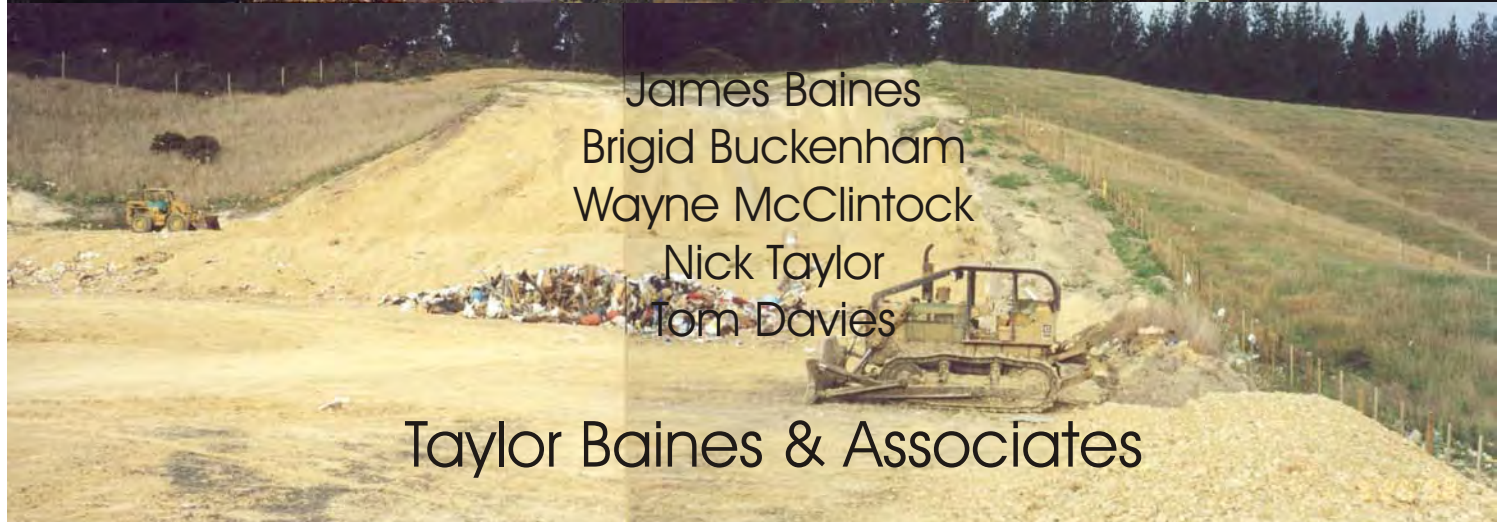




Host Communities: siting and effects of facilities



Contemporary Host Community Experiences of Solid Waste Facilities in New Zealand: An Overview



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Acknowledgements

The series of case studies reported here has contributed considerable knowledge that is important to a better understanding of the effects which host communities can expect to experience from the operation of solid waste facilities (landfills and transfer stations). The research would not have been possible without the co-operation of all those who were interviewed. The level of willingness to co-operate is worthy of acknowledgement - the research team met with very few refusals during the entire research programme.

The research team wishes to express its gratitude to all those who participated - the residents, businesses and those enjoying recreational opportunities in the host communities selected for case studies, as well as other key informants and administrators at the various Territorial Local Authorities involved. The co-operation of facility supervisors was essential and most illuminating in every case, for which the team is very grateful.

The research team expresses its gratitude to the Foundation for Research, Science and Technology for its financial support of the research programme.

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A: Research rationale

Public Good Science Fund Research

The research team at Taylor Baines & Associates was contracted by the Foundation for Research Science and Technology to carry out a piece of social research concerning the siting decisions and community experience of solid waste facilities. The research has been funded out of the Public Good Science Fund.

Spread over three financial years - 1997 to 2000 - the research programme aims to assist the processes of urban and rural planning (as it applies to future solid waste disposal infrastructure) by developing a body of knowledge on social factors that are relevant to the siting and operation of solid waste facilities.

In total, the research programme is intended to answer three core questions -

1. Is there a systematic pattern of solid waste facilities siting in NZ. If so, how would you characterise this historical pattern from the social perspective of host communities?
2. How do actual effects compare with effects that were projected at the time of siting?
3. What have been the longer-term effects on host communities of solid waste operations?

This research on solid waste facilities is part of a longer-term research programme currently being funded by the Public Good Science Fund into the siting and social impacts of a range of facility types. During the period 1997 to 2000, research has been carried out on solid waste facilities - landfills and transfer stations. During 1998 to 2001 other research is focussing on waste water facilities. Please refer to the TBA website - www.tba.co.nz - for more information.

The research programme has received the strong endorsement of Local Government New Zealand, the New Zealand Water and Wastes Association, the Ministry for the Environment, as well as several territorial local authorities.

Reasons for this research programme on facilities and their host communities

It is a common experience that assessing the effects of solid waste facilities at the time of site selection is a contentious process. The debates that surround such assessment activities are often informed more by prejudice and a strategic selection of hearsay information than by well-founded evidence.

This research aims to address both questions of possible social bias in site selection and lack of experienced-based information relevant to New Zealand communities. It is to be hoped that these objectives will be served by carrying out the research in a setting which is removed from the tensions of resource consent applications, and by a team of independent researchers who have no organisational affiliation with either the developers of such facilities (usually but not always Territorial Local Authorities) or the host communities involved.

Case study overview

This Overview document complements the individual case study reports and summaries. Its purpose is to bring together the principal findings of all the case studies in one place (Section B) and draw out the common themes and lessons learned from this social research programme (Section C). By way of providing context for the particular findings, an introduction to the research programme is given in Section A.

Purpose of the case studies

Seven case studies have been undertaken as part of this research programme¹. The case studies were selected to provide a range of relatively recent facilities, from large metropolitan landfills and a transfer station, to the kinds of facilities more familiar in smaller cities and rural areas. As a result, the experience documented in these case studies should provide useful insights into contemporary New Zealand experience.

Each case study has been conducted at a time which avoids conflicts with active resource consent proceedings. Care has been taken in the social assessment research method to provide accurate and useful descriptions of the effects experienced by host communities, by canvassing a wide range of local observations, by accessing other relevant data sources where possible to corroborate the observations of neighbours, and by engaging in a process of feeding back preliminary findings for checking and validation by the research participants. As a result, the experience documented in these case studies should neither overstate nor understate the experience of the host communities involved. This is important, if the research is to assist participants in future planning.

Nevertheless, the case studies each represent experience at a particular point in time. The research process itself, and the case studies resulting from the research, have the potential to trigger changes in the way the facilities are operated and managed. Thus it is important to interpret the findings of each case study in the context of the way the facility was operated and managed at the time of the case study fieldwork.

Methodology for the case studies

The research method drew on the practical and theoretical approach to social assessment described in Chapter Four of “Social Assessment: theory, process & techniques” (Taylor et al., 1995). Stages in the research included scoping the particular cases to clarify the appropriate time frame and communities of interest, community profiling, a structured survey of nearby residents and business people, in-depth key informant interviews, and accessing a range of existing data sources.

A structured questionnaire was developed to gather detailed information about the experience of many individuals living in the host community. The questionnaire explored people’s experience of day-to-day operational effects of the landfill, their perceptions of how the presence of the landfill has impacted on the longer-term development of the host community, and their knowledge of what has

¹ The full list of case studies includes Burwood Landfill, Redruth Landfill, Bonny Glen Landfill, Redvale Landfill, York Valley Landfill, Styx Mill Transfer Station, Temuka Transfer Station.

happened in their community during the years prior to and since the landfill was established. The detailed analysis is descriptive and sometimes quantitative, but not statistical in nature².

In carrying out the comparative case assessments, the assessment team had to address several issues relevant to interpreting the results and their usefulness in providing valid comparative information. These included the debate about ‘perceived’ or ‘real’ effects, the need for corroboration, and the importance of timing or context as a potential influence on individual responses.

The assessments focussed on people’s experiences of living or working near waste management facilities. The results are therefore based on a large body of individual perceptions of effects. In some feedback discussions, the distinction was made that these effects are “*only people’s perceptions; they’re not necessarily real.*” The question arises therefore as to what is the difference between a ‘perceived’ effect and a ‘real’ effect. Can ‘perceived’ effects ever become ‘real’ effects? In practical terms, the assessments identified clearly the proportions of those interviewed who experienced certain types of effects. Furthermore, wherever possible, the assessment sought to investigate these effects from other respondents and from independent sources (e.g. local key informants; secondary data records) or different perspectives (e.g. the facility operator)³. As researchers, it was pleasing to note how, in the great majority of cases, neighbours’ experience was strongly corroborated by the perceptions and experience of the facility operator.

A number of factors have a bearing on individual experiences. Different people have different thresholds for noticing effects depending, for example, on their ability to hear or to smell, or on their perception of what is ‘exceptional’. Increasing sample size addressed this factor. Different living or recreational patterns are likely to influence people’s experience of effects - whether they are on the property all day, every day, or working off the property. Day-time interviewing addressed this factor by increasing the likelihood of including individuals with a relatively high rate of occupancy. People get used to effects after a while - they can seem less exceptional. Following unprompted questions with prompted questions addressed this factor, by allowing interviewees ‘a second chance’ to respond.

Does the distinction between ‘perceived’ and ‘real’ effects matter? The primary purpose and value of comparative case assessment is to answer two types of questions - (i) if neighbours around a facility are experiencing certain effects, and finding that they have unacceptable impacts, what can be done to reduce or eliminate the effect, or make it less likely to happen? and (ii) if neighbours around Existing Facility A experienced certain effects and impacts from its operation, what is the likelihood that neighbours around Potential Facilities B, C or D will experience similar effects and impacts? In either situation, whether such effects are labelled as ‘perceived’ or ‘real’ is probably immaterial. However, from a “technical” perspective, replication of reported effects is important to their validation, while from a “political” perspective, the perceptions of just a few people affected can be sufficient to galvanise social action.

² A statistically-based analysis would have increased the scale of field work and cost several fold.

³ As a matter of assessment methodology, we have adopted the stance that unless more than two individual neighbours reported and corroborated the same effect, or unless a neighbour’s observation could be corroborated by an independent source, the effect would not be reported in detail, but simply noted. This reflects the stance that, while social assessment acknowledges the importance of individual observations, such observations still need to be subject to verification.

