

Host Communities: siting and effects of facilities

An analysis of host community experience of the Styx Mill Transfer Station (Christchurch City)

By

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Acknowledgements

This case study 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 a modern, urban transfer station. 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.

The research team wishes to express its gratitude to all those who participated in this case study -

- members of the host community who were interviewed - residents and business proprietors of Redwood
- staff at the Styx Mill transfer station
- staff and management in the Waste Management Unit of the Christchurch City Council
- other key informants (listed in Section D)
- other staff at the Christchurch City Council for providing supplementary information and data
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The research team also expresses its gratitude to the Foundation for Research, Science and Technology for its financial support of the research programme.

A: Introduction to this case study

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 waste disposal infrastructure) by developing a body of knowledge on social factors that are relevant to the siting and operation of solid waste facilities.

This case study addresses part (Questions 2 & 3 below) of the overall research objectives. 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 has focussed on waste water facilities. From 2000 to 2002, additional types of facilities are being investigated (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.

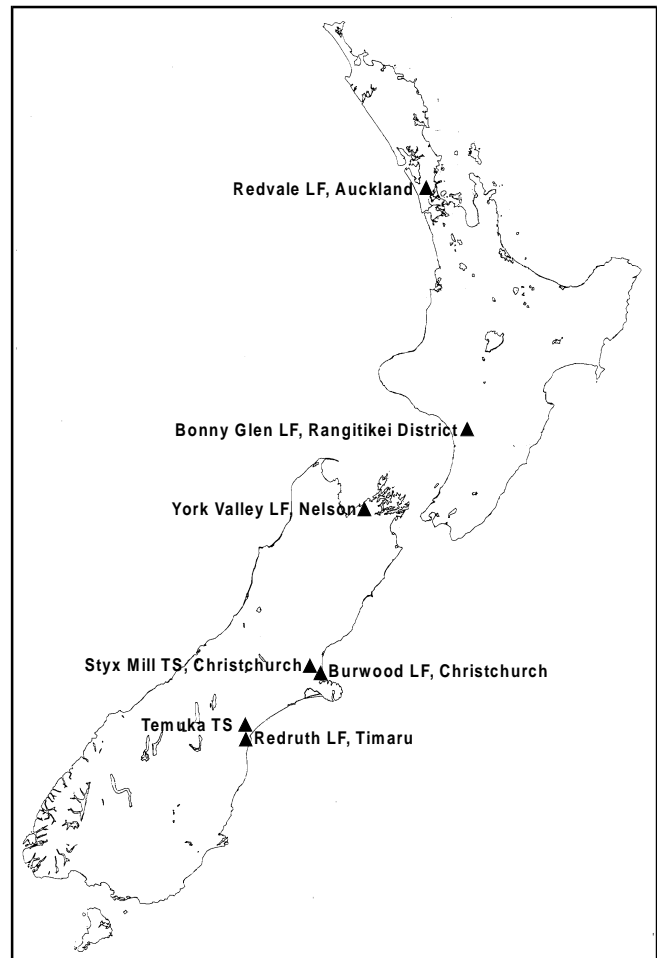
Purpose of the case studies

This case study on the Styx Mill transfer station is one of seven such case studies being undertaken as part of this research programme¹, as shown in Figure 1. 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 accurate² 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 fieldwork³.

Figure 1: New Zealand Case Studies



¹ The full list of case studies includes:-

- Burwood landfill (Christchurch City) - Working Paper FS4
- Redruth landfill (Timaru District) - Working Paper FS5
- Bonny Glen landfill (Rangitikei District) - Working Paper FS6
- Redvale landfill (Auckland Region) - Working Paper FS8
- York Valley landfill (Nelson City) - Working Paper FS9
- Styx Mill transfer station (Christchurch City) - Working Paper FS3
- Temuka transfer station (Timaru District) - Working Paper FS7

² The use of percentage figures in this case study is not intended to imply statistical analysis. Rather it should be interpreted for comparative purposes merely as indicating the proportion of respondents in any particular area of interviewing who gave a specified response.

³ The fieldwork dates are noted explicitly in the case study report. Furthermore, the report attempts to describe as fully as possible the operating regime at the time of the case study.

It is also important to keep in mind the perspective of this research - the host community perspective. Primary emphasis has been put on capturing the experience of members of the host community - the community of residents and businesses in relatively close proximity to the Styx Mill transfer station. It is their experience of the off-site effects such as odour, dust, litter and noise, and the impacts of such effects that will be useful to others contemplating the siting of a new solid waste facility. By the same token, there are likely to be some off-site effects such as risks to groundwater quality that will not necessarily be informed by a focus on neighbours' experience, simply because such phenomena are not often readily detectable to casual observation, even if they do occur.

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 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 nature⁴.

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)⁵. 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

⁴ A statistically-based analysis would have increased the scale of field work and cost several fold.

⁵ 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.

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.

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.

Outputs of this research programme

Outputs from this research have taken the form of public presentations and discussion sessions, as well as a range of hard copy formats.

The latter include a series of research Working Papers, conference papers, and an abbreviated summary document for each case study. All are available from Taylor Baines & Associates⁶ on request. 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.

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.

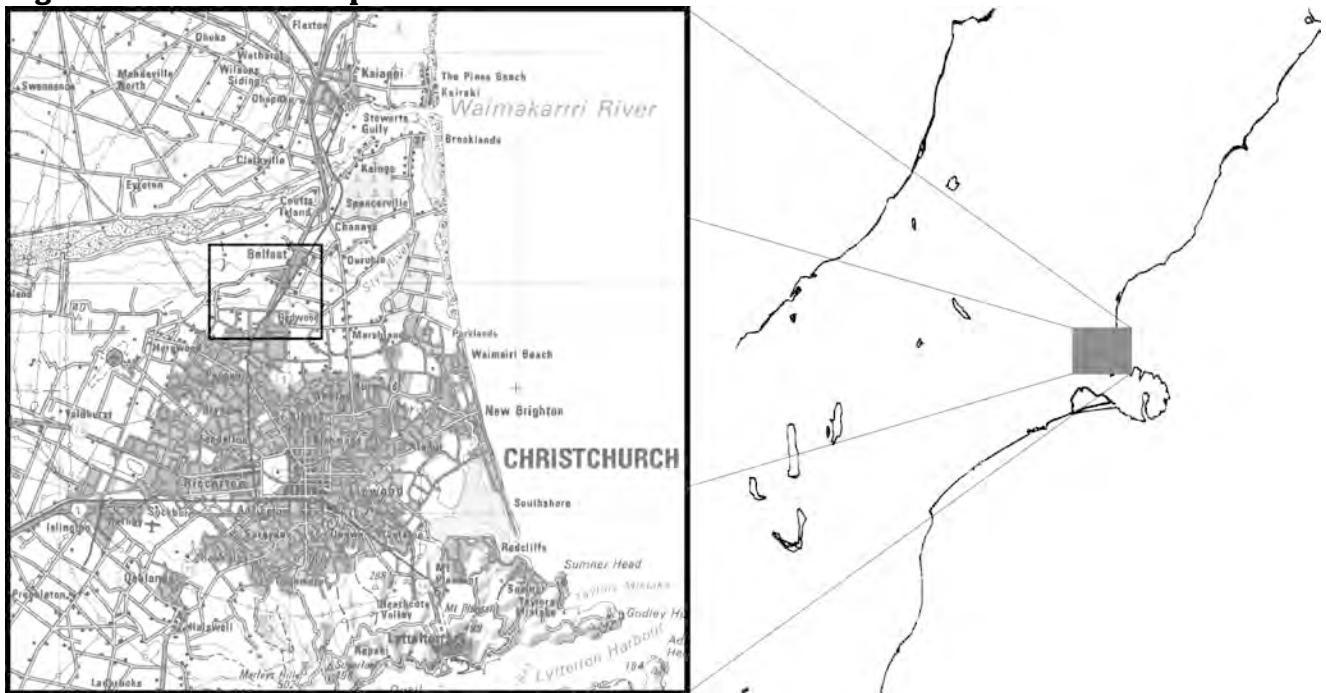
⁶ Taylor Baines & Associates, PO Box 8620, Riccarton, Christchurch. www.tba.co.nz, ph/fax (03) 3433-884

B: History and description of the facility

Location

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, near the coast (Figures 2 & 3).

Figure 2: Location Map



Opened in 1986, the Styx Mill transfer station was sited near the northern suburb of Redwood (Figure 4). The facility was originally in a 'rural' location with no immediate residential neighbours (Figure 5), although the land had been re-zoned industrial. Neighbouring land was used for grazing (land to the north-west of the site, which now comprises the Styx Mill wetlands reserve) and apple orchards (land to the north-east of the site, and west of the Main North Road).

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. The apple orchards are being converted into a residential sub-division, while the Styx Mill Reserve opened in early 1999. (For more discussion, refer to Section C)

Planning

Of the three transfer stations proposed, the Styx Mill transfer station was the most contentious at the time, because of its proximity to high density residential areas and concerns about the effects the facility would have on people living in the host community. The proposed site was contested and local community response was led by the Redwood Action Group, some of whose members remain

