Research First

Invercargill City Council

2013 Service Level Survey: Stormwater and Sewerage Report

Wednesday, 11 December 2013

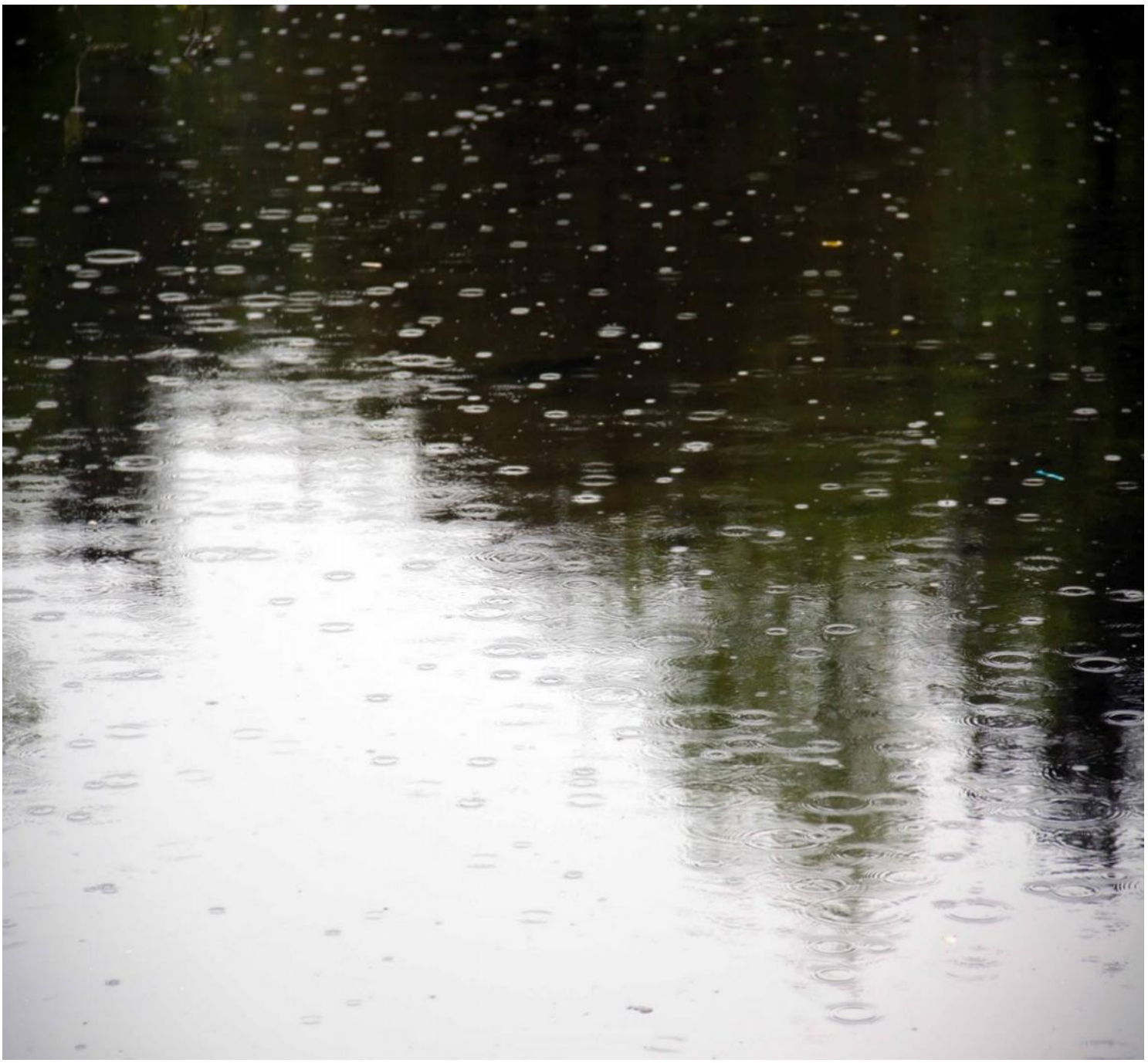


Table of Contents

Disclaimer

1 Introduction

1.1 Research Context

In 2013 Invercargill City Council (ICC) contracted Research First to conduct a survey of Invercargill residents. The purpose of this survey is to provide ICC with a measure of how satisfied residents are with seven key areas:

1. Roading;
2. Parks and reserves;
3. Cemeteries and crematorium;
4. Stormwater;
5. Water supply;
6. Sewerage; and
7. Solid waste.