It is also important to remember that technical experts are not necessarily in a position to offer any more than assessments of 'perceived' effects. In the case of technical experts, their perceptions are derived with the aid of technical lenses (i.e. frameworks for analysis used by the technical expert). For example, an acoustical engineer can provide measures and predictions of likely noise levels at certain distances away from the source of the noise. The acoustical engineer is not usually in a position to draw any inferences as to likely social impacts associated with these levels of noise.

The tendency for potentially affected parties to distort or exaggerate the likelihood of effects when participating in EIA activities is not an uncommon experience for SIA practitioners. Indeed, in one of the comparative case studies, background documentation from an environmental tribunal declared this point explicitly. In these comparative case assessments, this factor was addressed by ensuring that all the case studies were carried out on facilities which had no consent applications or reviews in progress.

The research provider - Taylor Baines & Associates

Taylor Baines & Associates has been a private provider of research, consulting and training services since 1989. The firm specialises in social research and the application of social assessment methods to a wide variety of issues in community development.

Research outputs

Outputs from this research have taken the form of community feedback presentations and discussion sessions as part of the research process, as well as a range of hard copy formats. The latter includes a series of research Working Papers, conference papers, and an abbreviated summary document for each case study. Full case study reports (Working Papers FS3-FS9) are available for the cost of reproduction and postage, while conference papers and abbreviated summary documents for each case study are available free of charge. These outputs may be requested from Taylor Baines via any of the following points of contact -

| | |
|----------------|--|
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B: Sample of case studies

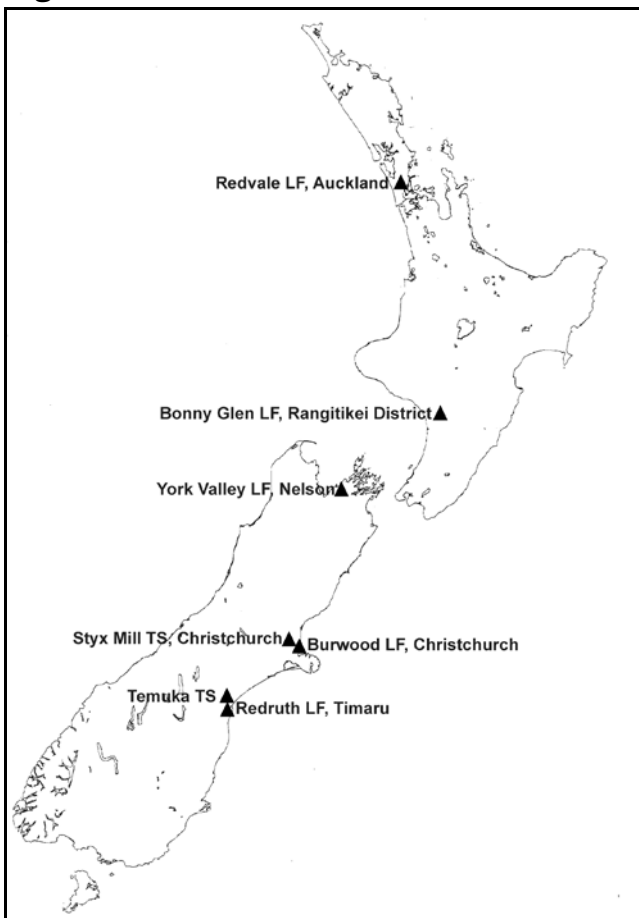
Structure of this section

This section provides brief summary information for each of the seven case studies (see Figure 1) under the following headings -

- case study timing
- solid waste facility location
- the facility
- site access
- nature of the host community
- main effects and significant impacts reported

The timing of the case study field work is reported explicitly in each case. All the commentary and discussion in this document should be read and interpreted in relation to the stated time frames. In some cases, the case study research prompted mitigation initiatives to be taken. As facility management regimes change over time, so can neighbours' experience of off-site effects be expected to change over time.

Figure 1: New Zealand Case Studies



The Styx Mill case study

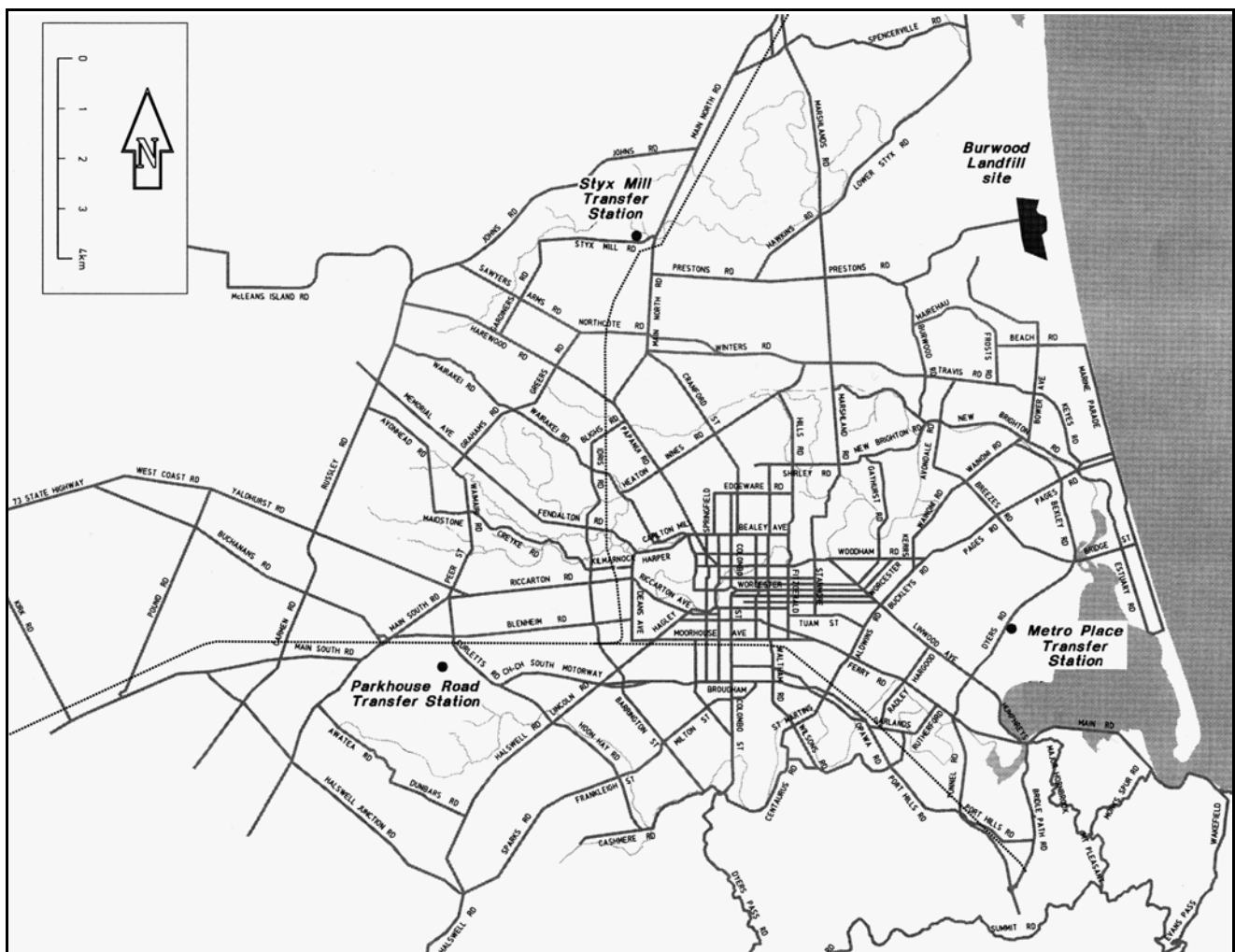
Case study timing

The Styx Mill Transfer Station opened in 1986. Fieldwork for this case study was carried out between November 1998 and May 1999.

Solid waste facility location

The Styx Mill Transfer Station is located in the South Island of New Zealand in Christchurch City (see Figure 2). When the Styx Mill Transfer Station was opened in 1986 it was sited near the northern suburb of Redwood. The facility was originally in a 'rural' location with no immediate residential neighbours, although the land had been re-zoned industrial. Neighbouring land was used for grazing and apple orchards. Now the facility is in the middle of residential sub-divisions (existing and planned), including one of Christchurch's more exclusive new sub-divisions, Regents Park, which is directly south across Styx Mill Road from the transfer station.

Figure 2: Location of the Styx Mill Transfer Station within Christchurch's solid waste infrastructure



The facility

The Styx Mill Transfer Station is one of three which serve the metropolitan area of Christchurch City and dispatch compacted solid waste to the city's landfill at Burwood.

Site access

The facility is open seven days a week from 7.30 am to 4 pm, except for five public holidays.

The site is 300 m west of the main northern arterial road - the Main North Road, or SH74 - providing good road access using the existing city street system. At the present time, two transfer trucks operate between the transfer station and the Burwood Landfill, carrying 16 tonnes per trip, with round trips taking one hour. When empty, the transfer trucks are expected to take the same route back to the transfer station even though they are legally entitled to return along any road. The understanding is that these trucks should take the most under-populated route despite the increase in mileage and time.

Typical numbers of vehicles arriving to deposit rubbish at the transfer station are as follows: 250-300/day on weekdays and 400-600/day on weekend days.

Nature of the host community

Since the late 1970s, the suburb of Redwood has been on the northern boundary of the contiguous urban development which straddled the Main North Road north from Papanui. Farquhars Road to the east has marked the urban-rural boundary for several decades.

South of the boundary there has been increasing residential development, while north of the boundary land between Redwood and Belfast has remained in primary production⁴ until very recently. Several small pockets of commercial retail and light industrial use have existed along the Main North Road.

The latest City Plan, first released in draft form in 1995, has allowed rural land to be sub-divided for residential purposes, with the result that the stretch of green belt between Redwood and Belfast is fast disappearing under residential sub-division.

The residential community around the Styx Mill transfer station prior to its opening was characterised by high levels of employment, many families with young children and a high level of home ownership.