Figure 3: Christchurch's solid waste infrastructure

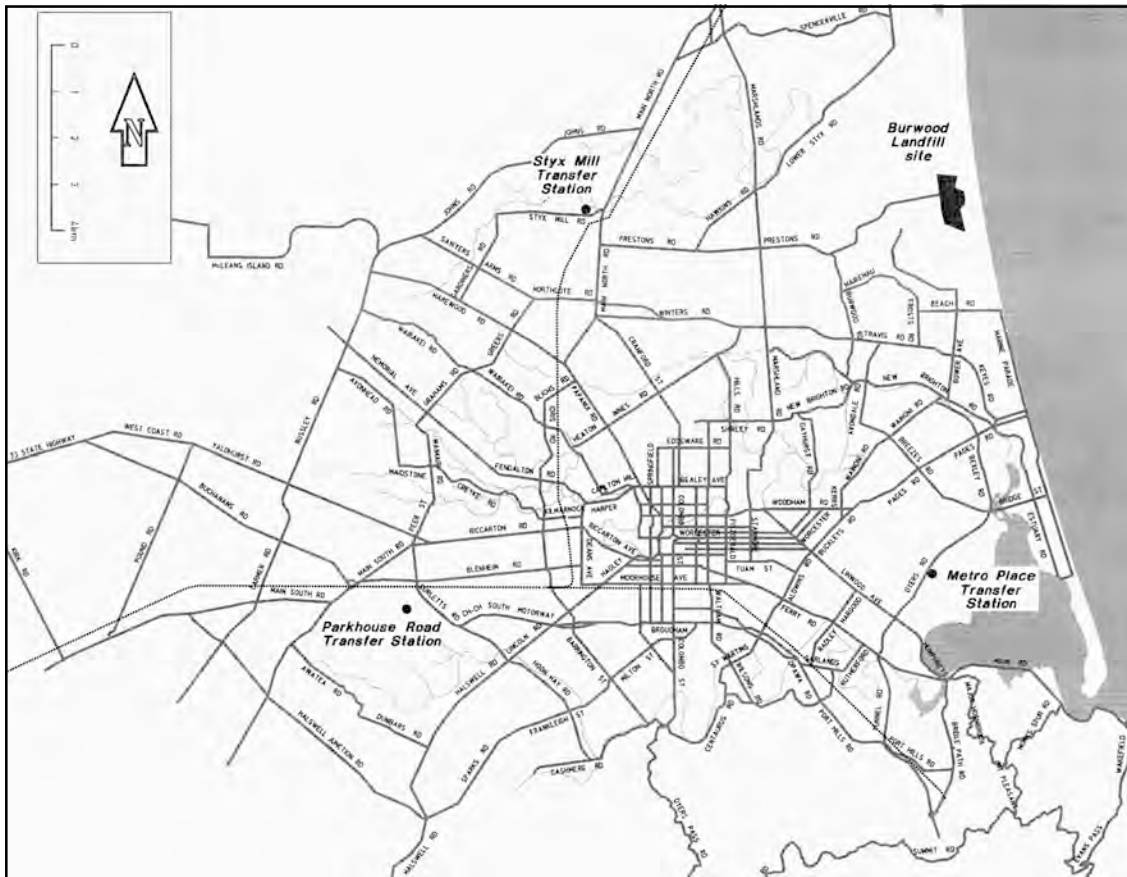


Figure 4: Location near Redwood

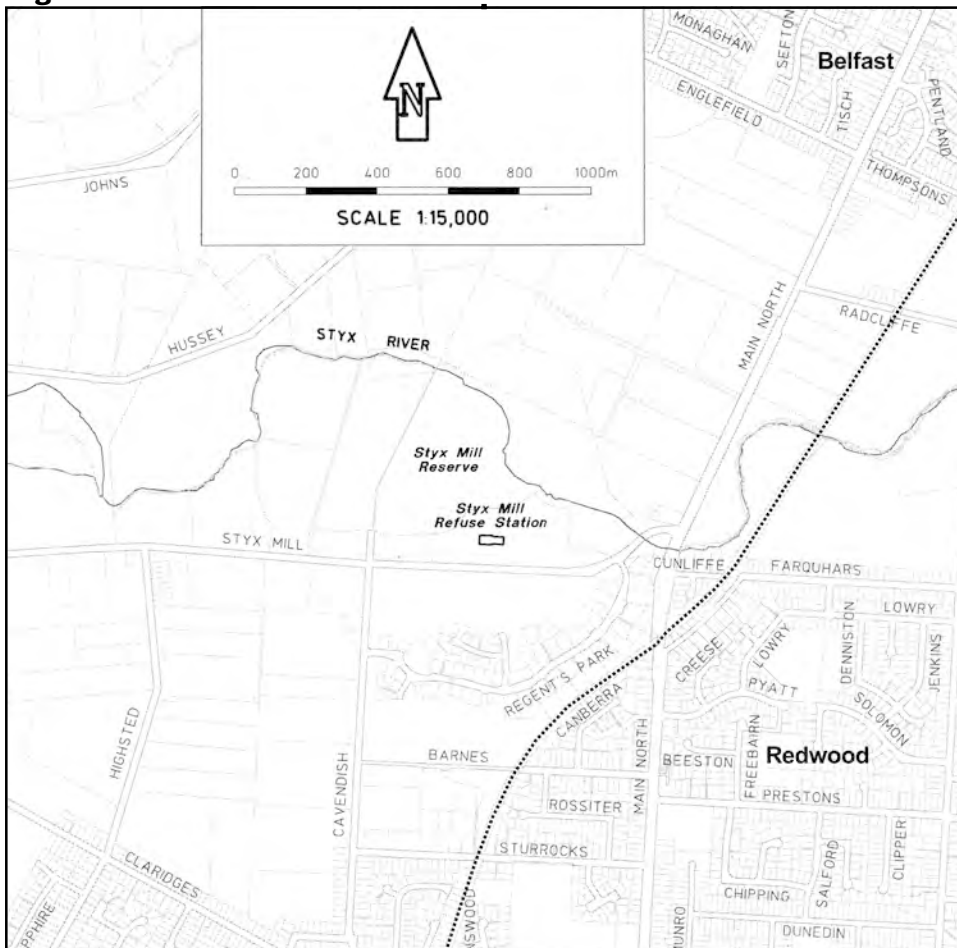
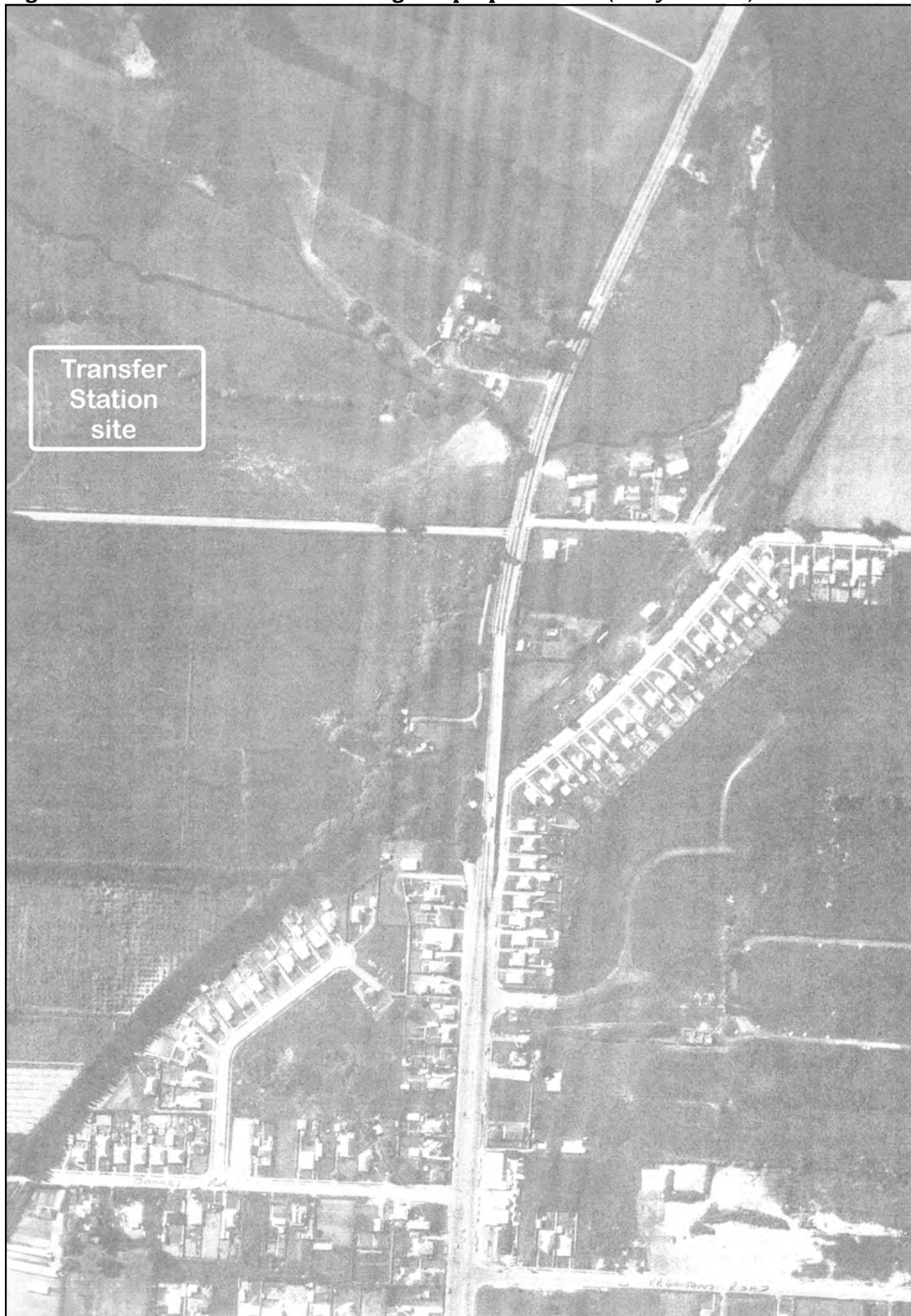
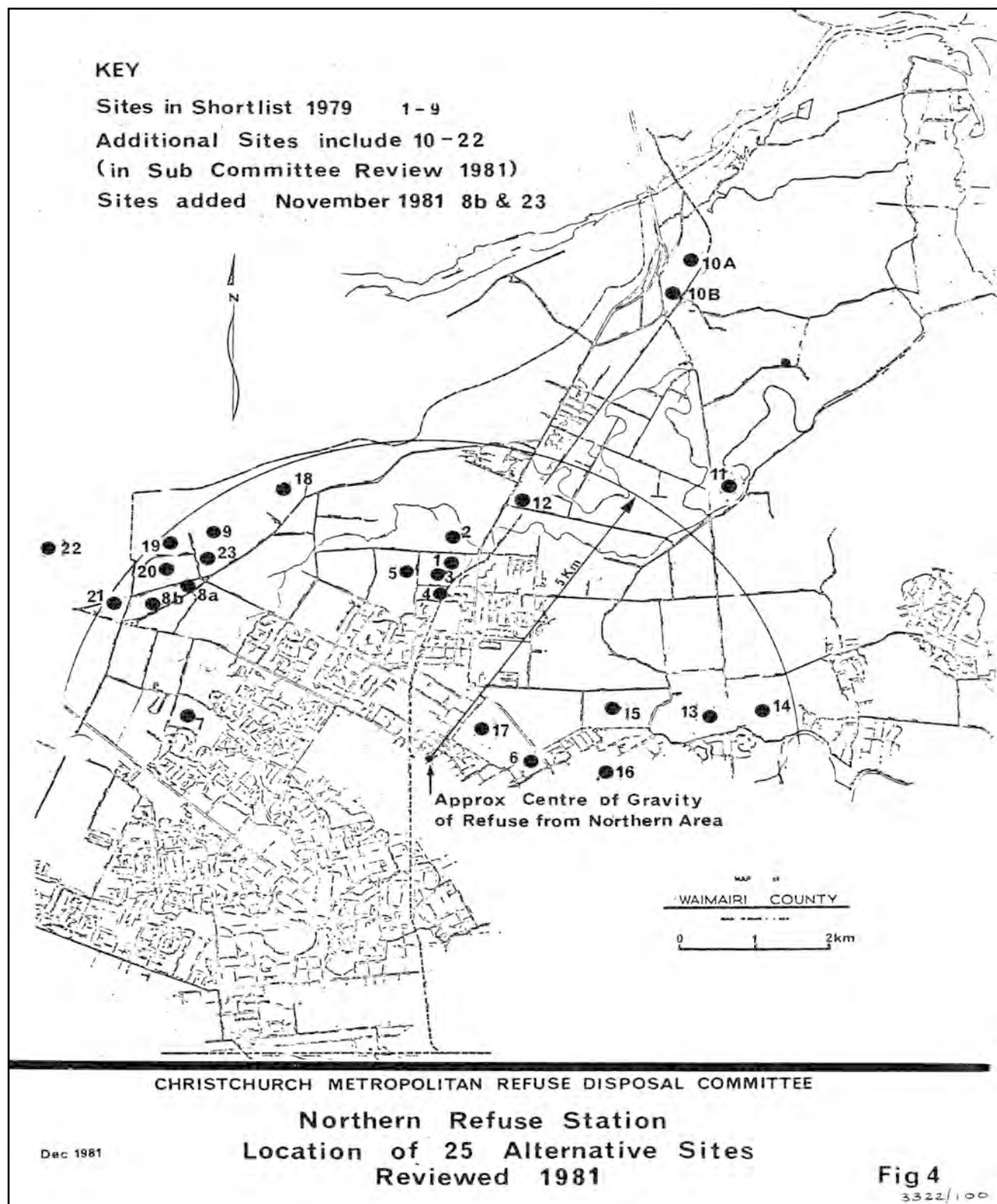


Figure 5: Rural land use surrounding the proposed site (early 1980's)



in the host community to this day. In preparation for a Planning Tribunal hearing, more than 20 alternative sites were investigated (Figure 6).

Figure 6: Location of alternative sites



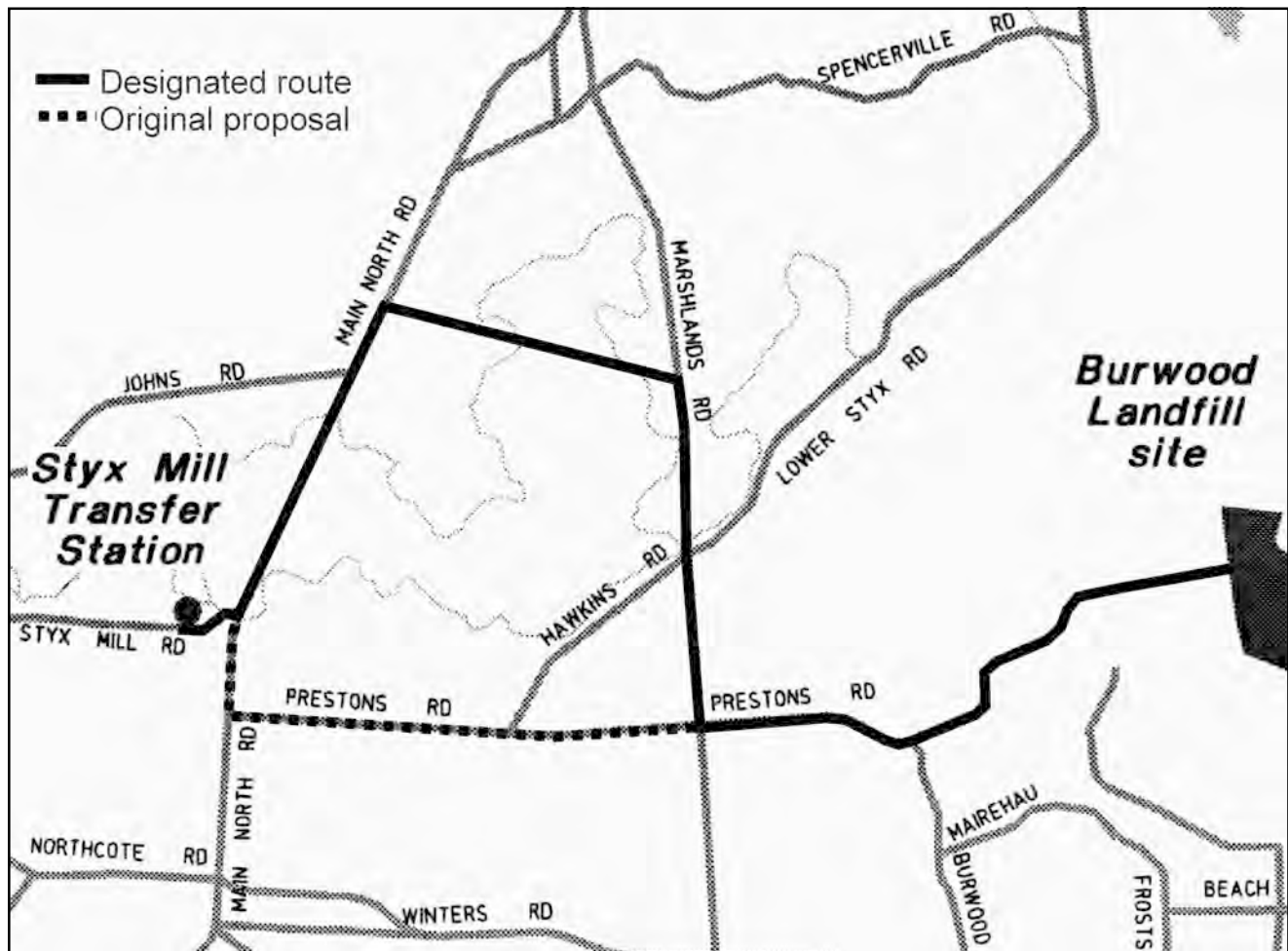
Planning documents⁷ record the following environmental effects and issues projected at the time for the Styx Mill transfer station site:

- **Traffic hazards** to school children (Redwood School), pensioners (new units in Barnes Road), and cyclists
- **Traffic noise** from heavy vehicles disrupting school children
- Nuisance from **truck fumes**
- **Accelerated deterioration of roads used for access** affecting roading rates
- **Litter on the roads** from unsecured loads
- **Nuisances of dust, smoke, smell, rodents, birds and flies** experienced in residential properties and sourced from the transfer station
- **Inappropriate industrial zoning** of land that had potentially high productivity (note that the land had been zoned industrial for some time)
- **Inappropriate industrial zoning** of land immediately adjacent to residential areas (again note that the land had been zoned industrial for some time)
- **Negative impacts on local shopping area** due to proximity to the transfer station
- **Negative impact on perceptions of hygiene quality** and product quality at local food factory (Goldcrum Hayward)
- Scepticism over **likelihood of effective landscaping** as provided for in the planning report
- **Lowering property values** and a **threat to rural atmosphere**
- Site **needed by NZ Rail for shunting yards**

The Commission for the Environment commented (p. 14) that with the exception of weekend traffic changes, the concerns expressed in public submissions about likely environmental impacts were 'somewhat overstated'. Recall that the area next to the residential part of Redwood had been zoned for industrial and railways development for some time.