This report presents the sewerage and stormwater results from the 2013 survey of Invercargill residents

1.2 Research Design

The 2013 research involved a mixed-method multi-phase design, which combined qualitative and quantitative research.

1.2.1 The Qualitative Phase

The qualitative part of this research comprised:

1. Interviews with key members of the ICC staff; and
2. Seven focus groups, held among people identified as being informed and relevant to each of the service areas.

The focus groups involved between five and seven participants who were recruited by ICC to reflect the range of views held in the community regarding each issue. The discussion groups were held at ICC's Council Chambers, during August 2013.

1.2.2 The Quantitative Phase

The survey of residents was completed between late August and mid October 2013. The data collection period was an extended one because the survey used a mixed-method design. In other words the 'survey' was actually two surveys - one completed online and one completed by conventional mail return. The process used was:

- A randomised sample was generated from the electoral roll, including both Māori and general rolls;
- A letter was sent to all those randomised into the sample, asking them to participate. The letter was sent out on ICC letterhead and invited participation by accessing the survey website (i.e., an online survey);

- A follow-up postcard was sent two weeks later, reminding people that they were still welcome to participate, and could do so by the online survey or by telephone if necessary; and
- Two weeks after the postcard was sent, a further follow-up was sent to all non-respondents, which included a hard copy of the survey and a reply paid envelope (i.e., a mail survey).

Of the 2,500 invitations sent out, 354 residents responded to the mail survey and 315 residents replied to the online questionnaire*. This means the results reported here are based on 669 responses.

This document combines the qualitative insights from the focus groups and the results from the survey in regard to **sewerage and stormwater** in Invercargill.

* Note that due to the self-completion nature of the on-line survey, there are some questions that were answered by smaller numbers of respondents. Where there were less than 15 responses to a question these results have not been included.

2 Storm Water Service Levels: The Focus Group Insights

2.1 Flooding

Without prompting, participants in the focus groups talked about the 1984 floods of Invercargill, where 10% of the city was underwater. This was identified as a being a 1 in a 100 year event. The economic impact of this event was perceived as being 'enormous'. While there were no fatalities from the flood, there was a large emotional cost to residents. Participants also recalled the 1978 flood, which was of a similar proportion. This shows that flooding risk is still front-of-mind for many focus group participants, despite significant flood protection work completed since 1984.

Participants understood that the Council now develops and implements 30-year plans to minimise the risk to Invercargill should another flood of this size occur. Within the community there was a feeling that preparations were better now, and therefore residents were relatively less concerned about another significant flooding event.

2.2 Effectiveness of Engineering

Participants were asked whether engineering works introduced since the most recent major flood had resolved any long term concerns regarding flooding. Participants were able to identify some measures that the Council had undertaken or had observed as having a possible impact:

- Inundation – rainfall trends, according to The Southland Times rainfall is 1140mm, whereas in the 1980's it was 1060mm (note that this should be validated if possible);
- Frequency of the intensity of the rainfall – how hard it rains, how long for;
- Two levels of design – where pipes could control the majority of the flow, but when pipes were full, additional flow would go to a secondary surface system (where it flows in a flood). This system would work to allow for a one in five year event for pipes, and a one in 25 or 50 event for surface flows;
- Tidal effects – rain in conjunction with the tide has a big effect on flood protection – high tide does not allow for surface flooding – will just back up and contribute to the problem as well as flood gates; and
- Atmosphere provisions – low atmospheric pressure contributes to events.