Main effects and significant impacts reported

One significant negative effect (litter) impacts on the majority of neighbours in the vicinity of the transfer station. It remains a noticeable negative impact, although almost all observers noted a significant improvement in the fifteen years since the facility opened. The deliberate dumping of

⁴

Grazing of sheep and cattle has continued on the east side while a large tract of land on the west side of the Main North Road has been in horticultural production (fruit orchards and market gardens).

domestic rubbish in several unobserved locations may warrant clean-up initiatives beyond those already in place.

Two minor negative effects (noise and odour) are experienced by a relatively small proportion of neighbouring residents. In neither case is the impact considered significant.

The visual changes associated with development of the facility are widely viewed as a positive feature of the local landscape. Another positive effect is the benefits of additional custom for some local businesses in Redwood.

A range of other negative effects projected during planning (increased traffic hazards for school children; truck fumes; dust; smoke; vermin; flies) do not appear to have arisen in the experience of the host community.

Most of the long-term effects projected have not occurred or cannot be attributed to the transfer station. This probably reflects the strength of the NIMBY response at the time of site selection.

There are some people who disagree in principle with the use of rural land on the edge of the city - green belt - for commercial, industrial or residential purposes. A few people voiced these arguments in respect of the Styx Mill locality. However, such arguments were not persuasive in the latest Christchurch City Plan, with the result that residential and commercial development is proceeding apace.

There is no evidence to indicate that the siting and operation of the waste facility at Styx Mill has constrained either residential or recreation/conservation developments - which suggests that the facility is not perceived as having downgraded local amenity values. Nor does there appear to have been any negative impact on the local shopping area.

Over half those interviewed did not believe the waste facility has had a negative impact on local development. Indeed, survey responses reveal considerable positive feeling and pride.

The Burwood case study

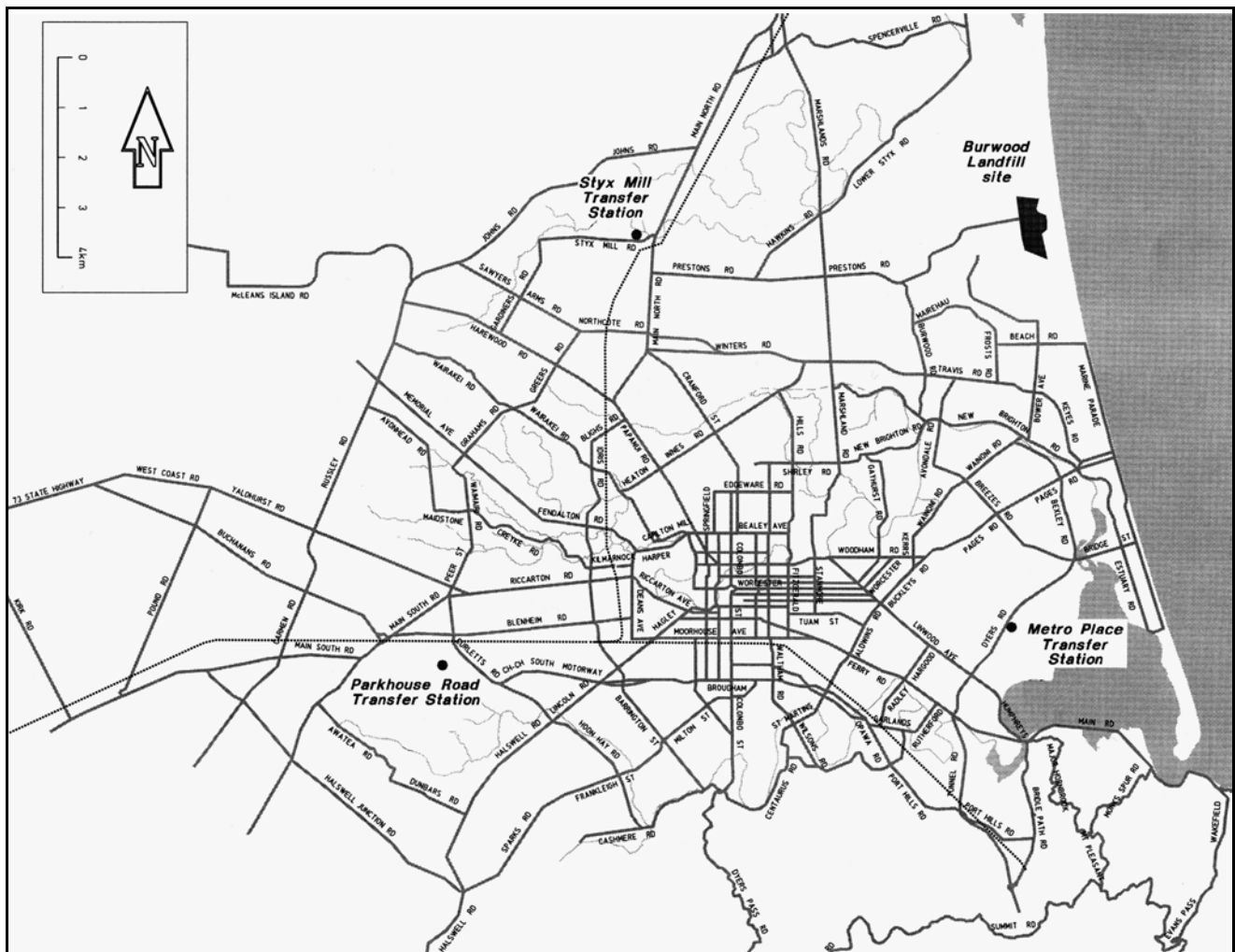
Case study timing

The Burwood Landfill was opened in 1984 and has developed in several stages. The last stage to be implemented was in 1991. Fieldwork for this case study took place between December 1998 and September 1999.

Solid waste facility location

The Burwood Landfill is located in the South Island of New Zealand in Christchurch City (see Figure 3). It is sited within one kilometre of the coast, in the Bottle Lake Forest Park. The nearest residential suburbs are Parklands and Waimairi Beach, just over one kilometre to the south. The settlement of Spencerville is four kilometres north of the site.

Figure 3: Location of the Burwood Landfill within Christchurch's solid waste infrastructure



The facility

The Burwood Landfill has been the principal refuse disposal facility for Christchurch waste since 1984. It is served by three transfer stations located in the north, south west and south east of the City.

The landfill site covers an area of just over 90 hectares. It was designed and constructed before liner systems were required in New Zealand landfills, and under the terms of the present resource consents, the operators are not required to line the landfill or to collect landfill gas. As the landfill does not have an impermeable liner, refuse is dumped on top of a layer of inert fill. Rubbish is further compacted on site and covered by inert materials. Before the site is closed each day, all refuse delivered that day is covered.

Site access

Waste is delivered to the landfill by City Council (from three transfer stations) and private contractor trucks. Members of the public are not allowed access to the landfill and no casual tipping is permitted.

The landfill is open seven days a week, from 7:30 am to 4:00 pm. Trucks from transfer stations are allowed to arrive until 5:30 pm. The Landfill Manager reports 30-35 truck visits per day from transfer stations⁵ and 20-25 truck visits per day from private operators. Typically, 600 tonnes of refuse are brought to the landfill each day. This quantity has dropped by about 10% since the introduction of kerbside recycling and composting.

City Council compactor trucks bring solid waste from the three transfer stations via pre-determined routes. Private contractors are not required to travel by any particular route.

Nature of the host community

The host community is predominantly residential in character, comprising the residential suburban areas of Waimairi Beach, Parklands and an area along Burwood Road, Waitikiri Drive, and Alpine View Road. The locality also incorporates significant recreational amenity areas - Bottle Lake Forest Park, three golf courses, and part of Waimairi Beach. Burwood Hospital is situated less than one kilometre to the south of the landfill entrance and one kilometre southwest of the suburb of Parklands.

Main effects and significant impacts reported

The effect observed by the greatest proportion of both neighbouring residents and recreational users is unpleasant odours. Typical experience for immediate neighbours of the Burwood Landfill is that such events are occasional, rather than frequent. Nevertheless, the experience can be distinctly unpleasant to the extent of inhibiting normal behaviour (for example, remaining indoors with windows closed) on very rare occasions, and provoking complaints. However, such experience does not mean that proximity to the Burwood Landfill dominates their quality of life in a negative way. With Burwood, other sources of odour may be compounding the effects experienced by neighbours

⁵

30-35 truck visits means 60-70 vehicle movements along the landfill route.

of the landfill - proximity to market gardens, piggeries and chicken farms, and vents from the Kainga-Brooklands sewer line connecting to Bromley.

Three effects associated with heavy vehicles - noise, vibration and road safety - have been a significant concern to some residents living near the entrance to the landfill. Taken together, they create the most significant impact of the landfill operation for this area of residents. Road safety hazards linked to landfill trucks and logging trucks is also a concern to recreational users of Bottle Lake Forest Park

The detraction from other amenity values (i.e. visual impacts, unsightly litter, noise for residents of Parklands and North Beach) and the creation of other nuisances and hazards (i.e. birds, vermin, cats, dust, fire) have either not occurred at all or not to any significant extent. Increased litter within the forest from recreational users is becoming apparent.

Not many people are aware of gas emissions from the Burwood Landfill. However this effect may require closer attention in the future, given the likelihood of increasing gas emissions and of greater recreational use of the Forest Park in the vicinity of the landfill.

Although not attracting wide-spread comment from residents at this stage, there remains a distinct underlying level of concern about the future extent of leachate escape from the Burwood Landfill. This possibility is clearly acknowledged by the fact that the City Council is considering contingency provisions to remedy unacceptable off-site leachate migration should this be confirmed.

There is a strong consensus among neighbouring residents, recreational users and other key informants that the presence of the Burwood Landfill has not been detrimental to development of the residential or recreational amenities in its locality. However, concern was expressed about lack of coordination between the City and forest management over the way logging activities in Bottle Lake Forest Park may have detrimental effects in the future.

Although not a prime focus for this research, interviews still elicited considerable opposition to the notion of extending the life of the Burwood Landfill.

The Redruth case study

Case study timing

The Redruth Landfill opened in 1996. Fieldwork for this case study was carried out during the period 22-25 March 1999.

Solid waste facility location

The Redruth Landfill is located in the South Island of New Zealand. It is sited near the coast, just south of Patiti Point, and inside the southern boundary of Timaru City (see Figure 4). The current landfill site is immediately adjacent to several areas of land that have been used for refuse disposal since the 1940s. Thus, this locality has a long history of use for refuse disposal.