Many of the traffic concerns focussed on the proposal that transfer trucks would use the most direct route between the transfer station and the Burwood landfill, passing through the centre of Redwood and using Prestons Road (Redwood Primary School is situated on Prestons Road). This proposed route was subsequently changed to mitigate the host community concerns (see Figure 7).

⁷ Commission for the Environment (1978): Refuse Disposal for Christchurch including the Waimairi Coastal Area Recreation Development Plan. Environmental Impact Audit

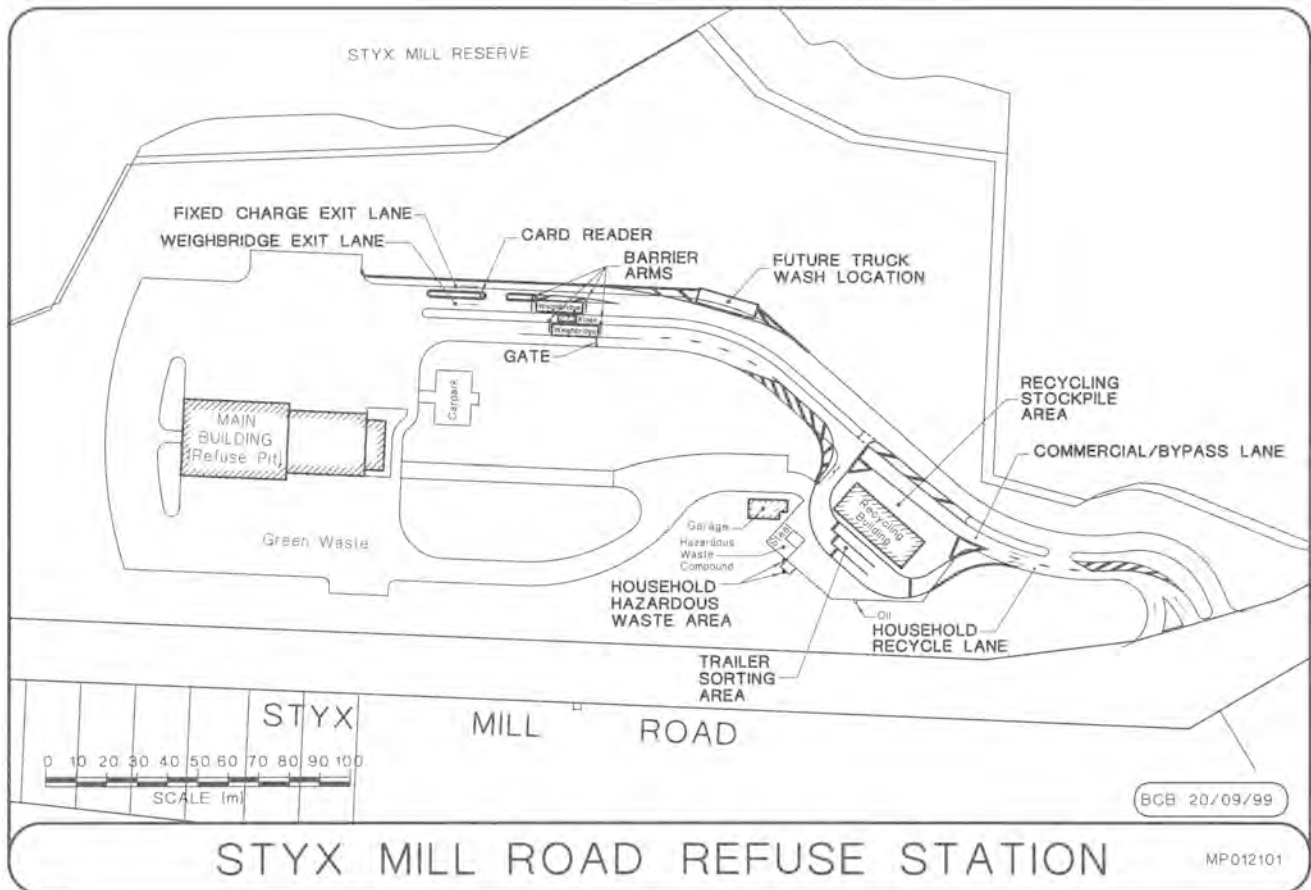
Figure 7: Route taken by transfer trucks

Site development and access

The rural character of the original site has been shown earlier, in Figure 5. Being on open, flat and undeveloped land with the nearest dwelling at the time about 400m to the north east, there were few constraints on layout. However, considerable attention had to be paid to landscaping, with a view to providing visual screening on the south side of the facility.

In 1994 the City Council's composting plant at the Parkhouse Road transfer station was opened. This plant is now responsible for removing about 30,000 tonnes of green waste that would otherwise go to the landfill. Areas for green waste collection had to be provided at each of the transfer stations. Some of the compost product is now sold at the Styx Mill transfer station. The City Council also administers recycling schemes. Originally, the emphasis was on establishing recycling centres at each transfer station. In 1998, the City introduced the first kerb-side recycling services, initially on an experimental basis. Coverage of this service spread throughout the City progressively during 1999. The Recovered Materials Foundation receives the kerb-side collections. Provision for recycling and green waste separation at Styx Mill can be seen in the Site Plan (Figure 8). There have been two extensions to the recycling building during the lifetime of the facility, as well as extensions to the car park and construction of a truck wash.

The site is 300m west of the main northern arterial road - the Main North Road, or SH74 - providing good road access using the existing city street system. In the interests of traffic safety, a special new intersection was created to replace the existing intersection of Styx Mill Road and the Main North

Figure 8: Site plan

Road. In effect, the intersection was about 100m north to give greater separation from the railway overbridge at Styx and thus better visibility for turning traffic.

The present situation (1999)

An aerial photograph of the transfer station taken several years ago is shown in Figure 9. This picture indicates details such as the realignment of Styx Mill Road, the entrance to the transfer station off Styx Mill Road and its relationship to the Regents Park sub-division, and the extent of perimeter tree planting around the boundary of the facility property.

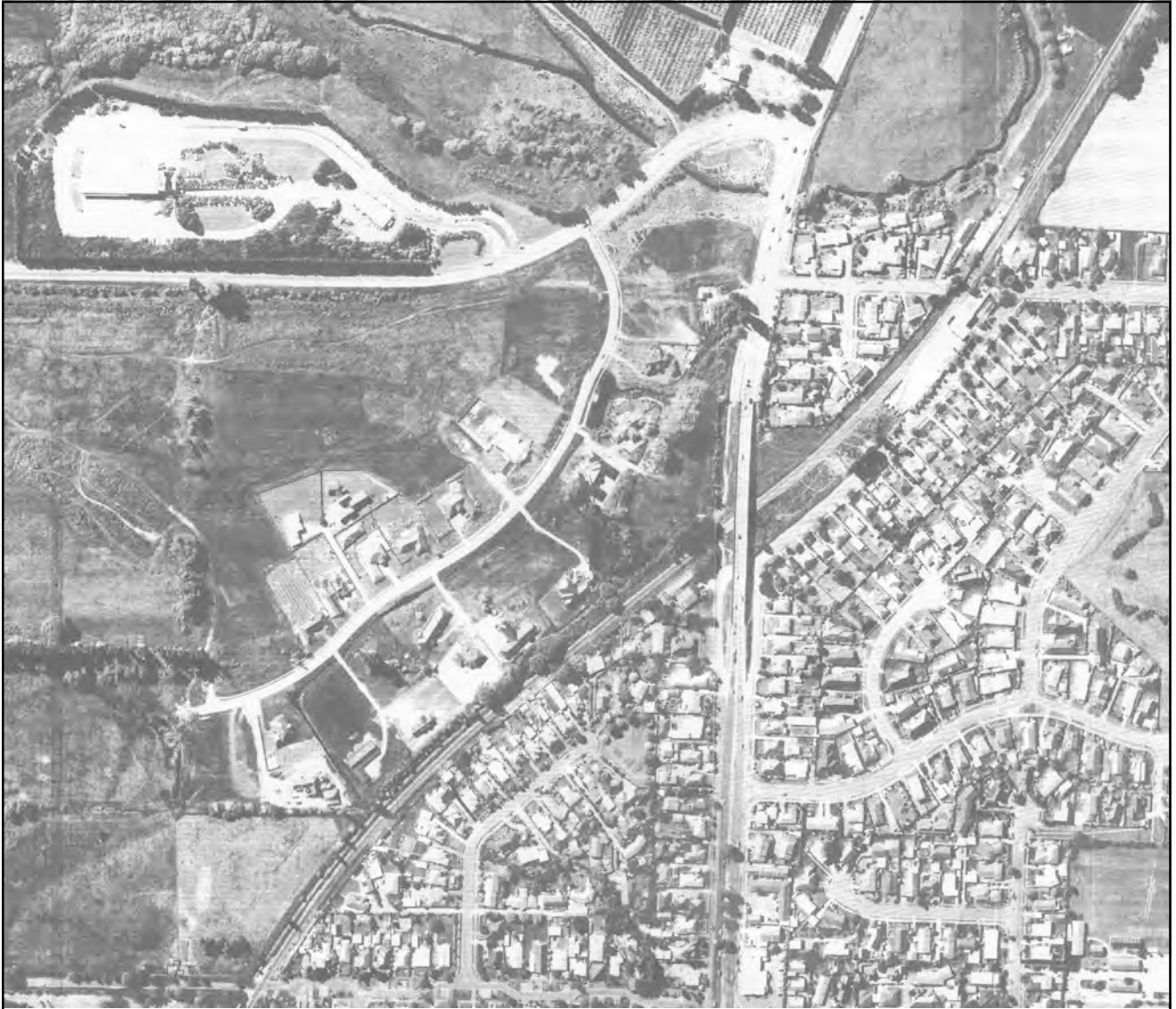
The transfer station employs 13 staff, one of whom is based at the Burwood landfill. The facility is open seven days a week from 7.30 am to 4.00 pm, except for five public holidays. The facility is registered for ISO 9001.

Typical numbers of vehicles arriving to deposit rubbish at the transfer station are as follows:

weekdays:	250-300/day
weekend days:	400-600/day

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.

Figure 9: Aerial photo taken early 1990's



Liaison between the facility and its host community

As noted earlier, there was considerable opposition in the local community to the selection of the Styx Mill site for the transfer station. This led to the formation of the Redwood Action Group. However, the Action Group has not continued in existence since the transfer station opened.

There is no formal liaison between the Styx Mill transfer station and its host community. Indirect liaison takes place via the Papanui Community Board or two of the City Councillors.

The transfer station supervisor reported that members of the public will sometimes introduce themselves to him and compliment him on the efficient running of the site. Several former members of the Redwood Action Committee have also introduced themselves to him and commented on the fact that the facility has not affected them as they had expected it to.

Monitoring

The Canterbury Regional Council (CRC - now called Environment Canterbury) operates a 24-hour hotline service which screens calls for complaints. A complaint call is dealt with by a monitoring officer who will determine whether to phone the complainant and then visit them, and if necessary will then visit the origins of the nuisance. CRC records have been stored on computer database during the past two years. In that time no entries exist for any complaint about the Styx Mill Transfer Station.

Whilst the Christchurch City Council does receive complaints about its transfer stations from time to time, there was no provision for computerised storage of such information at the time of the case study research, although this is planned. An Environmental Health Officer indicated that complaints are logged in a book and followed up by a complaints officer who will call the complainant. If the source of complaint is still evident, the complaints officer will make a visit to investigate further. Research showed the Council's records indicated that eight complaints⁸ had been received about the three transfer stations since 1993. All related to odour and none related to the Styx Mill facility. In fact, all the complaints were directed at the Metro Place Transfer Station on Dyers Road, which is the location of the municipal composting facility.

⁸ One complaint in 1994, two in 1995 and five in 1998.

C: The host community

Overview

Since the late 1970's, the suburb of Redwood has been on the northern boundary of the contiguous urban development which straddled the Main North Road north from Papanui. To some extent, this boundary was reinforced by the location of the Main Trunk Railway Line, which crosses the Main North Road, passing under the Styx Bridge (see Figures 10(a) & (b)). 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 land north of the boundary between Redwood and Belfast has remained in primary production⁹ until very recently (Figures 11(a) & (b)). 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. These general features and trends are marked on Figure 12.

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.