Participants discussed the approach Environment Canterbury had taken. They had added a 15% factor when calculating rainfall, based on a risk of increased large rain events due to climate change. It was questioned whether Environment Southland should do a similar thing in their planning (although it was not that relevant as the ICC did not do this planning). Participants also noted that the pipe network in Invercargill was designed for a 1-in-5year event, while other cities are designed for a 1-in-10 year event, and perhaps this should be addressed.

Participants noted key functions that the community could not afford to lose in any event:

- Bridges;
- Road access;
- Hospital;
- Police/fire services;
- Electricity; and
- Airport.

It was also observed that both Bluff and Otatara had a high risk of isolation should a flooding event occur. However, Bluff had a heliport so some access would be possible.

2.3 Management of Risk

Participants were asked what level of risk was deemed acceptable within the community. All agreed that the risks and benefits of any approach need to be weighed up against each other. The participants understood that storm water pipes had a design life of 50-100 years and while the pipes needed to be maintained, this needed to be balanced against the cost of maintenance and changing pipes.

Sometimes the cost of investigation to determine the structural soundness of the pipes could have a significant cost, which would reduce the funds available for future issue resolution. In some areas the records of the pipe infrastructure were incomplete.

Participants noted that Bluff had its own issues that needed addressing. In Bluff deforestation was occurring which was causing flooding of the hill. This flooding caused the surface water to flow through to houses. Given this, Bluff residents were likely to have a different view towards a 1-in-10 year design versus a 1-in-50 year design. Participants suggested those areas that had suffered deforestation should be re-vegetated. A new/revised race system could be necessary to force the water to go down the hill in a flood. The current race was too small to cope with the volume of water flowing in current flood situations.

Old infrastructure also posed a problem to the Council. Old pipes were made from cast iron and this was corroding. Participants felt this was a potential problem that needed addressing.

2.4 Future Developments

Participants were given the opportunity to consider future developments in the area of flood risk management. A number of suggestions were given by participants regarding what could be done to minimise flood risk in the future. These included:

- Encourage regeneration of older parts of the city;
- Rebuild on old locations removing the need for expansion of systems into new developments;
- Develop infrastructure using the 'Doughnut effect'. An example of this was identified as building outwards but gutting the middle, Racecourse Road had 60 new houses, therefore leading to 60 empty houses in the older parts of the city, which may become a 'doughnut' hole;
- Building new houses because of the change in population dynamics – more houses for the same population;
- Zoning controls; and
- Post construction cannot exceed pre construction drainage.

2.5 Issues in Outlying Areas

Participants were given the opportunity to identify issues in outlying areas. In Otatara it was noted that there was natural drainage in place. Some noted that the area was sandy and therefore rainwater was better absorbed. Others felt this was inaccurate, and identified a clay base in Otatara. It was felt that residents could harvest their rainwater to use for domestic water needs. In the event of a major rainfall incident, the flow could be managed by locking the toilet cisterns 'open', draining excess water from the tanks and providing a flow off the property. Otatara had a network of open drains, an 'informal drainage system'. It was also difficult to find any records regarding the network as these were lost in the 1984 floods.

Participants felt that in theory the system was appropriate, although there were some safety issues with children possibly falling into drains. There was also the possibility of people driving into drains. The current drainage system was perceived as being a fairly costly effective system.

In Bluff Hill the largest concern was the environmental impact of discharge. This was particularly important in the Bluff Beach and Morrisons Beach areas.

In Myross Bush new lifestyle blocks and low density housing were being developed. Retired farmers in the area had knowledge on

how to manage any issues that may arise. Any issues tend to be fairly isolated and participants felt that residents communicate among themselves to solve the problem. No real problems were known to exist, although if high density housing were to develop in the future, problems could arise.