The facility

The Redruth Landfill has been the principal refuse disposal facility for Timaru District's waste since 1984. It is served by five transfer stations located throughout the District - Peel Forest, Temoana, Temuka, Becks and Pareora. A sixth transfer station was constructed at the entrance to the re-developed landfill site.

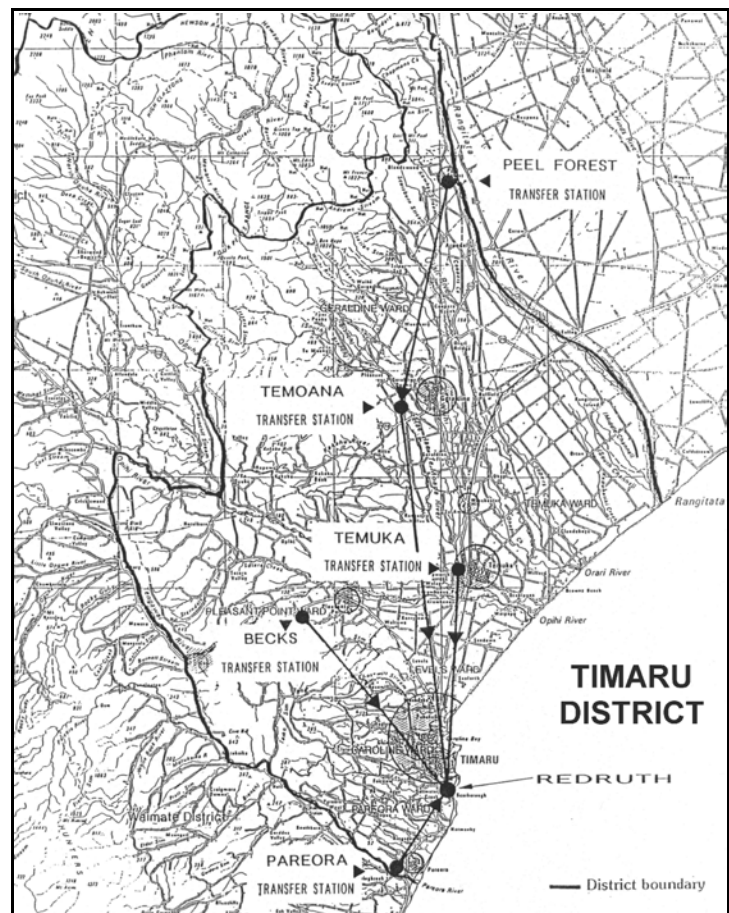
Site access

Members of the public are prohibited from access to the landfill itself. Instead, they deliver waste to a transfer station at the Shaw Street entrance of the landfill.

Nature of the host community

Redruth is the southernmost suburb of Timaru City, with Saltwater Creek being the southern boundary of the City. Land further south is currently zoned for rural uses. Redruth is in a part of Timaru traditionally referred to as the South End, clearly demarcated in local perceptions as that part of the City south of North Street, a street which traverses the entire breadth of the City from the coastal railway line in the east virtually to Otipua Creek in the west at a point just south of the central business district. The suburb of Redruth itself is separated from the neighbouring suburb of Parkside to the north by the Timaru Gardens. Its residential areas cover a broad, south-facing terrace which extends from the cemetery and Redruth Park, bounded by the coastal railway line in the east, across the State Highway (at this point called King Street) to merge with the suburb of Watlington in the west.

Figure 4: Refuse disposal network for Timaru District



The locality of Redruth has a long association with solid waste disposal, dating back to the 1940s. Prior to that time, the flat land north of Saltwater Creek was the site of Timaru airfield. Originally, it was the Otipua Lagoon.

Main effects and significant impacts reported

Odour and litter are the most significant off-site effects at the Redruth Landfill, with noise, dust and seagulls causing minor impacts.

Numerous positive comments (22% of the whole sample) were made unprompted by business interviewees, residents and recreational users of the locality, regarding improvements they experienced with the operation of the new sanitary landfill, when compared with the previous dump on the Redruth site.

The effect observed by the greatest proportion of both neighbouring residents and businesses is unpleasant odours. Typical experience for the immediate residential neighbours of the Redruth landfill is that general landfill odour causes an occasional nuisance, sometimes to the extent of inhibiting normal residential behaviour (e.g. moving indoors and closing the windows). It can be noticed at distances up to 900 m. Current land-filling practices for the disposal of particularly smelly wastes at Redruth create extremely offensive odours in a very localised neighbourhood. The residents continue to find this off-site effect totally unacceptable. For nearby businesses, general landfill odour is a background condition of being in the industrial buffer zone around the landfill facility. Business premises are not subject to the impacts experienced by residents from the operation of the co-disposal pits, but they do sometimes notice the smelly wastes in transit. Recreational users - mainly of the walkway - sometimes encounter the extremely offensive odours from the co-disposal pits if they happen to be in the area during a pit-opening or tipping event. However, this does not appear to deter recreational use.

Litter is one of the more widely experienced off-site effects resulting from the landfill location. More people are aware of the rubbish dropped from loose loads being taken to the transfer station than from windblown litter around the landfill itself. The frequency and persistence of the roadside rubbish, the fact that no clean-up effort appears to be directed towards this aspect of litter, and the more serious potential impacts in terms of danger to other road users results in a relatively low score of acceptability from those interviewed.

Noise from a variety of sources is experienced by local residents. It creates a minor nuisance for some within a distance of about 600 m. Noise is not a significant issue for people working on industrial premises nearby.

The effects of dust are localised, and in the case of business premises near streets leading to the landfill entrance, the effects are persistent. The current level of attention to mitigation results in a relatively low level of acceptability for nearby businesses.

The presence of seagulls, attracted by the landfill at Redruth is most commonly experienced as a long-distance visual phenomenon, with some associated noise. A few residents experience occasional minor nuisances from soiling, but nearby businesses are a little more inconvenienced by a range of direct effects - soiling and threats to young lambs. Against a background of some perceived improvement since the new sanitary landfill opened, it is generally accepted that seagulls have become established at the landfill, and indeed would probably have been unavoidable in a

location so close to the sea. There is generally a relatively high level of acceptability of this off-site effect; reflected also in the fact that a high proportion of responses occurred only when prompted.

Visually, the new Redruth landfill is described as a significant improvement on the previous facility. Traffic-related impacts have generally improved through reduced numbers, although there are still times when safety concerns arise.

There is no doubt that the Redruth Landfill is a significant activity and presence within the community of Redruth.

There is broad consensus that the new phase of land-filling represented by the current sanitary landfill operation at Redruth has already altered perceptions of the nature of these activities and altered expectations for its influence on development within the host community.

Little evidence exists yet of significant new residential development or re-investment in residential property. However, new business development has become evident in the last five years. Similarly, improvements in the recreational opportunities and experience since the new phase of land-filling began are generally acknowledged.

Stigma is perceived to be associated with living in this southern-most part of Timaru. However it arises as much from general South End associations as from a particular association with the landfill site. It is not an issue which greatly concerns the vast majority of local residents, but does influence a few enough to move on elsewhere.

The Bonny Glen case study

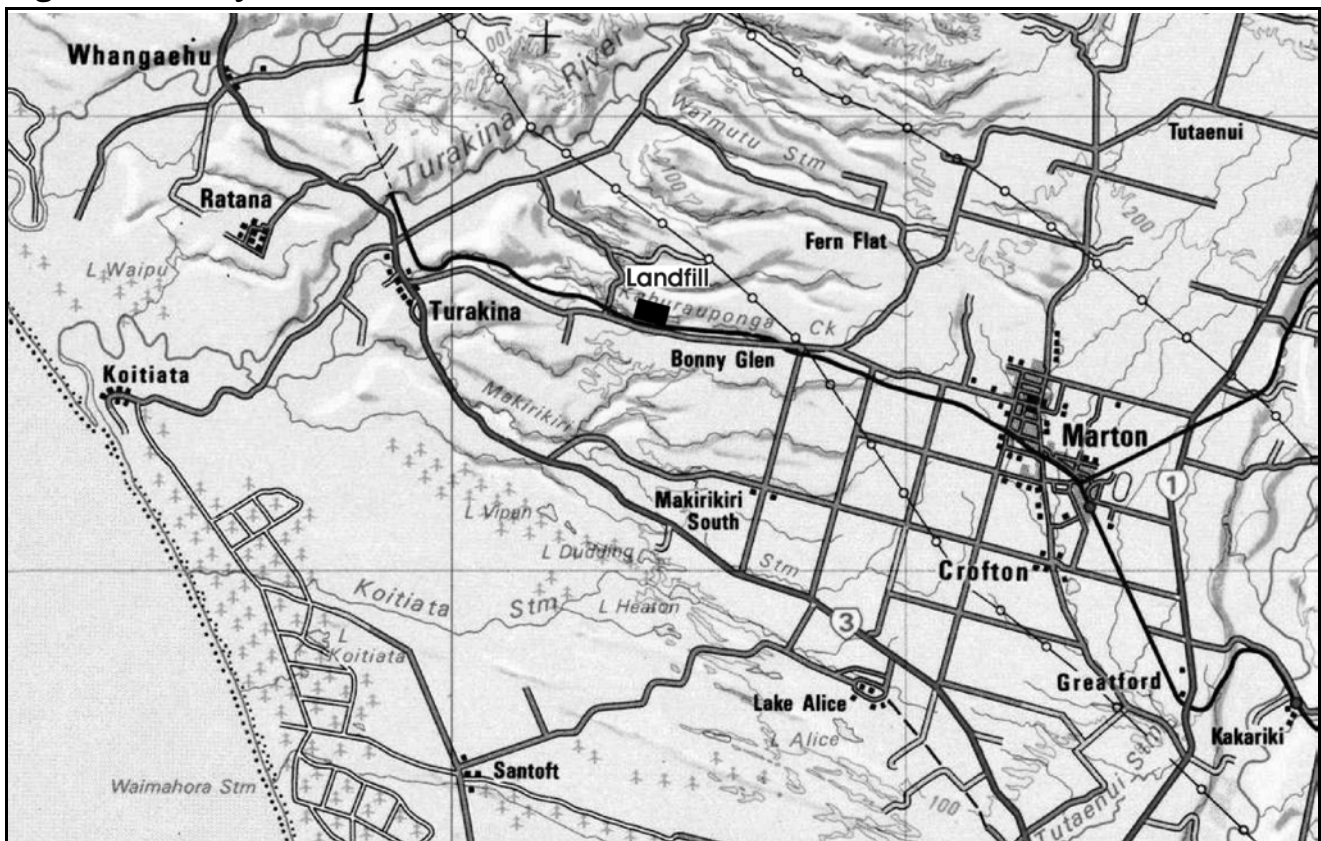
Case study timing

The Bonny Glen Landfill was opened in July 1995. The fieldwork for this case study was carried out in June 1999.