There appears to be no Residents Association specifically for the locality of Redwood. The nearest such associations are the Belfast Residents Association to the north and the East Papanui Residents Group to the south.

Population change 1986-96

There has been a period of marked population growth in this locality since the 1980s, as shown in Table 1 which compares usually resident population and private dwelling numbers for the facility's host community with Christchurch City as a whole (the source community).

Table 1: Growth in Usually Resident Population and Private Dwellings

	UR population 1986	UR population 1996	Population growth 1986-1996
Redwood North & Styx Mill	5,160	5,865	13.7%
Christchurch City	282,216	309,028	9.5%
	Private dwellings 1986	Private dwellings 1996	Growth in dwellings 1986-1996
Redwood North & Styx Mill	1,731	2,130	23.1%
Christchurch City	101,694	116,621	14.7%

Source: Data from Statistics NZ, provided via Environmental and Planning Unit, CCC, December 1997

⁹ 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).

Figure 10(a): Main trunk railway line looking west from Styx Mill Bridge



Figure 10(b): Main trunk railway line looking east from Styx Mill Bridge



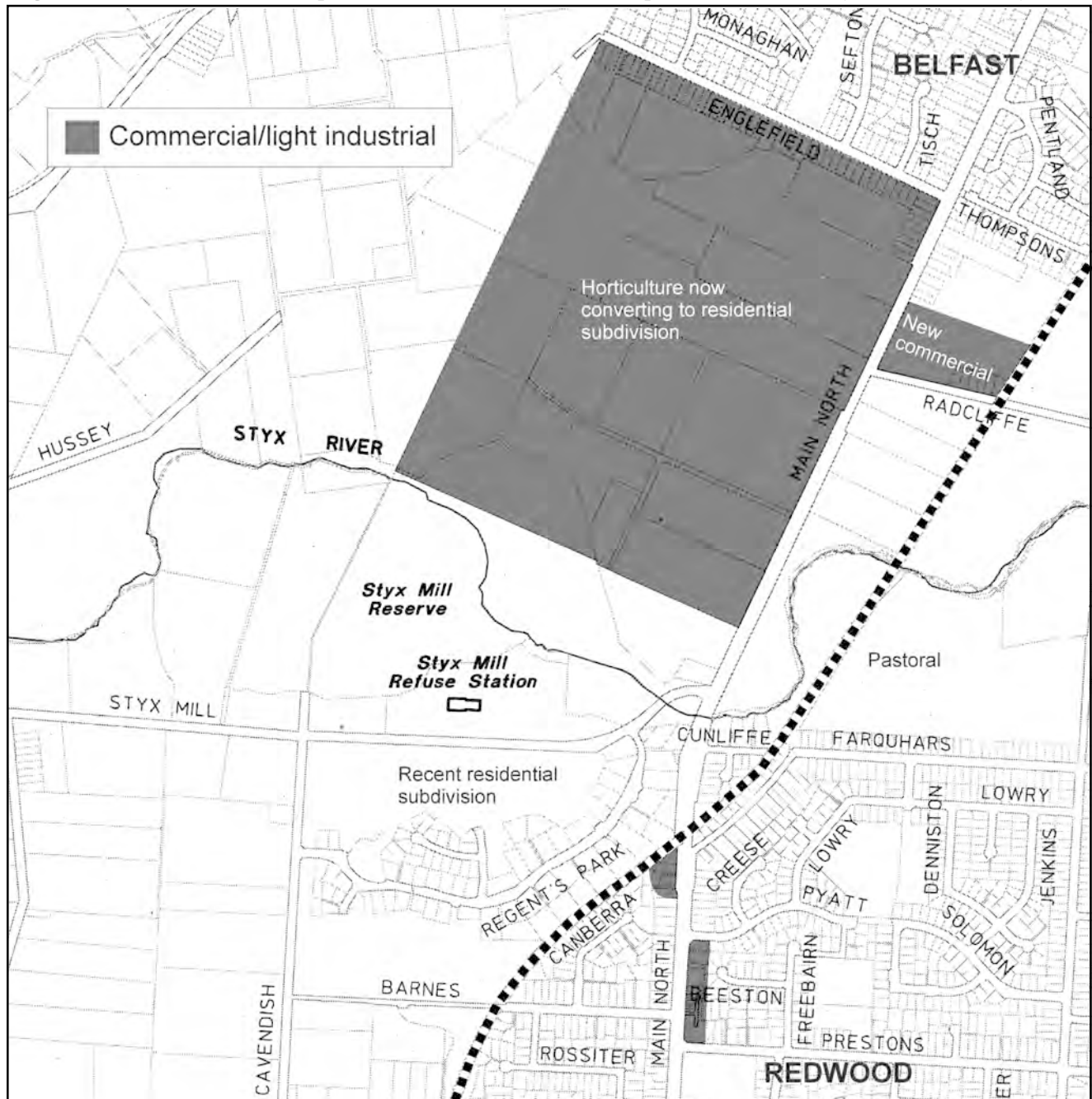
Figure 11(a): From urban boundary looking North



Figure 11(b): Looking South towards urban boundary



Figure 12: Land use pattern and recent development in the Styx Mill locality



Christchurch City has been spreading and continues to do so, encroaching on rural areas around the fringes in many directions. This locality on the northern fringe of the city, is no exception.

Residential sub-divisions - 1986-99

The suburb of Redwood has seen considerable residential development over this period. Much of this development involved in-filling the remaining open spaces within the traditional urban boundary in both directions from the Main North Road.

Regents Park was the first residential sub-division north of the railway line to be built in the Redwood locality. It is not a mere extension of suburban sprawl. Instead Regents Park promoted “a semi-rural lifestyle concept”, initially with larger section sizes (Figures 13 (b), (c) & (d)). Despite this target market, Regents Park is directly across Styx Mill Road from the Styx Mill transfer station

(Figure 13 (a)). The facility had been operating for eight years before Regents Park came on the market.

Stage 1 opened in 1992, and by late 1999 had sold 35 sections, with 5 remaining¹⁰. These were large sections priced from \$140,000 to \$172,000, with expensive dwellings being constructed on them. Stage 2 and 3 opened in mid-1998, selling smaller sections. Forty-two had sold by late 1999, and 15 remained unsold. Section prices for this stage ranged from \$100,000 to \$150,000. Stage 4 has recently opened with 22 sections available and 6 had sold by April 2000, the prices for this stage ranging from \$100,000 to \$140,000.

At the time of the case study field work in 1999, local real estate agents expected sub-division in this locality to intensify. This has proven correct. In early 2000, development work began for extensive residential sub-division on land that previously had been apple orchards for more than twenty years. This land comes to within 500m of the northern boundary of the Styx Mill transfer station. Other residential sub-divisions are proposed for Cavendish Road and further west along Styx Mill Road.

Commercial development - 1986-99

Little new commercial development has taken place in the suburb of Redwood in the past fifteen years, although several businesses have changed. In contrast, the last few years has seen several new commercial developments on the east side of the Main North Road south of Belfast (see Figure 12). As was the case with residential development at the time of the case study field work, real estate agents were expecting a significant new commercial development (mega-store) in this location. This and other commercial premises are now under construction.

Other developments in the host community - 1986-99

A 52-hectare nature wetlands reserve - the Styx Mill Conservation Reserve - was completed in early 1999. It includes a network of walkways, a bird sanctuary, and a series of small lakes for recreational uses (see Figures 14, 15 & 16). Its location coincides with a number of sites which were important in early Maori settlement, particularly for food gathering and vegetable cultivation (CCC, undated).

Planning for this reserve began in 1986 under the then Waimairi District Council. After local government amalgamation, the Christchurch City Council completed the development of the western end of the reserve in 1992, followed by development of the three lakes in 1995. The low-lying, swampy conservation reserve is described as having “high biological and ecological values”, and provides an important “link between the Groynes and Travis Wetland areas” (CCC, undated).

¹⁰ At the time the research fieldwork was carried out.

Figure 13(a)



Figure 13(b)



Figure 13(c)



Figure 13(d)