2.6 Other Messages

Participants identified a number of issues they felt should be incorporated into the long term plan of the Council. These were:

- Harvesting resources – 400L/day/per house, 1140mm of storm water being wasted, this water should be used as toilet water/ drain water etc. in a large tank – can relieve pressure on water supply and drainage, overflow of tank can be controlled by using amenities in the home that would use it (washing machine, toilet etc.). There could be issues with the quality of discharge;
- Funding the infrastructure – through education or leave it up to the household;
- Perception of storm water and treatment of storm water; and
- Quality of storm water discharge.

3 Stormwater Service Levels: The Survey Results

3.1 Use of Stormwater Network

Respondents read the following preamble about stormwater services:

> *ICC provides and maintains over 400km of pipes and open drains to remove excess stormwater and protect residents in built up areas from flooding. All stormwater costs are paid through rates.*

Stormwater was rated as very important by the majority of residents

Most (85%) respondents were connected to a stormwater network.

Table 3.1: Connection to Stormwater Network

	Number of Respondents	Percentage of Respondents
Connected	473	85%
Not Connected	84	15%

3.2 Importance of Stormwater Drainage Features

Respondents were asked to rate the following services in terms of their importance. A five point scale was used (1 = very unimportant, 3 = neutral, 5 = very important). Table 3.2 shows that all stormwater services were important to respondents (90% to 92% MTI).

Table 3.2: Importance of Stormwater Drainage Features

Features	MTI	Very Important	Important	Neutral	Unimportant	Very Unimportant
Stormwater ponding/ flooding protection	92%	53%	39%	6%	0%	2%
Drain safety e.g. in open drain networks	91%	62%	29%	7%	0%	3%
Pollution levels	90%	59%	32%	7%	1%	2%

3.3 Stormwater Facilities

Respondents were then asked to rate the quality of Invercargill's stormwater network by means of a five point scale (1 = very poor, 3 = average, and 5 = very good). Table 3.3 shows that most respondents rated Invercargill's stormwater network in the 'good' to 'average' category. Stormwater flooding on the roads was the most poorly rated service (44% MTG).

Table 3.3: Stormwater Facilities

Aspect of Stormwater Facilities	MTG	Very Good	Good	Average	Poor	Very Poor
Stormwater ponding/ flooding prevention in urban built up areas	55%	12%	43%	31%	11%	2%
Stormwater drain safety design and operation	53%	12%	41%	40%	5%	2%
Stormwater ponding/ flooding prevention in nonurban areas	50%	8%	42%	41%	8%	1%
Stormwater discharge (environmental quality)	48%	9%	39%	43%	7%	2%
Stormwater ponding/ flooding prevention on roads	44%	7%	36%	37%	17%	2%

Respondents were asked to rate the stormwater network performance in their location compared with the stormwater network performance in other areas of the city. Invercargill residents were more positive about their stormwater network than those of Bluff and Otatara (Table 3.4).

Table 3.4: Stormwater Network in Area Compared with Other Parts of City

	Invercargill	Bluff	Otatara	Total
Much better	11%	0%	9%	11%
A little better	19%	18%	9%	19%
Same	59%	47%	41%	57%
A little worse	10%	18%	22%	11%
Much worse	1%	18%	19%	3%

3.4 Invercargill City Council's Stormwater Service

Respondents were asked to rate the ICC's stormwater service in the following areas by means of the same scale employed previously. Table 3.5 shows that most respondents rated the three listed aspects of ICC's stormwater service as 'good' or 'average'. A fifth rated ICC's responsiveness to complaints as 'poor' or 'very poor'.

Table 3.5: Performance of ICC's Stormwater Service

ICC's Stormwater Service	MTG	Very Good	Good	Average	Poor	Very Poor
Value for money for stormwater services (average residential rate per year $105)	48%	13%	34%	43%	8%	2%
Responsiveness to complaints (answer only if complained in the last year)	43%	13%	30%	38%	10%	10%
Overall improvement of stormwater service in the last three years	39%	7%	32%	50%	9%	2%

Respondents were asked how many hours they would tolerate problems in the stormwater service (e.g. ponding/ flooding on public streets or reserves). Table 3.6 shows that residents would prefer a prompt response. Most wanted stormwater problems dealt with within 0 – 6 hours (43%), or 7 – 12 hours (30%).