Solid waste facility location

The Bonny Glen Landfill is located just over eight kilometres west of the township of Marton, and 14 kilometres from the West Coast of the North Island (see Figure 5). The site is in an area of long established pastoral farming; a 'greenfields' development in a totally rural setting. The entrance to the Bonny Glen Landfill is off Wanganui Road just east of the intersection with Bruce Road.

Figure 5: Bonny Glen Location



Source: TopoMap

The facility

The landfill site is contained well within the boundaries of a 75 hectare rural block which was purchased in its entirety specifically for this purpose. Ultimately, less than half of the area purchased will be used for landfilling purposes. The landfill itself is located within a gully which is screened from the main road by the topography of the area - gently undulating hills.

Site access

Bonny Glen is not open to members of the public. Only authorised vehicles may take solid waste to the landfill.

The landfill is available to operate seven days per week during daylight hours. However, trucks do not enter the site every day. The contractor estimates vehicle movements number about 100 arrivals each month. Vehicles do not arrive at regular times. For example, one day may see seven to eight vehicles delivering rubbish, with none arriving the next day at all. Arrivals depend on the scheduling of transfer station clearance days throughout the district.

Truck routes vary according to the source of the waste, although typical routes are identifiable.

Nature of the host community

The Bonny Glen Landfill is located in a traditional pastoral farming area, with a mix of sheep, beef and dairy farms. At the present time, one farm residence has a long-distance (800 m) view up the valley towards the site, where a portion of the working face is visible.

The landfill site fronts Wanganui Road, which serves as a short cut between State Highway 1 (central North Island) and State Highway 3 (Bulls to Wanganui), avoiding the township of Bulls. The Marton-New Plymouth Railway line passes through the landfill property adjacent to Wanganui Road. The landfill access road crosses the railway at a level crossing. There are very few train movements.

Eleven kilometres directly south of Marton township (17 kilometres south west of the Bonny Glen Landfill site) is Ohakea Aerodrome, a significant and long-established RNZAF facility. There are no other commercial facilities, local community amenities or special interest users in the locality.

Main effects and significant impacts reported

The following four effects are the basis for the most noticeable concerns by neighbouring farmers:

- windblown litter,
- odour from the leachate holding pond,
- increases in numbers of rats and wild cats, and
- surface water contamination due to earthworks during wet winter periods

Many of the projected effects identified during planning were not mentioned by interviewees as being actual effects or causing impacts.

The landfill contractor is considered to be responsive to neighbours' concerns. While there was definitely scope for improvements after the landfill first came into operation, and even now with respect to the main concerns noted above, the majority of neighbouring farmers made very positive remarks about the landfill operation.

This case study suggests that such off-site effects (excluding traffic-related effects) as are experienced from a small rural landfill are generally likely to be confined within approximately 1 km of the disposal area. In this regard it is important to remember that prior to landfill establishment, a much

larger block of land was purchased than was required for landfilling operations, in order to provide a buffer for neighbours against off-site (or in this instance, off-property) effects.

For Marton residents - the effects most noticed are traffic-related - masked to some extent by the effects of other heavy vehicle traffic which uses Wanganui Road as a short-cut between SH3 and SH1. However, no one claimed to be impacted negatively by these.

The Bonny Glen Landfill is not considered by farming neighbours nor Marton residents to have had any influence on land development and settlement patterns in the few years since it began operation. It is probably too soon to draw definitive conclusions on this matter. There has been little change of note in the farming locality - one property sale, and possibly the first indications of rural-residential sub-division on one nearby farming property.

However, several farmers drew attention to the proposal to extend the Bonny Glen Landfill to receive out-of-district waste, predicting that the nature and scale of effects might change as a result.

The Temuka case study

Case study timing

The Temuka Transfer Station was opened in 1993. The fieldwork for this case study was carried out in May 1999.

Solid waste facility location

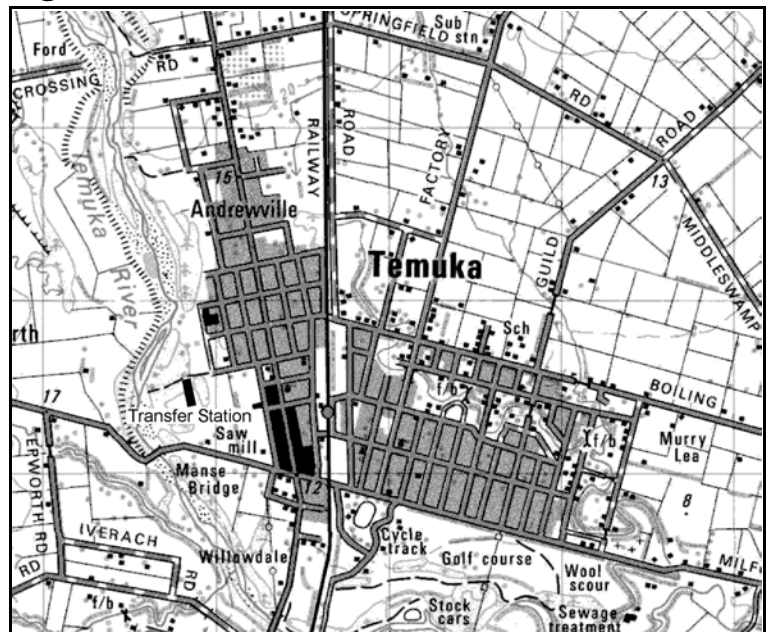
The Temuka Transfer Station is situated at the south west corner of the township of Temuka (see Figure 6). The facility is approximately 700 m from the town centre, and is accessed via Wilmshurst Road, which leads off Vine Street, the by-pass road for the town centre.

The facility

The Temuka transfer station replaced the old Temuka dump which had been of concern for some time as it was sited nearby in the Temuka River bed.

The facility was designed to be clean and easy to use from the point of view of the general public. Users of the facility simply back up, and dump their rubbish into a 220 m³ bay. A loader then pushes the rubbish into a hopper at the end of the pit, and a hydraulic ram pushes the rubbish into a 25 m³ container. When the container is full, it is transported by truck to Redruth Landfill for disposal.

Figure 6: Temuka transfer station location



Site access

Source: TopoMap

The transfer station is open to the public during the following hours: Tuesday 9:30 am - 12:30 pm, Thursday 2:00 pm - 5:30 pm, and Saturday 10:00 am - 4:00 pm. It is closed on public holidays.

At present, one truck services all transfer stations in the area, calling twice a week.

Nature of the host community

The host community for the Temuka Transfer Station is defined by a combination of proximity to the facility and other natural or human-made barriers. To the west, the Temuka River provides a natural boundary, whilst to the east, State Highway 1 passing through the town (King Street) constitutes a human-made geographic and social boundary.

To the south, the facility is separated from privately owned farmland by the area that used to be the Temuka dump, on part of which the facility has been built. Immediately to the east of the transfer station site are several paddocks of grazing land, with some residential properties at the eastern end

of Wilmshurst Road (on the south side). The locality north of the site comprises a mix of residential (east of Thomas Street) and industrial property (west of Thomas Street).

Main effects and significant impacts reported

Generally, neighbours' comments suggest very noticeable improvements in the off-site effects experienced from the solid waste facility, having been converted from an open dump to a controlled transfer station. In fact, there is no evidence that the transfer station itself causes any negative off-site effects at all. This case study was notable, among the seven solid waste case studies, for the low levels of respondents reporting any off-site effects at all.

Roadside litter from insecure trailer loads and illegally-dumped rubbish are the most notable effects still experienced by people in the host community.

Other off-site effects such as odours, vermin, road safety and traffic noise which were discussed by relatively few nearby residents and businesses, were not found to be linked to the transfer station.

Residents comments indicate that the most significant effect from the advent of the transfer station may have been to break down the stigma attached to the locality. Several commented explicitly on this, while others noted changes in the mix of those taking up residence in the locality.

Six out of the ten businesses interviewed replied that the development and operation of the new transfer station had not been a significant factor in local development trends, while four respondents suggested that it had - all of them suggesting a positive effect. The positive influence they attributed to "*more recycling*", "*tidier*", "*less smell*" and "*less stigma*" associated with the locality. Some linked the new transfer station with the advent of the wheelie bin kerb-side collection service, noting "*less accumulation of rubbish*" on their premises.

Members of the Arowhenua Runanga were very positive about the improvement of the transfer station over the original dump. However, they made the point that the site itself continues to be a landfill regardless of what is built on top of it, and this continues to be a concern because of its proximity to the Temuka River. Secondly, there was a perception that the transfer station, because it is constructed adjacent to a waterway, would inevitably have a negative effect.

Regarding recreational use of the locality - principally the river nearby - local commentators suggested that the legacy of the dump remains. There is still a perception that the dump is there - "*so people don't tend to go there*".

