce	7	4	3	6	4	1	A	N	D	B	N	F	C	E	E	F	E	E	D	
Neil	5	2	2	1	2	3	C	E	E	F	E	D	A	A	B	N	C	C	N	
Michelle	7	7	6	4	5	4	A	A	B	N	C	N	N	E	A	N	C	C	D	
Selina	4	2	7	4	5	3	N	E	A	N	C	D	C	D	D	C	D	D	D	
Average	4.3	3.4	3.8	4.5	3.3	3.8	C	D	D	C	D	D	C	D	D	C	D	D	D	
<b>Step four: How much would your 'Walkable' opinion change if the following variable was improved?</b>																				
Participant	Traffic Variables				Engineering Variables															
	More priority over motor vehicles	Slower traffic	Less traffic	Better view of approaching traffic	More direct route	Narrow roadway	Gentler slope of kerb crossing approach/exit	Tactile and visual aids	Better street lighting	Smoother and more even surface quality	Wider kerb/gutter crossing	Advance 'walk' signal before motor vehicles	Longer 'walk' signal time	Audible 'walk' signal	Add traffic island	Less delay waiting to cross				
John		1	1		1	2	1	2		2		2	2	1						
Mike	2	2	2	1	2	2	2	2		2		1		1	2					
Sally		1					2				2			2	1					
Betty	2	1	1	2	2		2	1		2	2	2	1	2	2	2				
Bruce					1	1	2	2	2		1				1					
Neil	2	1		2	2		2	2	2	2		1	1	1	1					
Michelle		1			2		2	2	2		1	2	1	1	1	1				
Selina		1	1	2	1		1	2	1		2	1	1	2	2	1				
Sum	6	8	5	7	11	5	11	12	6	11	6	11	7	9	10	4				
% Score	38%	50%	31%	44%	69%	31%	69%	75%	38%	69%	38%	69%	44%	56%	63%	25%				
Top 3					2		2	1		2		2								





Figure 6 Example Workbook 2

LEVEL OF SERVICE							
Path Length							
Section	Overall Walkable	Characteristics					
	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient	
A	5.6	4.3	3.5	4.3	3.0	4.4	4.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	3.8	3.8	3.8	4.4	4.1	5.3	3.3
Average	4.7	4.0	3.6	4.3	3.6	4.8	3.6

Section	Overall Walkable	Characteristics					
	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient	
A	B	C	D	C	D	C	N
B	D	D	D	C	C	B	D
C	C	N	D	C	D	C	D

Worst Characteristic						
Section	Characteristics					
	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
A	0	0	0	1	0	0
B						
C	0	0	0	0	0	1
Sum	0	0	0	1	0	1
Top 3	3	3	3	1	3	1

Best Characteristic						
Section	Characteristics					
	Safe from traffic	Safe from falling	Obstacle free	Secure	Pleasant	Efficient
A	0	0	0	0	1	0
B						
C	0	0	0	0	1	0
Sum	0	0	0	0	2	0
Top 3	2	2	2	2	1	2

Road Crossing						
Section	Overall Walkable	Characteristics				
	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct	
A	0.0	0.0	0.0	0.0	0.0	0.0
B	4.3	3.4	3.8	4.5	3.3	3.8
C	0.0	0.0	0.0	0.0	0.0	0.0
Average	4.3	3.4	3.8	4.5	3.3	3.8

Section	Overall Walkable	Characteristics				
	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct	
A	C	D	D	C	D	D
B	C	D	D	C	D	D
C	C	D	D	C	D	D

Worst Characteristic					
Section	Characteristics				
	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
A					
B	0	0	0	1	0
C					
Sum	0	0	0	1	0
Top 3	2	2	2	1	2

Best Characteristic					
Section	Characteristics				
	Safe from traffic	Safe from falling	Obstacle free	Delay	Direct
A					
B	0	0	1	0	0
C					
Sum	0	0	1	0	0
Top 3	2	2	1	2	2