Table 3.6: Time Would Tolerate a Stormwater Service Problem

	Number of Respondents	Percentage of Respondents
0-6 hours	261	43%
7-12 hours	178	30%
13-18 hours	42	7%
19-24 hours	86	14%
25+ hours	35	6%

Respondents were asked how often per year it would be fair to have problems in the stormwater service. Table 3.7 shows that around two thirds would tolerate one or two incidents per year.

Table 3.7: Fair Occurrence of Problems per Year

	Number of Respondents	Percentage of Respondents
None	109	18%
Once	159	27%
Twice	219	37%
Three or More	106	18%

Ninety respondents made other comments relating to stormwater (Table 3.8). The most frequently mentioned comment was issues with drains (40%). This was followed by regular ponding in some areas or issues with heavy rain (26%), and complaints not being dealt with (12%).

Table 3.8: Other Comments Regarding Stormwater

	Number of Respondents	Percentage of Respondents
More frequent cleaning of drains	25	28%
Regular ponding still in some areas	16	18%
Complaints/ issues not being dealt with	11	12%
Doing a good job	8	9%
Deep, open drains need to be secured/ looked at	8	9%
Heavy rains still cause issues	7	8%
Open drains are not being maintained or cleaned	3	3%
Services need improving/ updating	3	3%
Environmental concerns with discharge	2	2%
More education for residents	2	2%
Poor enforcement of septic tank drainage	1	1%
Other	4	4%

4 Sewerage Service Levels: The Focus Group Insights

4.1 Disruption to Service

The focus group participants were clear that if they had a disruption to their sewerage service their first response wold be to call a drain layer. This is because their collective experience is that calling ICC results in a referral to a drain layer anyway.

However, disputes arose regarding how much of the sewer pipe the homeowner was responsible for. A number of participants argued that their responsibility should end at their boundary, whereas ICC policy is that the homeowner is responsible for the pipes back to the sewer main. Disruptions to service cause by tree roots, where the trees were on ICC property, were seen as being ICC's responsibility.

Participants understood that recurring issues were raised from being the domain of a tradesperson (plumber or drain layer) to being a Council responsibility. However, it was understood that a recurring problem could be the owner's issue if the owner had not changed the behaviour that caused the problem. The Council maintained a good database of call-out and maintenance history on properties to track behaviour, if necessary.

4.2 Septic Systems

Participants understood that at least 10% of residents in the city area used a septic system. Participants were unsure of the Council's role in the management of septic tanks. There were different issues apparent depending on the age of the septic tank. Those tanks that were pre-2000 were the responsibility of the landowner. Many of the properties that fell into this category were tenanted. There was generally a lack of knowledge of what was required with respect to maintenance of these tanks. In addition there were concerns that the tenants may have insufficient knowledge regarding how to use their septic system. Specific areas in which knowledge gaps were thought to exist included knowing what needed cleaning, and soaking out was minimal. Overflow of septic tanks often ran into stormwater drains. This was of concern to participants.

Newer tanks (post-2000) were fairly elaborate systems, and could require significant investment (of up to $20,000). Even with this cost, participants understood that only 10% of people maintain their septic systems correctly. Participants believed that residents had an understanding that if they could not see a problem, then nothing was broken. This perception needed to be addressed to improve stormwater supplies.

Participants believed that the Council should have some responsibility for monitoring septic systems. As the Council was

responsible for the stormwater systems, participants thought that they also had an interest in ensuring septic tanks are maintained appropriately, to avoid contamination of the stormwater. Participants provided some ways they felt the Council could get more involved in ensuring stormwater supplies were not contaminated, including:

- Education;
- Ensuring an understanding of systems when issuing building consents;
- Review of existing septic infrastructure; and
- Providing alternatives to using septic tanks through increasing the sewerage network.