The Redvale case study

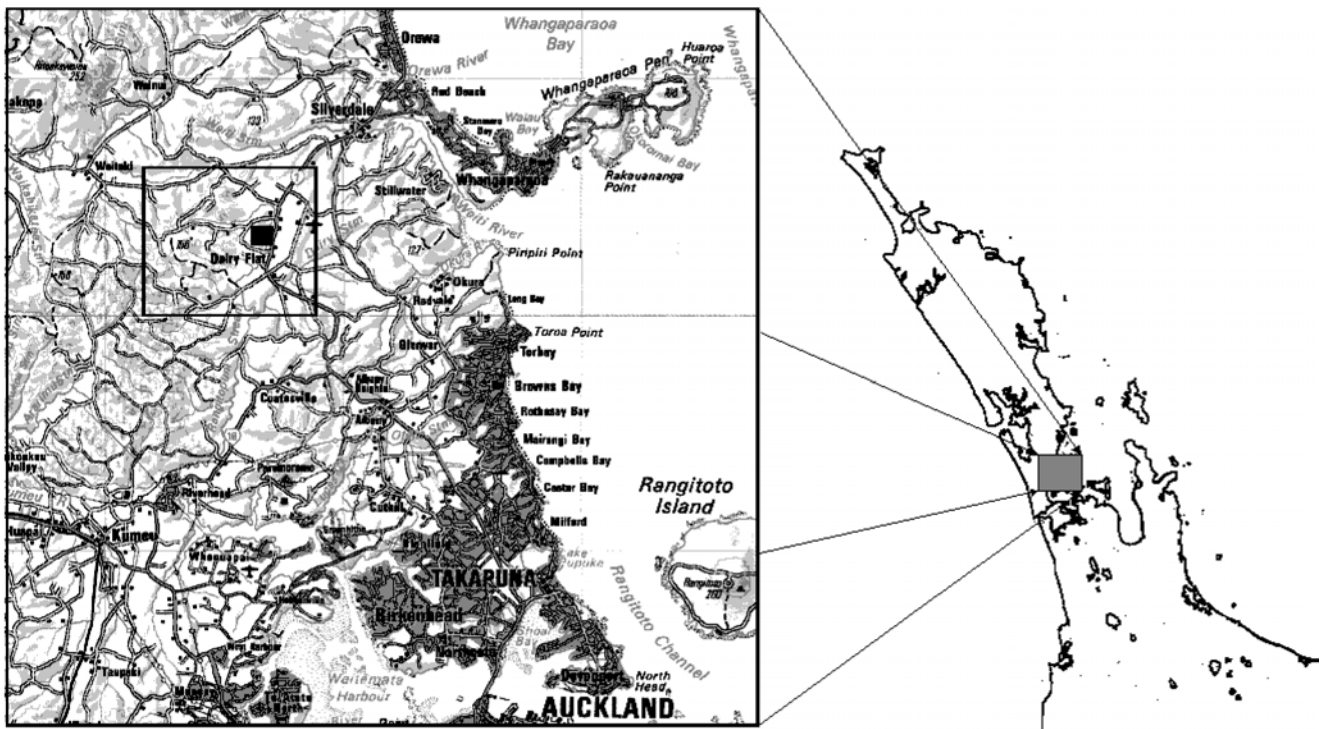
Case study timing

The Redvale Landfill was opened in 1993. Fieldwork for this case study was carried out during the period 7 to 16 December 1999.

Solid waste facility location

The Redvale Landfill is located one kilometre west of State Highway 1 in the neighbourhood of Dairy Flat, some six kilometres south of Silverdale. It is approximately 25 kilometres north of Auckland City (see Figure 7).

Figure 7: Redvale location



Source: TopoMap

The facility

The Redvale Landfill has been one of the principal refuse disposal facilities for the Auckland metropolitan area and Auckland region since it opened in August 1993.

The site for the sanitary landfill occupies approximately 80 hectares and is situated in an area of low hills with elevations ranging from approximately 50 m to 150 m above mean sea level. Essentially, the landfill is back-filling with compacted solid waste the hole excavated in the quarrying of lime. Currently the site services the needs of both quarry and sanitary landfill operations. At present, the quarry company is doing the quarrying and overburden removal, while the landfill operator is responsible for the final cut to carefully specified levels.

Site access

The normal hours of operation are from 6:00 am till 6:00 pm, Monday to Saturday. There can be times when landfill and equipment maintenance continue until 9:00 pm. By contrast, the lime quarry may be operated on a seven days/week basis, and may indeed do so for up to 24 hours/day.

Approximately 85% of the landfill traffic approaches from the south. However, the proportion of waste coming from the north is growing with the pace of residential development that is occurring north of Auckland. On average, between November 1998 and October 1999, the maximum number of trucks visiting the landfill was 123, compared with 270 estimated for the quarry.

Nature of the host community

The rural community of Dairy Flat straddles State Highway 1 some 25 kilometres north of Auckland City and six kilometres south of Silverdale. Kahikatea Flat Road, which joins State Highway 1 at the main intersection in Dairy Flat, is a major through road from Kaukapakapa and Helensville in the west. While the north-south highway traffic has been a dominant feature of Dairy Flat for many years, this was due to change abruptly just after the fieldwork for this case study was completed in December 1999 with the opening of the northern motorway extension as far as Silverdale.

The Environmental Impact Statement (EIS) prepared for the Redvale Landfill contained the following description of the host community -

“The Dairy Flat locality embraces a tightly-knit rural community. The social fabric of the area is woven from the threads of the relatively unified economic nature of the district with its foundation on pastoral farming and horticulture, the rural service industry, the cultural and recreational activities centred on the Dairy Flat Hall and the central role of the local primary school. Long-standing family connections with the district are reinforced by local marriages and, while the district has passed through the eras of gum diggers, orchardists and farmers to the “10-acre block” residents of the present, the unifying “country community” spirit has continued.”

Main effects and significant impacts reported

The three most significant off-site effects experienced within the host community of Dairy Flat are odour, operational noise and the benefits from financial contributions spread broadly throughout the community.

Several other off-site effects are also experienced - visual, traffic-related, dust and litter. The landfill's contributions to the first three of these are minor, with the lime quarry also contributing. Litter effects are occasional and minor. The dust effects were not anticipated in the EIA or planning documents.

No negative impacts were reported from bird activity.

Of the effects projected during planning, the following elicited no adverse comments at all or no corroborated observations -

- leachate effects on groundwater
- bird hazard to aviation
- cultural effects
- increase in vermin
- increase in flies

In unprompted questioning, 57% of respondents had observed no effects at all, while in prompted questioning 37% still recalled no effects.

Generally, the community's worst expectations about what would happen when the landfill operation arrived have not eventuated. Many are very aware of the 'quid pro quo' involved - accepting the benefits that result from the distribution of financial assistance throughout the host community in return for accepting the facility in their midst. They also expressed their support of the WMNZL operation in their community with explicit and unprompted compliments, particularly focussing on the manager and the manner in which he has discharged his responsibilities. There are a few who express the view that the landfill has helped to enhance the community focus of Dairy Flat.

Nevertheless, despite the broadly-based expressions of support, there is no doubt that the proposal to locate the landfill in Dairy Flat did divide the local community deeply at the time. A decade later, much of this division appears to have healed - but not all. There remain a few locals who continue to be aggrieved because they continue to experience an intrusion into their lives from operations at the landfill. This situation exists only within a very limited distance from the site, generally within 500 m and certainly no more than 1 km. There are thus pockets of genuine cynicism remaining, not least because the experience of WMZNL in operational mode has been very different from WMNZL in planning mode.

The York Valley case study

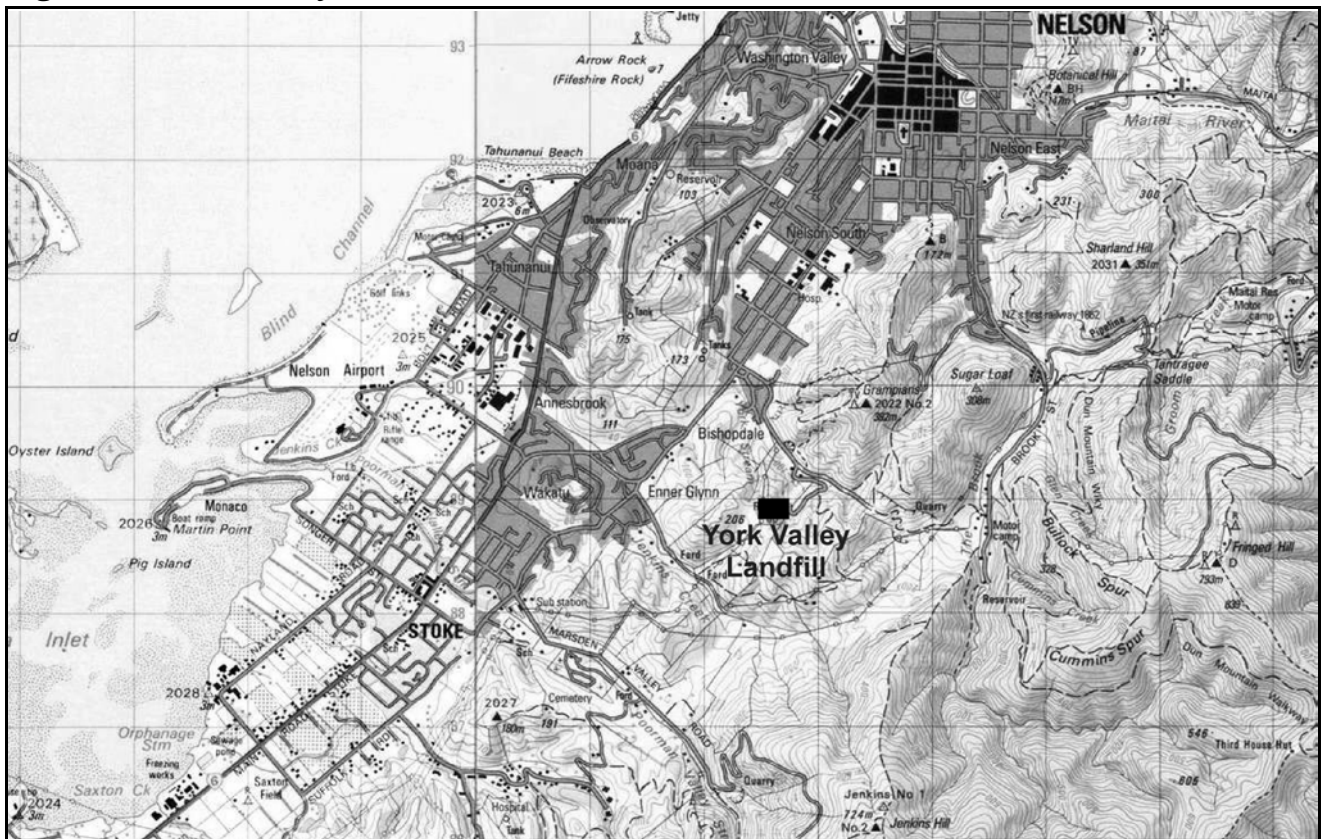
Case study timing

The York Valley Landfill opened in 1987. The fieldwork for this case study was conducted during the period 7 to 11 February 2000.