Figure 14: Styx Mill Conservation Reserve

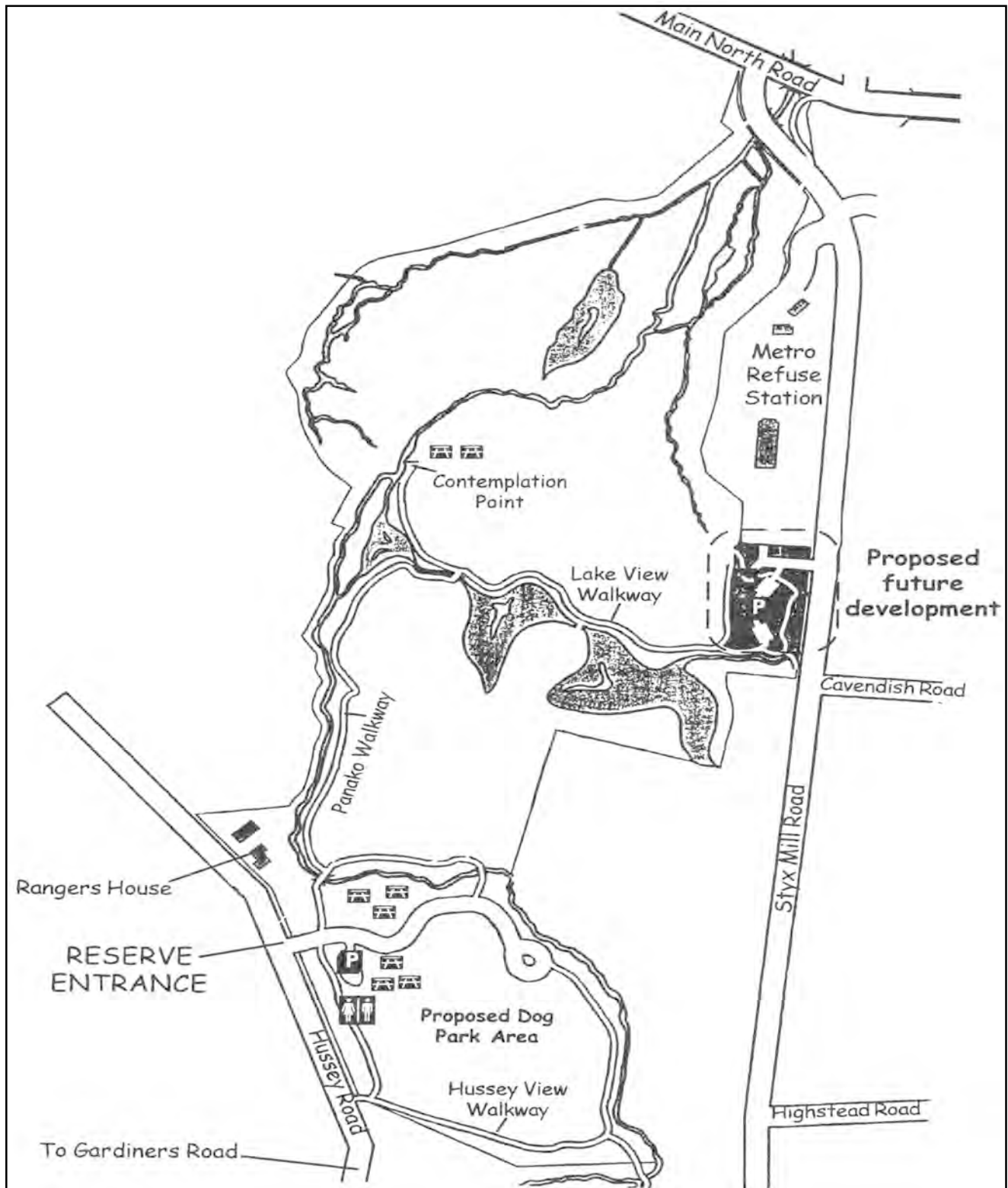


Figure 15: Styx Mill Conservation Reserve - Birdseye view

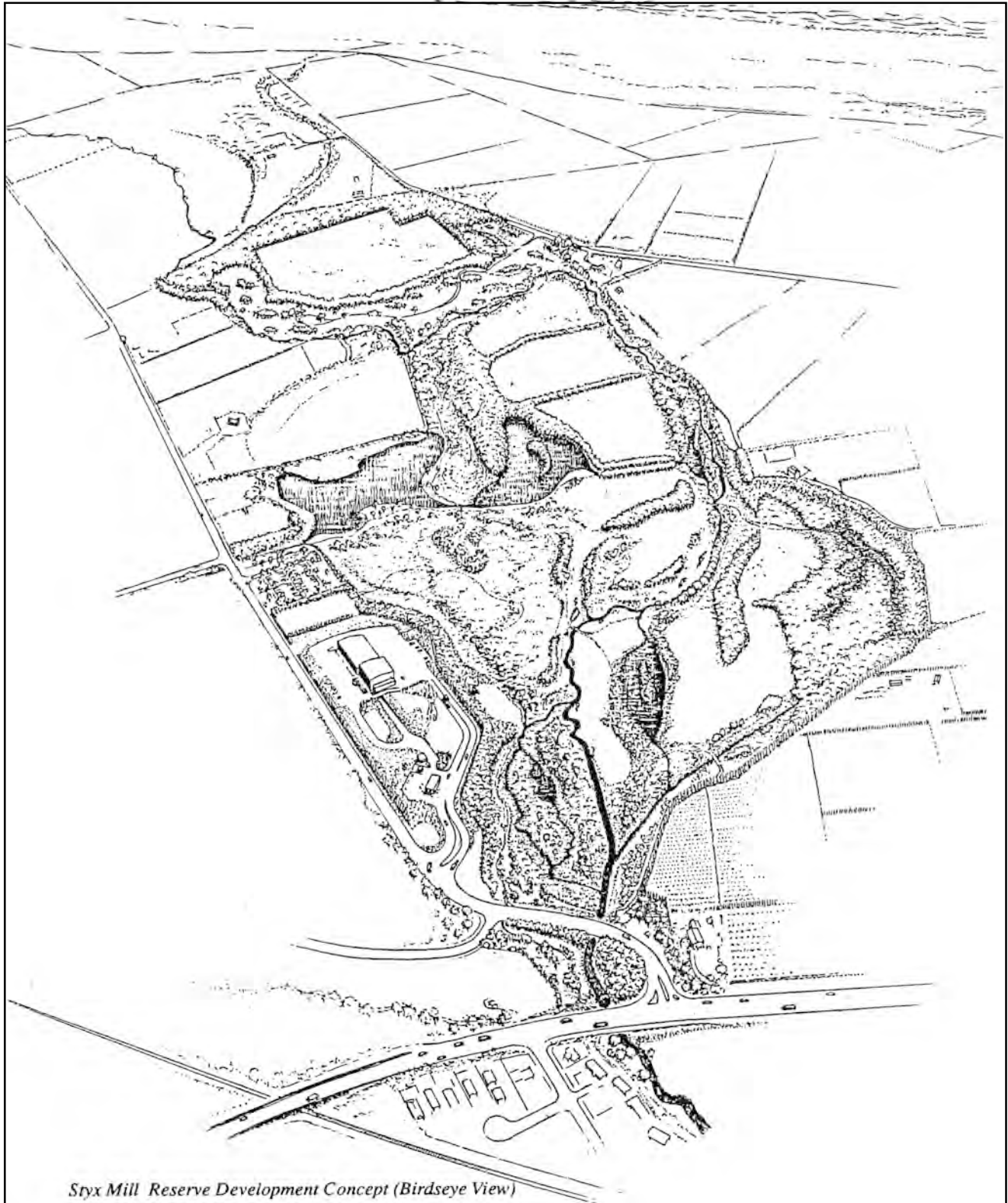


Figure 16: View of Styx Mill Reserve from Styx Mill Road at eastern end.



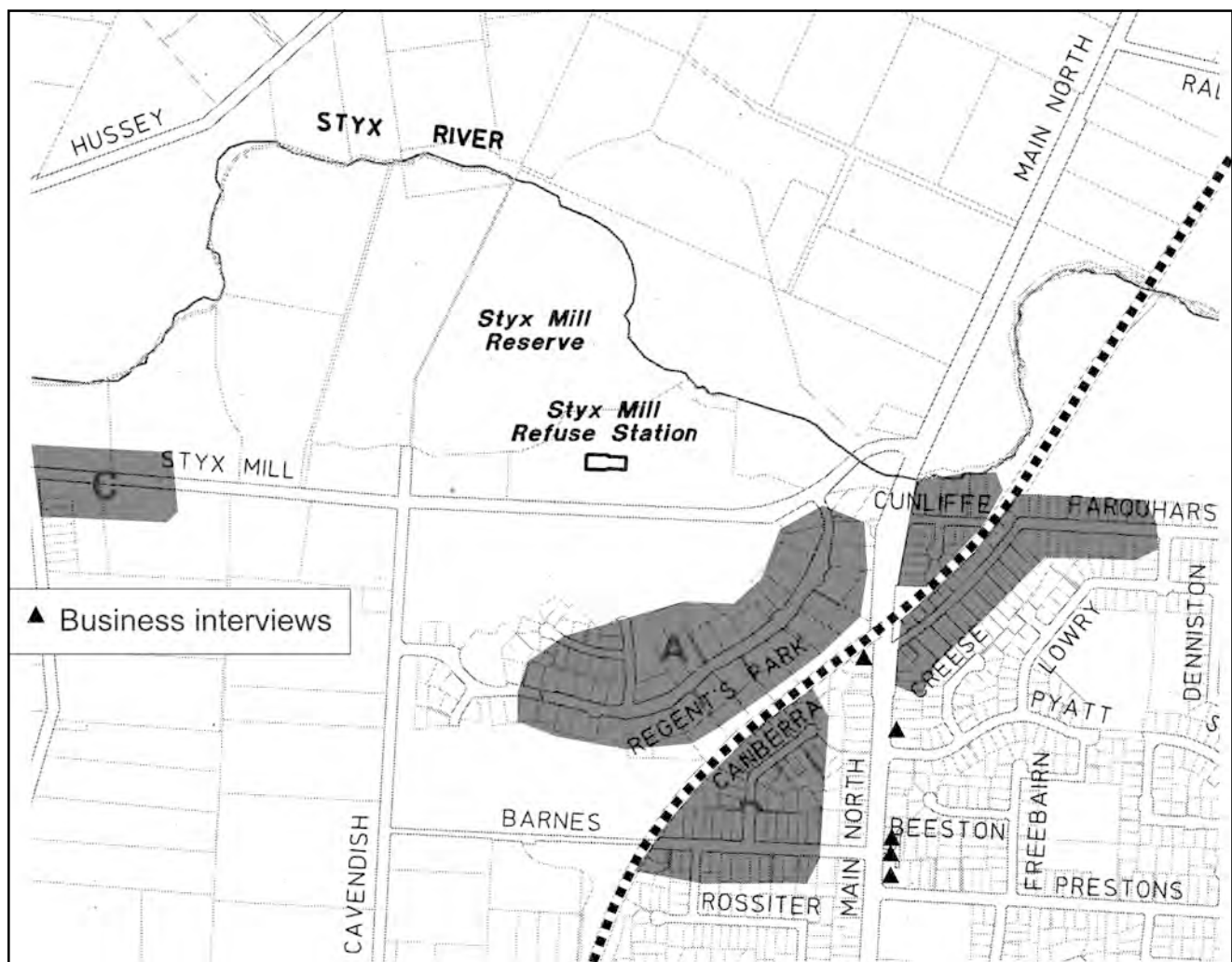
D: Coverage of consultation and interviews

Numbers and categories of interviewee

In all, 54 interviews were conducted, as follows:

- 38 residents - in 5 areas (see Figure 17)
- 5 businesses (see Figure 17)
- 11 other key informants

Figure 17: Location of Interviews



Interviewing took place over two periods, from November 1998 to May 1999. Initial interviews with neighbouring residents and key informants were held in November 1998. A further round of interviews, extending the coverage to include residential areas east of the main trunk railway line, was held in April and May 1999.

The final decision to locate a transfer station at the Styx Mill site near Redwood was taken in 1983 - 16 years ago. The facility opened in 1986 - 13 years ago. Of the 38 local residents interviewed,

12 (32%) have lived in the host community at their present place of residence since before the transfer station was decided upon and built.

Areas of residential interviews

(A) 8 in Regents Park Drive:

- closest residential area to the transfer station at the present time, directly across Styx Mill Road in a south-easterly direction from the transfer station (200-250m from the transfer station entrance on Styx mill Road; 300-350m from the operational area of the transfer station)
- newest residential area in the neighbourhood; all dwellings constructed after the transfer station began operation
- four of the eight interviewees had been resident for 3 years or more, while the remainder had been resident for two years or less
- 7 out of 8 dwellings are owner occupied.

(B) 6 in Cunliffe St, Tracy Place, Main South Road:

- closest residential area to the transfer station site at the time of site selection (early 1970's) across the Main South Road in an easterly direction (400m from the transfer station entrance; 500m from the operational area; adjacent (100m) to the intersection of Styx Mill Road and Main North Road which is used by all Metro Refuse vehicles and most vehicles taking waste to the transfer station
- of the six interviewees in and around Cunliffe St, one was a long-term resident of more than twenty years, with knowledge of the area prior to the transfer station, another had lived there for 4 years, while the other four had lived in the locality for 18 months or less
- 5 out of 6 dwellings are owner-occupied

(C) 3 on Styx Mill Road:

- long-term residents of this peri-urban locality (10, 37, 38 years respectively).
- all three dwellings are owner-occupied

(D) 12 in Canberra St or Barnes Road:

- immediately south-east of the Regent's Park area (A), but separated by the South Island Main Trunk Railway Line and a line of tall macrocarpa trees (500-700m from the operational area of the transfer station)
- part of the previous era of residential development in Redwood
- five long-term residents (23, 40, 41, 42, 44, 45 years), five shorter-term residents (3-9 years) and two recent arrivals (<2 years)
- 11 out of 12 dwellings are owner-occupied

(E) 9 in Farquhars St or the Main North Road:

- immediately south-east of the Cunliffe St area (B), but separated by the South Island Main Trunk Railway Line (600-800m from the operational area of the transfer station)
- a mix of earlier and more recent residential development on the northern fringe of Redwood
- four long-term residents (40-41 years), one of 5 years' residence, and four recent arrivals (<2 years)
- 8 out of 9 dwellings are owner-occupied

Location of businesses interviewed

The five businesses interviewed are located on Figure 17. All were located on the Main North Road, the principal route for private vehicles taking rubbish to the transfer station. Straight-line distances to the transfer station range between 500m and 800m. They incorporate the following business activities:

- petrol station
- dairy and bakery
- drapery
- equestrian supplies
- kitchen design & manufacture

Other key informants

- Solid Waste Engineer at the Christchurch City Council (CCC)
- Supervisor and one staff member of the Styx Mill Transfer Station staff
- Environmental Health Officer with the CCC
- Team Leader of the Complaints Monitoring Officers at the Canterbury Regional Council (CRC)
- CRC 24-hour Hotline telephone operator
- Two real estate agents with long-term experience of the Redwood area
- Police officer who has worked in the area for the past 20 years
- The ranger for a new nature reserve which is to open on land adjacent to the transfer station in February 1999
- A member of the Redwood Action Group in the 1970's, who used to live on Styx Mill Road

Feedback meetings

Two feedback meetings were held for the purposes of discussing the preliminary findings of the field research.

The first meeting was an open meeting of the Papanui Community Board on 3 May 2000. Fifteen people attended, including one person who had been elected to the newly-formed community board at the time the transfer station was being planned. Discussion recalled the importance attached to the issues of traffic hazards and litter at that time, and the role played by the community board in having certain mitigation measures adopted.

The second meeting was held on 25 May 2000 with 12 residents from the Styx Mill locality, including people from Cunliffe Terrace, Styx Mill Road, Regents Park and Farquhars Road (i.e. corresponding to the full geographic range covered by interviewing).

This meeting endorsed the general tenor of the preliminary findings as accurate and reflecting a suitable balance. A few minor additional comments have been included in the discussion of effects in Section E.

Several residents of Cunliffe Terrace expressed concerns about an additional effect - occasional discolouration of the Styx River downstream of the transfer station. They questioned whether this might be related to washing down activities at the transfer station, particularly at weekends. Enquiries with the transfer station supervisor elicited the following explanation. He had received a complaint

about this about eight years previously, but none since. At that time, the Christchurch Drainage Board had found no fault with the transfer station. The outside of trucks are washed down with a bio-degradable detergent at the Styx Mill wash. The wash water discharges into the city sewer main. Stormwater from the site passes through four sump traps before discharge to the river. It is possible, but unlikely¹¹, that extremely heavy rain immediately following a dry spell could lead to dirty water from the general paved areas flushing through to the river. However, under these flood conditions, the river would be discoloured from many upstream sources. He is unaware of contaminated discharge of any sort from the transfer station site having passed into the Styx River. He believes that such discolouration would be due to general stormwater run-off in the area where there have been occasional earthworks in recent years. Also he noted that cattle do walk across the river from time to time, upstream from the transfer station, and stir up the sediment as they do so.

Several of those present recalled the issues surrounding selection of the Styx Mill site in terms of predominant land use at the time. They acknowledged that this land use had subsequently changed markedly - from rural to high-density suburban residential - and still questioned the suitability of the site, despite agreeing that the operation of the transfer station has had relatively little impact on the amenity values in the locality. Some discussion also focussed on future developments, with questions raised as to how new residential and commercial developments in the locality would change traffic volumes, and what difference the introduction of a recycling facility at the transfer station would make.

¹¹ And also likely to be very infrequent.

E: Operational effects of the transfer station on neighbours

Main conclusions

In unprompted questioning, 47% of respondents had observed no effects at all, while in prompted questioning the proportion reporting no effects fell to 13%. None of the effects were reported at distances greater than 800m from the operational boundary of the transfer station.

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

Two of these effects require some explanation in the context of this comparative case study.

The presence of inquisitive 'kerb crawlers' was an effect which was unique to one area, Regents Park. This was the first new residential sub-division in the locality of the transfer station. Attention is drawn to it deliberately by real estate advertising facing traffic on the Main North Road (SH74). This effect could not possibly have been projected at the time the transfer station was planned, since the sub-division had not even been planned at that time.

The fact that traffic hazards for school children is an effect which falls into the category of 'projected but not reported' reflects a change that was made before the transfer station was constructed. Recall from Section B that the designated route for transfer trucks was changed during the planning process to a route which avoids the centre of Redwood and the section of Preston's Road on which the Redwood Primary School is located. Thus the absence of this effect does not imply a deficiency in the assessment of likely effects and impacts. Furthermore, there is growing concern amongst local residents that recent residential and commercial development will give rise to much more noticeable congestion at times in the future.

The following table provides a summary analysis of the effects reported during the community-based fieldwork, and compares neighbours' responses with expert projections.