4.3 Infrastructure

Participants felt that there was insufficient infrastructure in place in Invercargill to provide for the needs of the wider community. Outlying areas in particular needed access to the sewerage network. Participants suggested that increased or improved planning should be considered by the Council to ensure development was carried out in a strategic way. Some older areas around Invercargill needed their infrastructure updated.

Participants identified several issues within the current infrastructure. Stormwater infiltration of the system could lead to an overload of the whole system. This could take the form of:

1. Stormwater gets into sewer - pipe overloads and creates a discharge. This would cause spillages in town. It would be costly as more pumps and man power needed; and
2. Sewer into stormwater - environmental issue, but creeks get fuller therefore leading to dilution.

Participants suggested that the Council could conduct smoke testing, infiltration or dye testing to identify possible sources of contamination, and use this to ensure the above issues are addressed.

Trade waste was identified by participants as an issue. Participants perceived that many organisations may be disposing of their trade waste into the sewers, although those discharging the waste should have processes in place for appropriate collection. It was reported that some of the waste went through the stormwater; while others reported trade waste being disposed of through the sewerage system, with a result that the sewerage treatment plant had to cope with discharge outside the scope of regular sewerage waste. Participants agreed that the Council and Environment Southland were working to try and control this problem.

Within Invercargill 75% of pipes were earthenware and the remainder PVC. Participants felt the presence of asbestos cement pipes was a significant issue for the Council.

In new developments, participants felt that lateral pipes serving houses should be renewed and upgraded from clay pipe to PVC wherever possible. At the same time, the impact of additional houses being serviced on a sewer main should be evaluated. This would ensure the 'downstream' width of the pipe was of sufficient size to cope with the increased flow.

4.4 Communication

Participants were asked about communications between the Council and residents regarding sewer information. Participants agreed that it was not too much of an issue in the community. Some responsibility for effective communication lay with the contractor, and open communication needs to occur between the Council and contractors. Contractors need to have effective people skills, so that they could effectively communicate where the issue lay and where responsibility for the resolution lay.

4.5 Issues in Local Communities

Participants had no specific knowledge of gazetted service delivery requirements regarding the management and discharge of sewerage.

Participants identified three local communities as having stand-alone sewerage systems. These were:

- Omaui; on sewerage oxidation pond, low income households – cannot afford to resolve issues;
- Bluff – on-going upgrades; and
- Otatara – on-going upgrades.

Participants understood that there had been frequent requests from rural residents to access sewerage systems but participants were unsure how far the current network reached. If feasible, rural areas would like to be connected to the main urban sewer in locations such as Lorneville and Makarewa.

5 Sewerage Service Levels: The Survey Results

5.1 Use of Sewerage Facilities

Respondents read the following preamble about sewerage services:

> *ICC maintains over 360km of sewerage pipes and treatment plants in Bluff, Omaui and Clifton. Rates pay for 90% of sewerage costs and the balance is paid for by fees and charges.*

Table 5.1 shows that 89% of residents were connected to the sewerage network.

Invercargill's sewerage system was rated highest for uninterrupted collection and lowest for the community impact of disposal

Table 5.1: Connection to the Sewerage Network

	Number of Respondents	Percentage Respondents
Connected	528	89%
Not Connected	66	11%

5.2 Importance of Sewerage Features

Respondents were asked to rate the following sewerage service aspects in terms of their perception of importance. Table 5.2 shows that all aspects of sewerage services were important to respondents (MTI 90% to 91%).

Table 5.2: Importance of Sewerage Features

Features	MTI	Very Important	Important	Neutral	Unimportant	Very Unimportant
Sewerage treatment and disposal	91%	70%	21%	6%	0%	3%
Uninterrupted sewerage collection	90%	66%	24%	7%	0%	3%
Community impact of sewerage disposal	90%	65%	25%	7%	0%	3%