Solid waste facility location

The York Valley Landfill is located in the South Island of New Zealand, just outside the southern boundary of Nelson City near the suburb of Bishopdale (see Figure 8). Access is gained via Market Road off Waimea Road.

Figure 8: York Valley location



Source: TopoMap

The facility

The York Valley Landfill is now the only Nelson City Council landfill in use.

The landfill occupies approximately 2.8 hectares and is situated in a steep-sided gully facing in a northerly direction. The hillside around and above the landfill was planted some years ago in pine trees, and mixed plantings were established ten years ago on the downhill side to provide a visual screen, which is now evident. Settling ponds were created to remove sediment from the landfill stormwater runoff before it is discharged into York Valley Stream. Many years before the landfill was

opened, a flood retention dam had been constructed at a point just below the entrance to the present facility.

Site access

No public access is permitted to the landfill. To gain entry, commercial operators carry weighbridge cards issued by the Nelson City Council.

The York Valley Landfill operates 8:00 am to 4:30 pm on weekdays and 2:00 pm to 4:30 pm on Saturdays. Weighbridge records for the first six months of 2000 show the numbers of waste-carrying vehicles visiting the York Valley Landfill as 1,450 average per month, 66 average per weekday, and 13 average per Saturday.

Nature of the host community

York Valley has significant elements of residential, recreational and industrial use, all in very close proximity with each other. All have been present for some time. Residential use is represented by the suburban development of Bishopdale. Recreational use is represented by the walking tracks over the Grampians which have access points near the end of Market Road. Industrial use is represented by two working quarries and more recently the City's landfill.

There is a small amount of other commercial activity mainly at the entrance to York Valley. This comprises a petrol service station, a tavern and bottle store and a school. Further up the residential neighbourhood, a residential facility for the elderly was established in 1992.

Land use on the hills to the south overlooking the landfill site involves a mix of recent forestry plantation and pastoral farming. One rural residential property is located on the hill top overlooking the landfill, on land now owned by the Nelson City Council.

Main effects and significant impacts reported

The only off-site effects experienced during the first eight years of operation (1987-95) were linked to traffic noise. The landfill manager was experienced as being very co-operative, and the City Council delivering on their commitments to provide visual screening.

From 1995-97 several problems emerged associated with excessive stormwater intrusion and leachate volumes in excess of the sewer main's capacity. These took the form of sewer overflows in the nearest street below the landfill, escapes of landfill gas and related odours. At about this time (1997) there was a perceived deterioration in landfill management and lack of responsiveness to mounting community concerns over off-site effects.

These issues were addressed in some detail during the resource consent hearings between 1998 and 1999, which culminated with the granting of new consents associated with new conditions. Modifications to the facility appear to have remedied neighbours' major concerns.

In addition to the significant effects of off-site odour and traffic noise, several other effects have been experienced to a relatively minor extent, including road safety effects, bird nuisance, surface water effects and dust .

In unprompted questioning, 36% of respondents had observed no effects at all, while in prompted questioning 27% still recalled no effects.

Three times as many local residents expressed the view that the landfill operation has not had a negative influence on local development, as expressed the opposite viewpoint.

Census data between 1986 and 1996 confirm the rapid growth in local population numbers. No data are available for the period since 1996. However, present indications are that this trend is continuing.

Apart from the very significant residential development in Bishopdale, there has been no other significant change in the host community in the past 13 years.

For ease of review and discussion, some of the characteristics of the seven cases have been summarised in tabular form. Table 1 summarises the basic characteristics of the facilities and their sites, while Table 2 summarises attributes of the host community settings.

C: Research findings

The sample of facilities

Summary information about the sample of facilities in the seven studies given in Table 1.

Table 1: Basic characteristics of facilities and sites

| | Redruth LF | Burwood LF | York Valley LF | Bonny Glen LF | Redvale LF | Styx Mill TS | Temuka TS |
|-------------------------------------|--|--|---|-----------------------------|-------------------------------|----------------------|--|
| New use or extension | extension | new | new | new | new | new | extension |
| Previous use of land | City tip | Forestry for dune stabilisation | Grazing | Grazing | Lime quarry | Grazing | Township tip |
| Opening date | 1996 | 1984 | 1987 | 1995 | 1993 | 1986 | 1993 |
| Planning legislation | RMA | T&CPA | T&CPA | RMA | T&CPA | T&CPA | RMA |
| Source population (1996) | 43,000 | 309,000 | 40,000 | 16,000 | 1,069,000 | 309,000 | 4,000 |
| Location relative to urban boundary | inside & adjacent to southern boundary (Saltwater Creek) | inside & adjacent to eastern boundary (Waimairi Beach) | outside & adjacent to southern boundary | 8km west of Marton township | 6 km south-west of Silverdale | inside city boundary | inside & adjacent to the western boundary (Temuka River) |

The host community setting

Summary information about the host community setting for each facility in the seven case studies is given in Table 2.

Table 2: Sample of seven facilities - host community setting

| | York Valley LF | Bonny Glen LF | Redvale LF |
|---|---|--|--|
| Local spatial relations ⁶ | 300 m to resid. 400 m to quarry | 300 m - 800 m to neighbouring farm dwellings | 300 m to resid. 450 m to busin. |
| Other local features | Two working quarries share access road; New residential development up to LF boundary | All land in the neighbourhood in traditional pastoral uses; Marton-NP railway line passes through the LF property | Large lime quarry operating on site; SH1 (until Dec 1999) passed 300 m from LF entrance; Commercial airfield 2km to east of the site |
| Length of access road ⁷ | 1,500 m | Direct access off Wanganui-Marton main road | 300 m |
| Topo-graphical relations | LF occupies closed gullies in York Valley; after 10 years, screen planting masks most views of the site. | LF occupies a long gully running E-W in the middle of a farming property. | LF occupies a quarry area previously and currently excavated for lime; land slopes up to a ridge west of SH1 and continues beyond the ridge line. Generally gently sloping hill country. |
| Buffer zone | Not high-use areas; hillside in forest plantation; screen planting below; recreational reserve on opposite hillside | Whole farming property purchased for the LF, with buffer land leased back for grazing | Land use in the buffer zone varies at different locations: pasture owned by neighbours; pasture owned by WMNZL and developed for horse riding events; private pine plantation; landscaped and banded area along Horseshoe Bush Road. |
| Active residents association ⁸ | None | None | None |
| Community Liaison mechanism ⁹ | 1987-99: none 2000- : "Sniff" committee | Neighbours Liaison Committee | Redvale Landfill Community Liaison Committee |
| Contact for complaints | Environmental Health Officer at Nelson CC | Landfill contractor or Rangitikei DC. | Landfill manager |

⁶ Separation distances of contiguous residential or industrial areas from the operating boundaries of the facility.

⁷ The access road from the main arterial roading network to the facility entrance.

⁸ Active at the time of planning the facility.

⁹ Dedicated to liaison between the immediate host community and the facility operator.

Table 2 (continued)

| | Redruth LF | Burwood LF | Styx Mill TS | Temuka TS |
|---------------------------------------|--|--|---|---|
| Local spatial relations ¹⁰ | 300 m - res. 230 m - ind. | 900 m to resid. | 300 m - res. | 200 m - res. 250 m - ind. |
| Other local features | Southern boundary is Saltwater Creek. SI MTRL passes 400 m to the East | Waimairi Beach. New residential development along forest boundary | Styx River passes northern boundary. SI MTRL passes 400 m to the south east | Temuka River passes 200 m to the west. |
| Length of access road ¹¹ | 700 m | 1,700 m | 300 m | 300 m |
| Topo-graphical relations | LF on flood-plain below south-facing terrace; ~100 houses have views south over the LF | LF on coastal plain, bordered by undulating dunes to the East; no houses have direct views of the working area | TS located on coastal plain. | TS located on coastal plain. |
| Buffer zone | (W): industrial land use - mixed (N/E/S): recreational uses, mostly local | (All sides): working forest with popular recreational uses (from whole city) | (S/E): Styx Mill Road (W/N): new Styx Mill Reserve with variety of recreational uses | (W): Temuka River (S): Old tip site and Waitohi-Temuka Road (E): grazing (N): Wilmshurst Road and transport yard and shingle pit |
| Active residents association | Southend Ratepayers; not local association | Several - Waitakiri Drive, Parklands and North Shore. | None | None |
| Community Liaison mechanism | None | None | None | None |
| Contact for complaints | Timaru District Council - general | Christchurch City Council; community board members | Christchurch City Council; community board members | Timaru District Council - general |

Key themes and issues from the case studies

The themes, key issues, and lessons emerging from these seven case studies can be classified into three major categories: the standards of facility operation; host community perceptions and experiences of waste facilities; and the relationship between the facility and the host community.

Some comparisons between the themes and key issues for the seven facilities are documented in Table 3 below.

¹⁰ Separation distances of contiguous residential or industrial areas from the operating boundaries of the facility.

¹¹ Once the access road leaves the main arterial roading network.

Table 3: Themes and key issues for the seven solid waste facilities

| Theme/ issue | Styx transfer station | Burwood Landfill | Redruth Landfill | Bonny Glen Landfill | Temuka transfer station | Redvale Landfill | York Valley Landfill |
|--|-----------------------|------------------|------------------|---------------------|-------------------------|------------------|----------------------|
| Off site effects leading to impacts | Yes | Yes | Yes | Yes | No ¹² | Yes | Yes |
| Buffer zones | Yes | Yes | Yes | Yes | Yes | Partial | Yes |
| Sites used previously for waste disposal | No | No | Yes | No | Yes | No | No |
| Community liaison mechanism | No | No | No | Yes | No | Yes | Yes |
| Active Residents Association | No | Yes | No | No | No | No | No |
| Complaints logging procedures | Yes | Yes | Yes | Yes | No | Yes | Latterly |
| AEE prepared | Yes | Yes | Yes | Yes | No | Yes | Yes |

The standards of facility operation

At six out of seven facilities the effects of the operations are experienced off site by members of the host community. Unpleasant odours, roadside litter and heavy traffic noise were the most common effects, although the impacts were not always considered unacceptable. Other minor or less frequently reported effects included visual effects, road safety impacts, vermin and birds. In some cases (e.g. with gas smells), neighbours are noticing effects at the margin of detection.