Route  C

**VARIABLES**

**Path Length**

	More priority over motor vehicles	More separation from roadway	Fewer cyclists or skateboarders etc	Better view of vehicles crossing path	Less Traffic	More direct route	Gentler side slope across path	Gentler slope along path and or no steps	More or better tactile and visual aids	Better street lighting	Smoother and more even surface quality	Wider path	Better streetscape or public art	Better landscaping or more greenery	Cleaner	Fewer footpath obstructions	More seats, drinking fountains etc	More Street activity and natural surveillance
Sum	17	22	18	14	12	20	18	19	11	13	17	12	18	13	13	16	23	19
% Score	53%	69%	56%	44%	38%	63%	56%	59%	34%	41%	53%	38%	56%	41%	41%	50%	72%	59%
Top 3		2				3											1	

**Road Crossing**

	More priority over motor vehicles	Slower traffic	Less traffic	Better view of approaching traffic	More direct route	Narrow roadway	Gentler slope of kerb crossing approach/ exit	Tactile and visual aids	Better street lighting	Smoother and more even surface quality	Wider kerb/gutter crossing	Advance 'walk' signal before motor vehicles	Longer 'walk' signal time	Audible 'walk' signal	Add traffic island	Less delay waiting to cross		
Sum	6	8	5	7	11	5	11	12	6	11	6	11	7	9	10	4		
% Score	38%	50%	31%	44%	69%	31%	69%	75%	38%	69%	38%	69%	44%	56%	63%	25%		
Top 3					2		2	1		2		2						

### Figure 7 Example Workbook 3

CSR Reporting: Section LOS Summary								
Location: Side Streets off Williams, Kaipoi Date: 2009-02-26 Section: 06: Path Length Environment: Residential.								
Path Length	Walkable	Safe from Traffic	Safe From Falling	Obstacle Free	Secure	Efficient	Pleasant	Section Count
LOS	C	C	C	C	B	B	B	12
Problems:	<p>Change in direction of footpath. Driveway to park behind businesses. Not a welcoming area in front of Service Centre, no contrast with surface if veering. Cars parallel parked. Slope difficult to navigate at position by car parks.</p> <p>Parts of the footpath need to be upgraded. There is a slope but there are other areas worse than this.</p> <p>Open space - uneven, not defined. Council driveway. No visual aids. Lots of changes to pathway. Cars over footpath.</p> <p>Good walkway section.</p> <p>Very uneven asphalt. Bikes and bike rack would obscure path. Riverbank needed mowing.</p> <p>Vehicle crossing could be marked, otherwise shop frontages very nicely laid out. Pleasant area to linger or talk.</p> <p>Nil</p> <p>Tight area on curb. Unattractive space in front of civic building.</p> <p>Cars parking over footpath.</p> <p>Grassed area at entrance to carpark - step between concrete and grass.</p> <p>Sight impaired people would encounter a few obstacles accessing Council service centre.</p> <p>Broken kerb could be a danger.</p>							
Improvements:	<ul style="list-style-type: none"> <li>13% Priority over motor traffic</li> <li>13% More separation from roadway</li> <li>13% Fewer cyclists or skateboarders etc</li> <li>17% Better view of vehicles crossing path</li> <li>17% Less traffic</li> <li>4% More direct route</li> <li>13% Gentler side slope across path</li> <li>8% Gentler slope along path / no steps</li> <li>29% More or better tactile and visual aids</li> </ul>							<ul style="list-style-type: none"> <li>13% Better street lighting</li> <li>25% Smoother and more even surface quality</li> <li>4% Wider path</li> <li>42% Better streetscape or public art</li> <li>50% Better landscaping or more greenery</li> <li>13% Cleaner</li> <li>25% fewer footpath obstructions</li> <li>29% More seats, drinking fountains etc</li> <li>25% More street activity or natural surveillance</li> </ul>
Opportunities:	<p>Lighting on opposite side limited by trees. Parallel parking - prevent parking over footpath. Seating at street - unable to see if low vision from footpath. Add welcoming features to Service Centre area. Gentle</p> <p>Nil</p> <p>Need clear pathway for pedestrians. Service Centre outside seating not inviting.</p> <p>Well landscaped area, seats etc available, can only be further enhanced with drinking fountain.</p> <p>Path resealing.</p> <p>Paint yellow lines on footpath to indicate vehicle crossing.</p> <p>Nil</p> <p>Improve space in front of Civic Building.</p>							

### Figure 8 Walkability Level of Service Map



Rongotai Road, Kilbirnie, Wellington – Suburban Shopping