Table 2: Effects projected and reported

Effects projected	Effects reported unprompted	Effects reported after prompting	Effects projected but not reported or without corroboration ¹²	Effects reported but not projected
<ul style="list-style-type: none"> • litter • odour • traffic noise • visual effects • birds • traffic hazards for school children • dust • vermin • truck fumes • smoke • flies • accelerated deterioration of roads • negative impacts on the local shopping area • threat to the rural atmosphere 	<ul style="list-style-type: none"> • litter • noise • odour • 'kerb crawlers' • additional custom for some local businesses 	<ul style="list-style-type: none"> • litter • noise • odour • 'kerb crawlers' • traffic effects • visual effects • birds • cats • hazard materials 	<ul style="list-style-type: none"> • traffic hazards for school children • dust • vermin • truck fumes • smoke • flies • accelerated deterioration of roads • negative impacts on the local shopping area • threat to the rural atmosphere 	<ul style="list-style-type: none"> • noise • additional custom for some local businesses • cats • hazard materials

Structure for reporting the effects experienced

Detailed analysis of each effect experienced by neighbours of the Redvale landfill is reported under the following sub-headings:

- What effect do they notice? Source of the effect? Timing, frequency and trends?
- Mitigation?
- Impacts?
- Summary evaluation

¹²

Corroborated observations means cases where there are observations from more than two individual local observers, or where an individual observation can be corroborated by other sources of data.

Litter

What effect do they notice? Source of effect?

Just over one third (37%) of residential neighbours interviewed commented unprompted about the litter - most often from household rubbish that falls on the road from insecure trailer loads, from rubbish deliberately dumped by people who arrive late at the transfer station or who are unwilling to pay the charges, and from trucks carrying office paper waste. However, with respect to the last of these sources, neighbours observe that most trucks visiting the transfer station are closed and therefore do not cause this problem. Two of the businesses commented unprompted on *“the odd lot flying off a trailer or truck”*

In prompted questioning, the proportion rose to two thirds (66%) of all neighbours. Ten referred to household rubbish which is deliberately dumped on the side of the road, on nearby vacant sections, or in the Styx River when the transfer station is closed.

The transfer station staff claim there is no litter that is windblown off the site itself, a claim which appears to be supported by neighbours' observations.

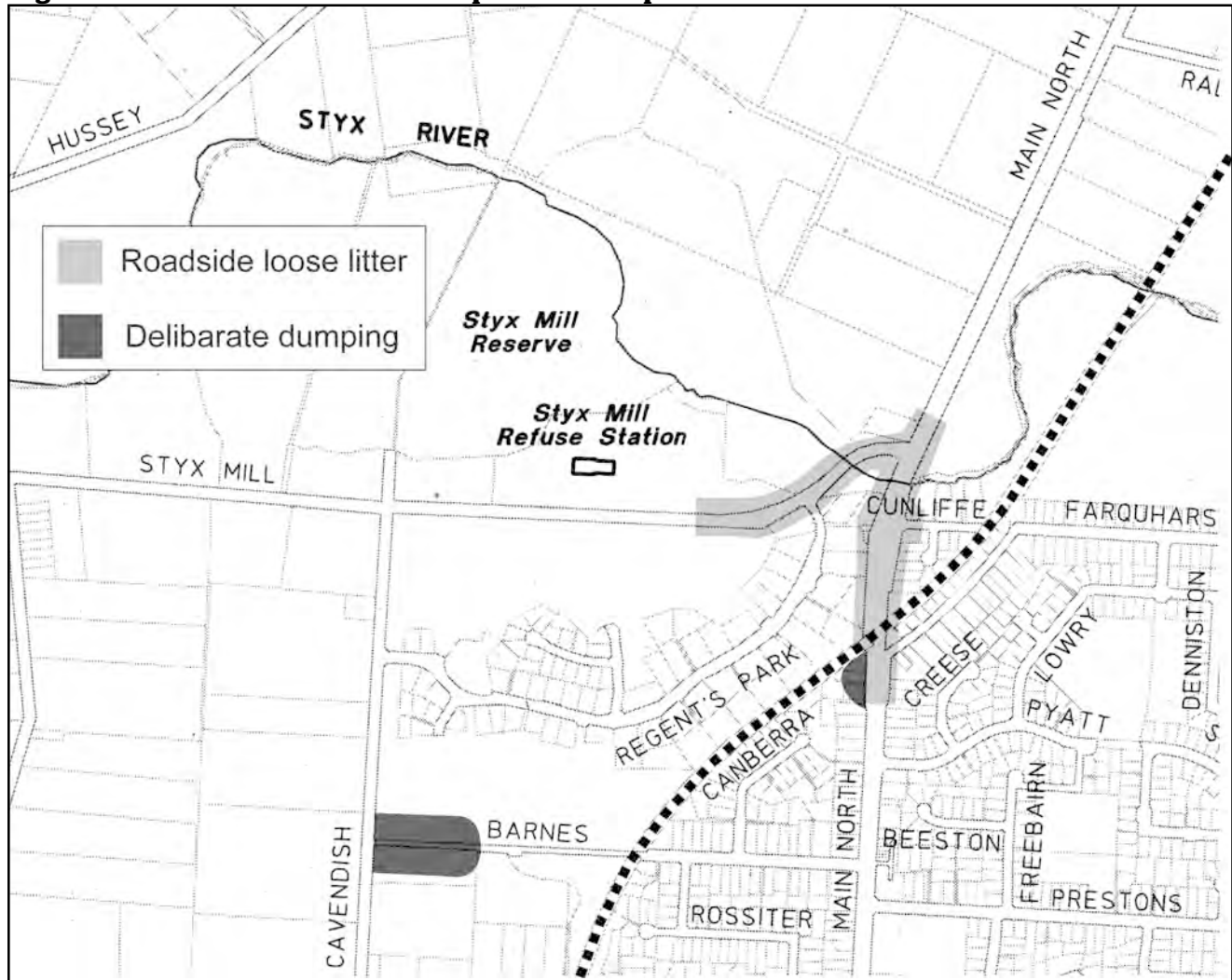
The most common locations for litter are on the road and grass verges along Styx Mill Road near the entrance to the transfer station and Styx Bridge on the Main North Road (see Figure 18). Some of this litter then blows into neighbouring streets (e.g. Cunliffe St, Regents Park Drive), and occasionally into neighbours' gardens (one comment) and into the Styx River (one comment). Deliberate dumping seems to occur at particular locations, such as under the Styx Mill bridge and on vacant sections at the western end of Barnes Road, both locations where it might at times be easy to dump rubbish unobserved (see Figure 18).

Timing; frequency; trends?

Long-term residents in neighbouring streets (Styx Mill Road, Cunliffe Terrace, Farquhars St, Canberra St and Barnes Road) agree that the amount of litter is greatest at weekends, and particularly after some public holidays, reflecting the pattern of private vehicle visits to the transfer station. It is therefore predominantly a weekly phenomenon, rather than a daily one, although a few residents who live closest to where deliberate dumping occurs would describe it as permanent. Strong winds (at weekends) is another determining factor, and one resident noted the apparent 'suction effect' of wind as the road rises over the Styx Bridge. *“In the early years there was always litter on the overbridge and the Main North Road; it would never be picked up; nowadays it is much cleaner; it's tidied up”*. The efforts of seven neighbours were recounted *“in the early days, we got our cars and trailers out and collected seven trailer loads of rubbish from the Main North Road and took it to the transfer station; we demanded we dump it for free!”* Staff acknowledge that in the early years of operation, newspaper did cause a litter problem on the site itself. Notably, the locations where deliberate dumping occurs are not covered by the current City Council contract (see below). This may account for the fact that the residents in these streets who commented on the litter problem, had not observed any reduction in the incidence of roadside litter over the years.

Mitigation?

A very high proportion of the immediate neighbours of the transfer station who commented on the litter effect also noted positively the efforts made to collect the roadside litter - the daily Litter Patrol organised by the transfer station staff, although one respondent commented that the litter patrol

Figure 18: Location of litter problems reported

van had not been seen for a year. At the present time, the Christchurch City Council contracts out the litter patrol of the streets around its transfer stations. The contractor indicated that for the Styx Mill transfer station “out of a 40-hour working week, we allot two hours a week on a Monday to tidying up”. Mondays are chosen since the biggest amount of litter is dropped at the weekend. The clean-up covers only Styx Mill Road, being the road that everyone uses to the transfer station - “we do not consider it a high refuse area”. The contractor was originally asked to issue warnings to any members of the public seen dropping litter from their trailers. However, the contractor declined - “will not put our men in that position”. Not surprisingly, no respondents living in Barnes Road or Canberra Street mentioned regular weekly clean-ups - “never seen it cleaned up”; “not generally removed - we notice it there a lot”. One of the business owners was also aware of the Litter Patrol, and the daily, early morning street cleaning efforts which maintained the immediate vicinity in a tidy state.

One neighbour attributed the improvement in efforts to clean up the litter problem to the possible influence of a city councillor involved in the new Regents Park residential sub-division. Several Barnes Road residents described a rumour that the road might be closed at the railway line end, making illegal dumping in this area less likely. Transfer station staff claim there is less litter now since newspaper recycling was concentrated at another transfer station in the city in May 1998.

The transfer station supervisor has the power to issue infringement notices (involving fines) for litter. He noted that on his arrival at the transfer station more than ten years ago there were many

complaints about litter. Now that he has the authority to impose fines, this problem is not so evident. More recently, Council traffic officers have been asked to take action if they see vehicles dropping litter near transfer stations. Several residents at the feedback meeting expressed the view that such litter enforcement measures had not always been applied as strictly as they had been led to expect.

Community education by the City Council through local newspapers has also made people more aware of the need to secure loads. One key informant suggested the need for an intensive education programme at the transfer station to educate people about the dangers and nuisance of loose rubbish by handing out leaflets and warnings, and backed up by a police officer on site at weekends for a time, just to get the message across.

Impacts?

The prospect of unsightly litter was a major concern amongst local residents prior to the transfer station opening. At the present time, some people living adjacent to the transfer station experience no litter nuisance, while others still see what they describe as *“a lot of litter on the side of the road”*. This divergence of view is also apparent in comments from people who live further away from the facility and people who work in the area but do not live there (real estate agent, community constable), such as *“unattractive, especially when out walking”*; *“an eyesore, Barnes Road is untidy and un-cared for”*

Another cause for concern is northwest wind that brings litter across the paddocks to the east of the Main North Road creating the risk that grazing animals will swallow the plastic. However, no such incidents have ever been reported.

There is general agreement amongst those neighbours of the facility who were interviewed that the incidence of litter was not as bad as had been expected, and has improved markedly over the years. However, it remains an occasional nuisance for some residents. Waste Management Unit staff say that complaints are very infrequent - *“about one a year”*.

Summary evaluation

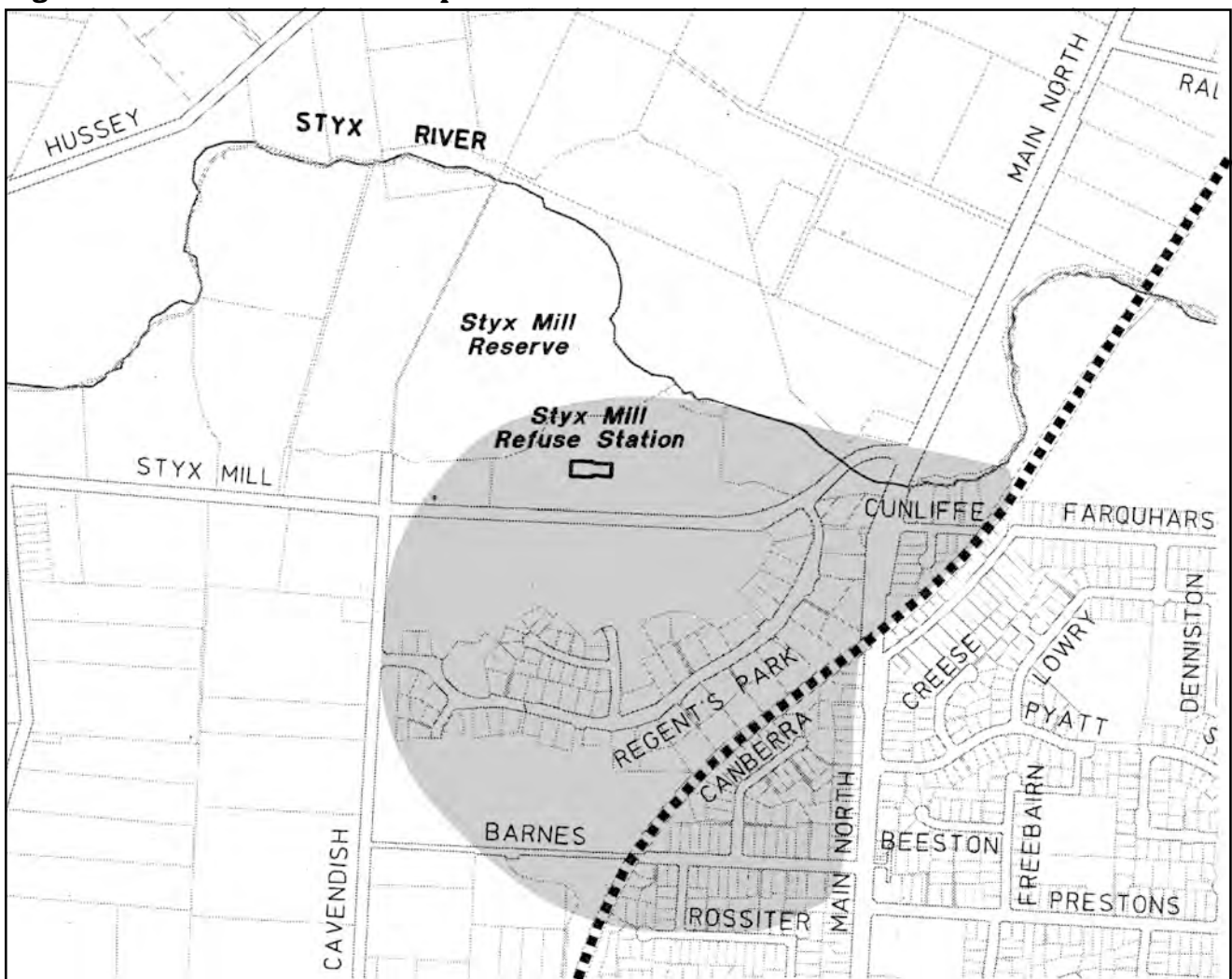
The litter problem was clearly unacceptable to neighbours in the early days of the transfer station's operation. The problem is generally much reduced now, but windblown rubbish from trailers still occurs, as does the illegal dumping of domestic rubbish. This is probably the most significant residual problem, perhaps the only significant negative effect remaining at the community level. It remains most apparent on the main road approach to the transfer station (i.e. the Main North Road and Styx Bridge) as well as the western end of Barnes Road. Litter continues to be a nuisance for some local residents, and of sufficient magnitude that *“every now and again we get out and do a thorough tidy up in the hedges around where rubbish seems to collect”*. Others are still very occasionally motivated to phone the City Council or the Police.