Most facilities have other significant sources of similar effects in their vicinity that are also experienced by members of the host community however. These include other sources of odour (e.g. piggeries, meat processing facilities, chicken farms, sewer lines), other destinations for heavy transport (e.g. quarries, forestry operations), other sources of industrial noise (e.g. quarry crushing plant, timber processing, metal foundry). Thus it is not always easy for operators and managers of facility sites to identify the source of an effect, and take appropriate remedial action, when complaints are received from neighbours.

Six out of the seven facilities are surrounded by other forms of land use (e.g. forest, recreational space, dairy farm) that act as buffer zones. These buffer zones mitigate the effects of operations which are experienced off site by neighbours. They reduce the impacts of noise, odour, windblown litter etc by extending the physical distance between facilities and their host communities. Although buffer zones can be thought of as mere space, separating one activity from another, intervening activities in that space can also be influential. Four out of the five landfills in this study had significant elements of recreational use in the buffer zone, reflecting the fact that occasional occupation of the buffer zone is less likely to lead to unpleasant experiences than continuous occupation.

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While roadside litter is still evident at low levels on occasions, this is attributed to litter falling off trailers and trucks rather than litter being windblown from the transfer station site. On the other hand, it can also be argued that if the transfer station was not sited in the locality, then the rubbish-filled trailers would not be travelling on these roads.

Host community perceptions and experiences of waste facilities

The case studies of these seven facilities reveal that people from the host communities have different thresholds when it comes to noticing effects. These thresholds are related to their ability to detect smell, and to hear a wide range of noise frequencies, and so on. Sometimes (e.g. with gas smells) respondents reported effects from the facilities that were at the margin of detection.

People's experience of effects may also be related to differences in their living patterns. Some residents of host communities are on their property all day, every day, while others are away from home during the week. Neighbours, who report particular experiences of facilities (either lots of effects, or peculiar effects that other people don't notice), reside very close to the facility boundary.

Some people acknowledge that there are alternative sources of effects in their communities, while others always attribute those effects to the facility. The individuals who recognised that there were other sources of effects sometimes made comparisons with those sources by making statements such as landfill noise is no different from X; or landfill odour is just like Y.

People become accustomed to particular effects after a period of time. These effects become part of the environment in which members of the host community conduct their everyday lives, and may only reemerge as a concern for them when a visitor to the area remarks on their presence.

Physical factors, such as the wind regime, topography and separation distances from residential and business areas, are also critical to the distribution of the off-site effects which are experienced from a particular waste facility. Other forms of land use (e.g. forestry) in the vicinity of the site, as has been noted, may influence neighbours' perceptions of the effects arising from the operations of a facility.

With one exception¹³, actual effects were invariably viewed by members of the host community as less extreme than the effects projected during the planning process. In the case of Redvale, where there is substantial economic return to the local community from the operators of the facility, it may be that people are less inclined to be as critical as they might otherwise be. Some of our informants attributed this to a real difference between expectations beforehand and actual experience once operations began. Others suggested that familiarity breeds acceptance and a disinclination to complain, knowing that the facility will never go away.

At two facilities (Redruth, Temuka) where current operations are on sites used previously for waste disposal, current operations are experienced by members of the host communities as generally¹⁴ being substantial improvements on former operations.

¹³ Off-site odours from use of the offal pits at one landfill

¹⁴ See previous footnote

The relationship between the facility and the host community

Even when consultation with the host community was part of the planning process for a solid waste facility, participants have generally not viewed this as a basis for contributing to the future monitoring of its operations. Nor have territorial local authorities made the connection between planning and the ongoing management of a facility. In no cases has there been any social monitoring of the solid waste operations by the consent agencies. The assumption appears to be that local stakeholders' interests will be adequately addressed by initial siting decisions or initial consent conditions (Redvale, Bonny Glen, and York Valley are the exceptions), and that monitoring of the effects of the facility's operations is the responsibility of technical experts. Thus an opportunity is lost to use people's direct experience and observations of the operation of those facilities and the associated infrastructure (i.e. their "local knowledge") to improve the regulatory oversight and management of those facilities, and to reduce their off site effects (Baines *et al.*, 2000).

Only three of the seven solid waste facilities that were studied have any ongoing formal liaison mechanism between the facility operator and members of the host community. One case was a privately operated facility. Notably, there were not strong or active Residents Associations covering many of the host communities (Burwood was the exception). When a liaison group was set up prior to the consent process as part of the procedure for community consultation (e.g. Bonny Glen) the relationship between the facility and the host community was strengthened.

In some cases the procedure for the logging of complaints from members of the host community is not as systematic as it could be, or is not well co-ordinated between the operators of the facility and the regulatory authority. Yet many members of the host communities noticed effects but did register a complaint about them.

There are different organisational cultures with respect to complaints. Some operators and administrators view complaints as indications of failure, while others regard complaints as opportunities for improving the operation of the facility. The former view is associated with the old paradigm of waste management in which the experience of the host community is not always taken seriously, and their complaints are not dealt with promptly. While the latter view reflects the new paradigm of waste management where the host community is given a monitoring role by the establishment of an ongoing liaison mechanism.

Effects Assessments - The practical context for impact assessment

It is not uncommon for environmental and social impact assessments for new solid waste facilities to be conducted against a back drop of conflict and criticism generated by the NIMBY response. Two other factors combine to make assessments of social impacts difficult. One is the (not unexpected) willingness of affected people to exaggerate some of the potential effects and impacts in the hope that this will lead to a decision to look for a site elsewhere. The other factor is the absence of comparative case information regarding the impacts actually experienced by host communities of existing facilities.

The advent of the Resource Management Act (1991) also changed the institutional setting within which impact assessment was carried out. No longer was impact assessment an optional planning activity, engaged in only by those who had an interest in fair public process. The Act established an effects-based approach to planning, and made the Assessment of Environmental Effects (AEE) a statutory requirement. The Act also provided definitions of key terms such as “environment” and “effect”. The Fourth Schedule of the Act sets out ‘matters that should be included in an assessment of effects’. Subsequent Environment Court cases have highlighted essential principles for public consultation in their judgments.

However, in general, it would appear that little emphasis has been given to ex-post monitoring of social impacts, or even of environmental impacts from a community perspective.

Lessons from the comparative case studies

Each case study was conducted at a time which avoided conflicts with active resource consent proceedings. Care was taken in the social assessment research method to provide accurate and useful descriptions of the effects experienced by host communities, by canvassing a wide range of local observations, by accessing other relevant data sources where possible to corroborate the observations of neighbours, and by engaging in a process of feeding back preliminary findings for checking and validation by the research participants.

As a result, the experience documented in these case studies should neither overstate nor understate the experience of the host communities involved. This is important, if the research is to assist participants in future planning.

It also made possible a comparison between the scenario of potential effects anticipated during planning for a facility with the effects actually experienced in the host community once operations began on site.

Comparing AEE scenarios with actual experiences reported by host communities

Overall, the case studies of the solid waste facilities revealed that very few off-site effects were not identified at the planning (AEE) stage (see Table 4). Some projected off-site effects identified at each of the facilities during the planning stage, however, were not reported by our respondents when the facilities became operational (i.e. they were not experienced as effects).

Table 4: Effects identified by the AEE's compared with effects experienced by the host communities

| Facility | Identified & Experienced | Identified & Not Experienced | Experienced & Not Identified |
|----------------------------|---|---|--|
| Styx Mill transfer station | litter noise odour kerb crawlers | traffic hazards for school children truck fumes dust vermin smoke flies | visual birds cats on-site hazardous materials |
| Burwood landfill | litter noise odour vibration vermin gas emissions. | | road safety of landfill traffic vibration from landfill traffic |
| Redruth landfill | litter noise odour dust visual vermin birds | spoilt rural ambience increased frequency of flooding reduced water quality in creek traffic volume leachate community stigma depreciating land values preclude future development | difficulty selling property. |
| Bonny Glen landfill | litter traffic noise odour seagulls vermin surface water contamination diminishing land values cultural & aesthetic effects | traffic fumes visual visibility of traffic & gravel extraction dust landfill gas groundwater contamination stability of railway line risk from hazardous waste | machinery noise, cats. |
| Redvale landfill | litter noise odour visual traffic volume & noise birds road safety | leachate contamination of groundwater bird hazard to aviation cultural vermin flies | dust financial contributions to the community |
| York Valley landfill | odour visual road safety surface water contamination dust | land instability bird hazard to navigation vermin smoke operating noise litter | bird nuisance |

Note: There was no formal planning document for the Temuka transfer station

Other attributes of historical AEEs

Most AEEs (EIAs) have been very general in their descriptions of effects, particularly as they relate to members of the host community. They include little discussion of expected severity or significance of the effects, for instance, and there is no mention of expected frequency, or likelihood, or the areas likely to be affected.

The more recent assessments of environmental effects (AEEs) appear to have been more explicit and realistic in their acknowledgement and projection of effects (but still lack useful detail). Given the importance of wind conditions (e.g. patterns of speed and direction) to a range of common off-site effects (e.g. noise, dust, odour, litter), it is surprising that none of the AEEs included data on the local wind regime in their assessment of effects. Furthermore, the AEEs generally ignored the community context in their descriptions, and rarely gave serious consideration to the social consequences of the off-site effects (the social impacts) of the planned facilities.

Future additions to the database of comparative cases

This research programme has assembled the first ex-post assessments of the effects of solid waste facilities on their host communities in New Zealand. Seven case studies have been completed. While this is a beginning, on their own these case studies will not remain adequate for very long. They tell us about the effects experienced by host communities in 1999/2000. The management of solid waste facilities will change over time; the technologies employed will change over time; the activities on the sites may change over time.

It is important, therefore, that these case studies are seen as initiating a process of providing comparative case information for New Zealand solid waste facilities. There will be opportunities to add to this database as a result of both social monitoring and other comparative case studies carried out in conjunction with AEEs for new facilities.

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