5.3 Sewerage Facilities

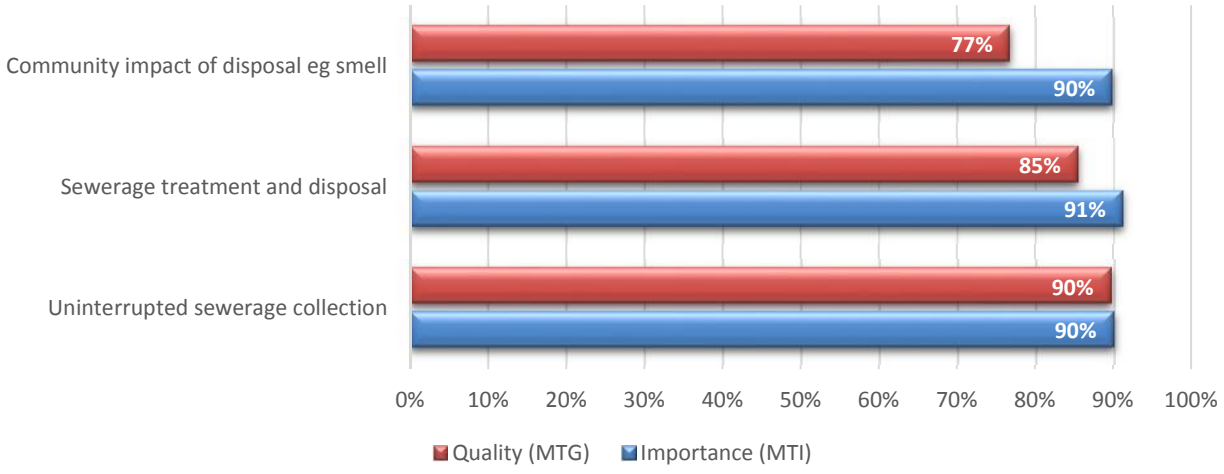
Respondents were asked to rate the quality of Invercargill's sewerage system in the following areas. Only those that used the facility answered the question. Table 5.3 shows that Invercargill's sewerage system was rated highest for uninterrupted collection (MTG 90%) and lowest for the community impact of disposal (i.e. smell, MTG 77%).

Table 5.3 : Sewerage Facilities

Aspect of Sewerage Facilities	MTG	Very Good	Good	Average	Poor	Very Poor
Uninterrupted sewerage collection	90%	51%	39%	10%	0%	0%
Sewerage treatment and disposal	85%	41%	45%	14%	0%	0%
Community impact of disposal e.g. smell	77%	35%	42%	20%	3%	1%

The following graph shows the importance (MTI) of aspects of Invercargill's sewerage service relative to its quality (MTG) rating. Figure 5.1 demonstrates that Invercargill's sewerage disposal does not perform to expectations when it comes to community impact of disposal.

Figure 5:1: Importance vs. Quality of Invercargill's Sewerage System



Respondents were asked how good the overall sewerage network performance was in their location compared with other areas of the city. Table 5.4 shows that most residents thought the sewerage network was the same in their area compared to other parts of the city. There was little difference in perception in terms of area.

Table 5.4: Sewerage Network in Area Compared with Network in Other Parts of City

	Invercargill	Bluff	Otatara	Total
Much better	9%	6%	3%	9%
A little better	13%	12%	7%	12%
Same	77%	82%	83%	77%
A little worse	1%	-	7%	1%
Much worse	0%	-	-	0%

5.4 Expansion of Sewerage Network

Respondents were asked whether ICC should be considering expansion of the sewerage network (65 responded) and whether residents would be prepared to pay additional rates to have the sewerage system expanded into different areas (62 responded). Table 5.5 shows that 60% felt that the sewerage system should be expanded and 35% would be prepared to pay rates to have the sewerage system expanded into certain areas. Table 5.6 (overleaf) shows which areas the sewerage network should be expanded into.