Noise

What effect do they notice? Source of effect?

One-in-five (21%) of those interviewed made unprompted comments about noise associated with the transfer station (see Figure 19). These comments came from all areas of interviewing, except the area to the east of both the Main North Road and the Main Trunk Railway Line (i.e. all areas except E - see Figure 17). To some extent, area E is masked from the transfer station site by an area of raised ground, and also by the physical structure of the Styx Mill over-bridge. This may explain the absence of responses on noise effects from area E.

Figure 19: Noise effects reported



In prompted questioning, the level of response rose to 34%, although nearly all the additional comments came from residents of either Regents Park Drive (area A), directly across Styx Mill Road from the transfer station entrance, or from the Barnes Road/Canberra Street area (area D) which is further to the south, across flat terrain. Most of this latter group believe that the noise is likely to be more noticeable either on still days, or when the wind is from the north west.

Three sources of noise were identified. Residents of Regents Park Drive (200-250m away) commented on “banging and crashing” within the transfer station. They attributed this noise variously to transfer trucks being filled up with metal objects, or to the operation of compactors at the station, noting particularly the sound of glass being shattered during compaction. Residents of Barnes

Road, slightly further away (500-700m) also refer to the “occasional bang” or “scraping noises” and the sounds of “machinery working”.

Vehicle noise from large trucks was noticed by residents in the Cunliffe St area, adjacent to the Main North Road. One resident of Styx Mill Road, in a relatively rural location, remarked that “flapping tarpaulins on passing trailers are very noisy”.

Timing; frequency; trends?

Noise from on-site handling of solid waste and noise from the movement of heavy trucks is most noticeable in the early morning at weekends (variously described as 6.00-7.00 am and 7.30-8.00 am). One long-term resident recalled that during the planning and site selection, residents had been promised that “no rubbish would be left at the site overnight, but we see the first truck depart for the landfill at 6.30 am, therefore rubbish must be left there overnight”. The transfer station supervisor acknowledged that current operations are not consistent with the original operating conditions which required them not to open before 10.30 am on Sundays.

The City Council Waste Management Unit acknowledges that there are two transfer trucks operating from the Styx Mill transfer station to the landfill. The landfill closes at 6.30 pm and the transfer station closes to the public at 4.00 pm. If there is rubbish to be disposed of and not enough time to deliver it before the landfill closes, a truck will be loaded up ready to leave first thing in the morning before the transfer station opens to the public, so that the next truck is ready to receive a new load when more waste arrives the next morning.

The banging is described as “occasional” or “very occasional”. One of the longer-term residents of the new Regents Park sub-division (4 years) observed that “it is now quieter at weekends than it used to be”, while another long-term resident of the locality (>20 years) responded that “trucks in the early days were noisier”.

Mitigation?

The mounded earth embankment along the southern boundary of the site and dense planting on both sides of Styx Mill Road where it passes the site help to muffle noise from the facility (see Figures 20 & 21).

Impacts?

Actual impacts now appear to be negligible. This may have several underlying explanations - the vehicle numbers are not as great as were expected; there is more effective screening of the site than was expected; residents have become accustomed to the noises. One Regents Park respondent commented that noise from the banging of trucks was “no different from noise from the railway line” (recall that the Main Trunk Line passes immediately to the south of the Regents Park residential sub-division and is as close or closer to dwellings than the transfer station). However, another Regents Park resident said that she sometimes found the glass-crushing noise intrusive, when it occurred at weekends. Several respondents from the Barnes Road/Canberra Street area (area D) comment that “there is more noise from the Main North Road than from the Styx Mill transfer station” while noting that noise of frost guns, passing trains and aircraft approaching Christchurch Airport is much louder - “would never call a ‘bang’ at the transfer station a noise to note”.

Figure 20: Dense planting on both sides of Styx Mill Road



Figure 21: Mounding of earth and dense planting along Styx Mill Road boundary



Summary evaluation

On the basis of the frequency of comment (both unprompted and prompted), we conclude that noise from various sources associated with transfer station operations and users has no more than a very minor impact on one third of the residents in the immediate vicinity of the facility. This relatively low level of impact is not inconsistent with a site that is as close to the Main North Road and to the Main Trunk Railway Line as the Styx Mill site, and below the northern approach path to Christchurch International Airport.

Odour

What effect do they notice? Source of effect?

Only one respondent (3%) out of the entire sample of 38 mentioned odour unprompted, while prompted questioning attracted a little more discussion (13% of the whole sample). One business owner of very long standing commented unprompted on odour, but noted that it had been a long time ago, and seemed to associate it with dumping activities prior to the transfer station. Indeed, there was some uncertainty amongst neighbours as to whether the odours being experienced did in fact come from the transfer station. While two respondents from Regents Park positively identified an odour from green-waste, one mentioned *“a strong garbage smell - on a par with the meatworks; may happen only once a year”*, and three were equally adamant that *“the worst smell is Belfast freezing works”*, while two others claimed *“no smell where we are”*. Two respondents from Farquhars Road (area E) notice occasional odours from market garden activities and the Belfast freezing works, but not from the transfer station - *“they soon disperse”*.

Most of the comment on odour came from Regents Park residents (see Figure 22), for whom the strongest odours are experienced in light winds. One observation from a Styx Mill Road resident suggests that stronger easterly winds carry the freezing works odours in that direction, as well as the odour from insecticide spraying of apple trees in the Applefields orchards, whose southern boundary is approximately 100m to the north of the transfer station.

Timing; frequency; trends?

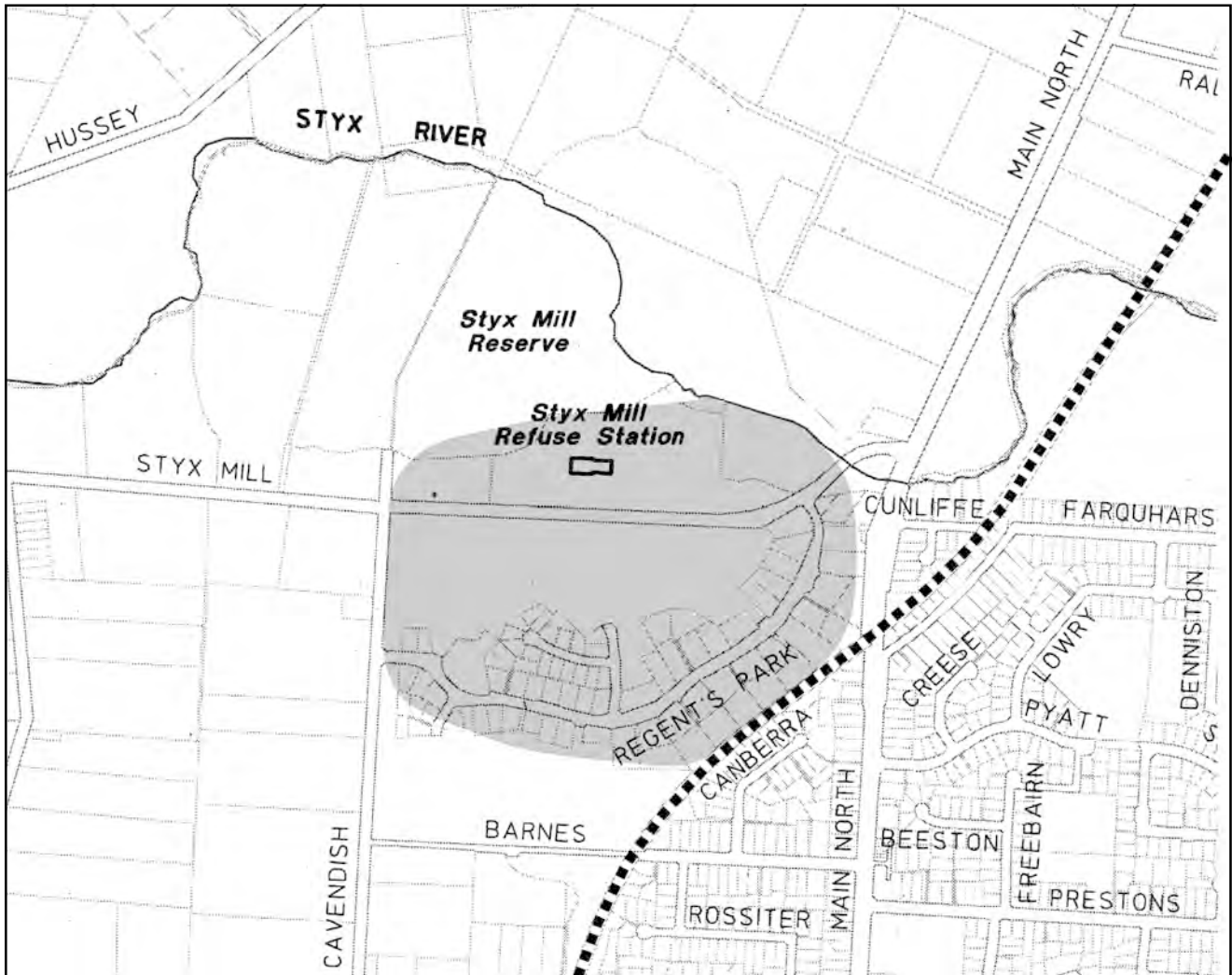
The unprompted discussion focussed on green-waste for council composting at Bromley, *“which has only been noticeable this year”* (1998). One Regents Park resident noted a *“very, very occasional strong smell”* from the green-waste; about twice in six months.

Mitigation?

Staff point to the fact that occasionally a load of rubbish will arrive with a high odour, in which case it is quickly transferred to the landfill. Residents at the feedback meeting pointed out that there had been strong local opposition to composting on the Styx Mill transfer station site.

Impacts?

With one exception, no residents in any area reported experiencing exceptional garbage smells from the transfer station. One Regents Park resident indicated that she had to shut her windows *“about once a year”*. Most other local residents rated other local sources of odour as much more noticeable.

Figure 22: Odour effects reported**Summary evaluation**

Overall, there is a very low level of concern about any odour effects from green-waste passing through the transfer station, especially when compared with other industrial or commercial sources of odour nearby (the freezing works and market garden and orchard sprays), which preceded the transfer station.

'Kerb crawlers'**What effect do they notice? Source of effect?**

A quarter of those interviewed in Regents Park (unprompted) commented on "*the kerb crawlers*" or "*the trailer brigade*" who drop in to inspect this relatively new residential sub-division. The coincidence of proximity to SH74 and the high-volume destination (the transfer station) leads to the situation where many of those who respond to the advertising for vacant sections for sale happen to have trailers attached because they have just delivered rubbish to the transfer station.

This effect is unique to the new Regents Park residential sub-division, which is still being advertised with vacant sections for sale (refer to Section C of this case study).

Timing; frequency; trends?

Visits are predominantly at weekends. The frequency is much less than it used to be with the development of Phases 2, 3 and 4, since Regents Park Drive is no longer a cul-de-sac.

Impacts?

Some residents are annoyed by the slow driving behaviour of these visitors. However, there is no reason to believe that such driving behaviour is unique to people who have just visited the transfer station; it is commonly observed in new residential sub-divisions.

Summary evaluation

The presence of kerb crawlers is a minor irritation, due mainly to the new sub-division rather than the transfer station, which preceded it.

Benefits for trade at local businesses***What effect do they notice? Source of effect?***

Two of the five businesses remarked unprompted that the presence of the transfer station is “good for business”. For example, the petrol station owner has noticed that people hire trailers to take their rubbish to the transfer station, and also that people returning from the transfer station will sometimes call in to buy something from the shop. The owner of the bakery indicated that staff from the transfer station regularly buy food from the shop. Both these businesses have been in their present locations for more than ten years. Another more recent arrival (three and a half years), the equestrian supplies, suggested it was possible they received more weekend business from people going to the transfer station on Saturdays and dropping off equipment to be mended.

These businesses are on the principal access route to the transfer station. They are part of the nearest commercial centre to the transfer station and located centrally in the host community of Redwood.

Impacts?