Table 5.5: Expansion of Sewerage Network

	Number of Respondents	Percentage of Respondents
Consider expansion of sewerage network		
Yes, expand	39	60%
No, not expand	26	40%
Pay additional rates to expand sewerage network		
Yes, pay rates	18	35%
No, not pay rates	34	65%

Table 5.6: Areas of Expansion

	Number of Respondents
Otatara	33
Lorneville	11
Myross Bush	15
Makarewa	10
Other	7

5.5 Invercargill City Council's Sewerage Service

Respondents were asked to rate the ICC's sewerage service in the following areas. Respondents rated the value for money of the service highest (72% MTG). In contrast, the overall improvement of the sewerage service in the last three years was rated the lowest (48% MTG).

Table 5.7: Performance of ICC Sewerage Service

ICC's Sewerage Service	MTG	Very Good	Good	Average	Poor	Very Poor
Value for money for sewerage service (average residential rate per year $200)	72%	28%	43%	28%	0%	0%
Responsiveness to complaints (answer only if complained in the last year)	64%	24%	40%	34%	0%	2%
Overall improvement of sewerage service in last three years	48%	12%	35%	51%	1%	0%

5.6 Interruptions to Sewerage Service

Respondents were asked how long they would tolerate unplanned interruptions, convenient times for interruptions and the frequency of planned interruptions in the sewerage network service (Table 5.8, 5.9 and 5.10, overleaf). The results show:

- Two thirds (67%) of residents would tolerate a 0 – 6 hour interruption and a further 24% would tolerate a 7 – 12 hour interruption;
- Night-time (midnight to 6am) was the preferred time for an interruption for 61% followed by the afternoon (12noon to 6pm) for 33%; and

- Close to half (47%) would tolerate one interruption and a further 39% would tolerate two interruptions.

Table 5.8: Time would Tolerate Unplanned Interruptions in Service

	Number of Respondents	Percentage of Respondents
0 – 6 Hours	389	67%
7 - 12 Hours	140	24%
13 – 18 Hours	22	4%
19 – 24 Hours	26	4%
25 + Hours	2	0%

Table 5.9: Convenient Times for Interruptions

	Number of Respondents	Percentage of Respondents
Morning (6am to 12 Noon)	88	13%
Afternoon (12 Noon to 6pm)	219	33%
Evening (6pm to 12 Midnight)	64	10%
Night (12 Midnight to 6am)	409	61%

Table 5.10: Occurrence of Planned Interruptions

	Number of Respondents	Percentage of Respondents
None	51	9%
Once	268	47%
Twice	224	39%
Three or More	28	5%

5.7 Septic Tanks

A small proportion (n=85) responded to this section regarding septic tanks. Respondents were asked if the ICC should monitor septic tanks to ensure they are working properly. Of these 85 respondents, 52% responded that ICC should monitor septic tanks. Tables 5.12 and 5.13 show the reasons for and against the ICC maintaining septic tanks.

Table 5.11: Monitoring of Septic Tanks

Household septic tanks	Number of Respondents	Percentage of Respondents
Yes Council should monitor	44	52%
No, Council should not monitor	41	48%

Table 5.12: Reasons for Monitoring Septic Tanks

	Number of Respondents
Safe/ Good for environment	10
Health/ Hygiene	9
Protection of aquifers	1
Reduce maintenance time with monitoring	1
Lack of knowledge from owner	1
Lack of funds from owner	1
Easier monitoring of tanks	1
It is very important	1

Table 5.13: Reasons Against Monitoring Septic Tanks

	Number of Respondents
Individual responsibility	15
Another reason to charge more	9
Council over-committed now	1
The ability of inspectors	1

Some respondents made additional comments about the sewerage network (Table 5.14). Comments ranged from issues with pollution/ odour (n=12), to a user pays system (n=10) and the expense of the system (n=8).

Table 5.14: Additional Comments Regarding Sewerage Service

	Number of Respondents
User pays	10
Issues with pollution	8
Too expensive	6
Issues with odour	4
Septic tanks should be replaced with a connection to the sewerage system	4
No need to expand	4
Doing a good job	2
Rating charges should follow Otatara system	2
Need to start expanding/ renewing	2
Improve monitoring	2
Not necessary to connect all septic tank users	2
Personal issues with sewerage system	1
Improve communication with residents	1