Two of the respondents were adamant that the transfer station has “provided us with business”, while the third was less certain of the extent of this effect. Neither of the other two business owners interviewed made any negative comments regarding effects on business activity in response to either unprompted or prompted questioning.

Summary evaluation

The presence and operations of the nearby transfer station does not appear to give any cause for concern to local businesses. If anything, people using the transfer station or working there provide additional custom to some local businesses.

Traffic

[Noise from trucks and “kerb crawlers” in the new residential sub-division are effects which have already been discussed - see above.]

What effect do they notice? Source of effect?

None of the residents who were interviewed brought up the topic of traffic effects unprompted. However, in prompted discussion, observations about traffic congestion and traffic speed were noted by one-fifth (21%). A former member of the Redwood Action Committee observed that the initial traffic projections had suggested it was going to be “*frighteningly busy*”. Experience has indicated it is “*nothing like what was projected*”.

Large trucks leaving the transfer station early on weekday mornings were noted “*but not a problem*”. In contrast, the build-up of vehicles at the intersection of Styx Mill Road and the Main North Road at weekends, was observed to create some difficulties in turning right from Styx Mill Road onto the Main North Road (i.e. driving in a southerly direction). This experience was confirmed at the feedback meeting - “*bad at peak hours*”.

The facility supervisor noted that “*until four to five years ago there was a queueing problem on weekends when incoming traffic stretched back along the access road*”. The upgraded intersection (Styx Mill Road and SH74) appears to have encouraged heavy trucks from other industry to adopt Styx Mill Road as a different route into the city (e.g. concrete trucks from Ashby’s concrete mixing plant at Chaney’s Corner). One long-term resident on Styx Mill Road attributed the increased truck traffic since the road was upgraded to the level of building development in the immediate and wider area, also noting the increased “*speed of traffic on Styx Mill Road*”, a theme echoed at the feedback meeting. Residents on Barnes Road and the Main North Road also commented on increasing traffic densities over the years.

The Land Transport Safety Authority (LTSA) has provided data for two periods in order to compare pre-facility and post-facility experience. These data and maps are shown in Appendix I. During the first period (1980-83) there was one injury accident involving a truck¹³ which failed to give way to a motor cyclist at the intersection of SH74 and Radcliffe Road (1km north of the transfer station). During the second period (1987-90) there was also one injury accident involving a truck which hit a car that braked suddenly after entering the traffic stream from a road-side stall at the same location.

Traffic congestion is focussed on the intersection of Styx Mill Road and the Main North Road, while increases in traffic speed are more noticeable further from the Main North Road (SH74) along Styx Mill Road. Thus, residents in the Cunliffe St area are more aware of the congestion effects.

Timing; frequency; trends?

Trailer traffic is greater at weekends, and seasonal - “*a lot more trailers especially at pruning time*”.

¹³

There is no information to indicate whether the truck in question had anything to do with the transfer station.

Impacts?

Congestion of the kind experienced at the intersection of Styx Mill Road and SH74 is not markedly different from the periodic congestion experienced at many intersections on SH74 in urban and suburban locations. None of the interviewees in businesses in Redwood had observed congestion effects in their locality.

Summary evaluation

The effects of the transfer station on traffic patterns have not been a significant cause of concern amongst nearby residents during most of the years it has operated. There is growing concern amongst local residents that recent residential and commercial development will give rise to much more noticeable congestion at times in the future.

Visual aspects

What effect do they notice? Source of effect?

No residents raised visual effects in unprompted discussion. However, when prompted, a very high percentage of residents in nearby areas (82% of respondents in areas A, B and C) commented positively on the screen planting around the transfer station, noting how effective and attractive it has become - *“our garden looks out across the river to the transfer station; wouldn’t know it was there”*. In the early years, some residents held the view that the new, unscreened facility was unsightly for visitors entering the city from the north.

Residents throughout all three areas north and west of the Main Trunk Railway Line were consistent in their positive responses to the screen planting. Similar views were expressed by other key informants. Residents in areas south and east of the railway line made no comment at all on visual effects.

Timing; frequency; trends?

It was noted that planting had occurred prior to construction and opening of the facility.

Mitigation?

The expectation of unsightliness prompted early planting by the City Council. Several residents in Regents Park noted that the close planting of the poplar trees means that, even in the winter when they lose their leaves, the facility remains well screened. Discussion at the feedback meeting confirmed that the existing poplars provided an effective visual screen for nearby neighbours, but also noted the potential issue that would arise if the mature trees had to be felled for safety reasons - and the consequent need for a second layer of planting to be initiated. One resident from Regents Park (directly opposite the transfer station entrance) commented on the signage, expressing a preference for a *“small, discrete sign”* naming the facility but *“a large sign for prosecuting those who dump litter!”*.

Impacts?

The screen planting has exceeded expectations.

Summary evaluation

The predominant visual impact of the transfer station on nearby residents is a very positive one. The screen planting is effective both in hiding the facility and in providing an attractive landscape feature for the neighbours. In the early years, some residents held the view that the transfer station was unsightly for visitors arriving in the city from the north - a temporary effect which has since disappeared.

Birds

What effect do they notice? Source of effect?

No comments about increased bird activity in the vicinity of the transfer station arose during unprompted questioning. In prompted discussions, several residents of Regents Park referred to waterbirds which frequent the Styx River - *“native pukeko, waders, ducks”*. It is likely that this has more to do with the landscaping in the Regents Park sub-division and the proximity to the Styx River and the Conservation Reserve area than the planting around the transfer station itself. There has been a lot of the planting along the Styx River over a 6-year period by students of a nearby Intermediate School during Conservation Week.

The only comments about waterbirds came from residents of Regents Park (area A).

Summary evaluation

The transfer station has no effects on bird activity that are seen by residents as having negative impacts in the neighbourhood.

Other effects observed

Two residents commented about the presence of wild cats, and two recalled an incident of explosion and fire at the transfer station one night several years ago.

Cats

Two residents in the Cunliffe St area (area B) commented on the presence of wild cats, although neither did so without prompting. This residential area is still part of the peri-urban fringe (i.e. on the interface between sub-division and open paddocks) where wild cats are a familiar phenomenon - *“abandoned cats all around - they adopt us!”*.

Transfer station staff reported that many cats have arrived at the facility in rubbish brought by the public - *“On occasions unwanted cats have been disposed of in this way and at other times a neighbour’s cat has been brought accidentally to the transfer station”*. They suggested that the reason there are no problems with vermin on site is the permanent presence of cats.

Hazards

Two residents of Regents Park (area A) recalled an explosion and fire which had occurred at the transfer station one night several years ago. The source was unknown, and one resident described the event as being *“attended to straight away”*.

The transfer station supervisor also reported two other occasions during its many years of operation when the facility was closed as a result of hazardous wastes having been identified on site. In such situations, the procedure is to clear the site of members of the public before deciding on suitable action to dispose of the dangerous waste. Removal is carried out by emergency services and the transfer station staff are given medical checks. There has never been any indication of a threat to persons or property off site, and no concern has ever been expressed by neighbours.

Summary of responses

The following two tables (3 and 4) provide a summary of the proportions of those interviewed who discussed particular effects in their responses to the structured questionnaire. It is important to note that these percentages do **not** represent the proportions of neighbours who experienced significant off-site impacts.

Table 3: Summary table of responses from residential neighbours (N=38)

Effect reported	% Unprompted	% Unprompted + Prompted
Litter	37	66
Noise	21	34
Traffic congestion/speed	0	21
Odour	3	13
Visual change		37
Birds		8
'Kerb crawlers' (N=8) ¹⁴	25	50

The four main effects - litter, noise, traffic and odour - all display a distance-related pattern. As expected, they are more noticeable closer to the facility¹⁵.

Table 4: Spatial distribution of observations reported

Effect reported	% Unprompted + Prompted		
	Total sample (N=38)	'Near' areas (N=17) (A,B,C)	'Far' areas (N=21) (D,E)
Litter	66	82	52
Noise	34	41	29
Traffic congestion/speed	21	35	10
Odour	13	24	5

¹⁴ This is an effect peculiar to area A of the survey, being a new residential sub-division under development for much of the period being assessed, and therefore an area likely to attract attention from the inquisitive.

¹⁵ Areas A and B are 300m-500m from the operational area, while areas D and E are 500m-800m from the operational area.

F: Long-term effects of the transfer station on settlement patterns and development in the locality

Main Conclusions

During the planning for the northern transfer station at Styx Mill, the following longer-term issues were raised:

- inappropriate industrial zoning - proximity to residential areas; land of potentially high productivity
- negative impacts on the local shopping area - proximity to the transfer station
- lowering property values
- a threat to the rural atmosphere
- the site would be needed by NZ Rail (now Tranz Rail)

It would appear that most of these issues were inappropriately attributed to the transfer station.

When asked specifically whether the presence of the solid waste facility had influenced the way their community had developed over recent years, half of those surveyed stated categorically or made comments which implied that they do not believe that the presence of the transfer station has had a negative effect. These views come from respondents spread across all survey areas, and include a good representation of longer-term residents.

No residents expressed the view that the facility has definitely had a negative impact on the way the community has developed. Indeed, survey responses reveal a considerable level of positive feeling and pride -

"Because it is a residential area, it's the right place for a transfer station" (Regents Park)

"It enhances the area. Is very clean and tidy" (Cunliffe St)

"If we retire we would like to stay in the area and move to Styx Mill or Regents Park; we like the area" (Cunliffe St)

"Wouldn't hesitate to buy new at the transfer station again; well managed" (Styx Mill Road)

"Like to live in Regent Park if I could afford it and was younger" (Farquhars St)

"Ten years ago I can recall the public reaction, we were not part of it - couldn't understand it; the transfer station is clean, attractive and effective as a refuse station" (Farquhars St)

"The transfer station is very tidy, clean, well run - 'the best in Christchurch'" (Barnes Road)

"Really handy to have nearby - we use it" (Canberra St)

Several other key informants reinforced this evaluation in their remarks.

Appropriate use of land?

One long-term resident made an unprompted remark that the transfer station had been *"a misuse of the site"*; that *"a beautiful area of rural land was spoiled by the transfer station"*. However, this informant subsequently did not suggest that the facility had had a negative effect on development of the community. The opening of the Styx Wildlife Reserve immediately adjacent to the transfer station suggests that the solid waste facility has not compromised the recreational amenity value. Indeed, the greatest pressure on rural land on the northern fringe of the city has come from the demand for new residential sub-division.

In prompted discussion about the possible effects on property values, one respondent described *"prime real estate in this area; would be better as real estate"*. The subsequent sub-divisions (both existing and still planned) suggest that the presence of the solid waste facility has not compromised this use of land in the locality either. As noted earlier in Section C, the host community has experienced growth rates in population and new dwellings over the past fifteen years that are significantly higher than the Christchurch City average.

Two other survey responses are relevant to this issue. One observed that with all the new residential sub-divisions happening on the northern fringe of the city, it is (in hindsight) a sensible choice of site for the transfer station to cater for such future growth. A Regents Park resident commented that *"it is easy for us to get rid of our rubbish"*.

A real estate agent noted that the increase in traffic on this section of SH74 is viewed positively by those planning to redevelop the commercial area less than 1km north of the junction with Styx Mill Road. The recent commercial developments on the East side of SH 74 have already been referred to.

Impacts on the local shopping area

As noted in the earlier section entitled 'Benefits for trade at local businesses', comments on the operational effects of the transfer station and its users were positive rather than negative. Indeed, there is a distinct absence of negative comment from the local businesses. When asked whether they believed that the presence of the transfer station had influenced the way the business area had developed, four replied 'No' while the fifth confirmed a favourable influence.

Lowering property values¹⁶

Noting that the quality of residential development in the Styx Mill locality is high - "*they are very expensive sub-divisions around the transfer station*" - local real estate agents comment that "*either people are happy to live near a transfer station, or they aren't*". They observe that new residents have been willing to pay the prices asked, if they want what Regents Park has to offer.

Two Regents Park residents (out of eight) expressed uncertainty as to whether the close proximity of transfer station and sub-division had created difficulties in buying and selling property there. Several comments from key informants and survey respondents suggest that the large section sizes in Regents Park Stage 1, and the asking price (e.g. >\$150,000 for ½ to ¾-acre bare sections, or \$800,000 for a new home) had more effect on the speed of sale. One Regents Park respondent noted that several Stage 1 sections had sold recently at prices considerably above government valuation. Another observed that smaller sections in Stage 2 are now selling for not much less than Stage 1 sections, noting also that these sections are further away from both the railway line and the transfer station.

In prompted discussion about a perceived effect on property values, 30% of residents in the Regents Park and Cunliffe St areas expressed the view that outsiders - e.g. visitors to the locality, taxi drivers, real estate agents working in other parts of the city - rather than local residents have a tendency to make adverse judgements about what it is like to live near a transfer station. Thus there is a perceived problem amongst those who do not have actual experience of living in the locality. One of the real estate agents working in the area indicated that 80% of those buying sections in the Regents Park sub-division come from close by.

A threat to the rural atmosphere

Experience would indicate that the transfer station is not the biggest threat to the rural atmosphere in this locality. Large-scale residential sub-division is going to have a far more profound effect. Also, much of the rural land to the north of the transfer station site had been converted to commercial orchards long before the transfer station was planned. This is now being re-developed for residential use.

The conservation reserve adjacent to the transfer station suggests that the facility has not prevented retention of the last remaining piece of land in this northern part of the urban fringe to have some of the qualities described as "*rural atmosphere*".

Site needed by NZ Rail (now Tranz Rail)

It is evident that this scenario did not eventuate.

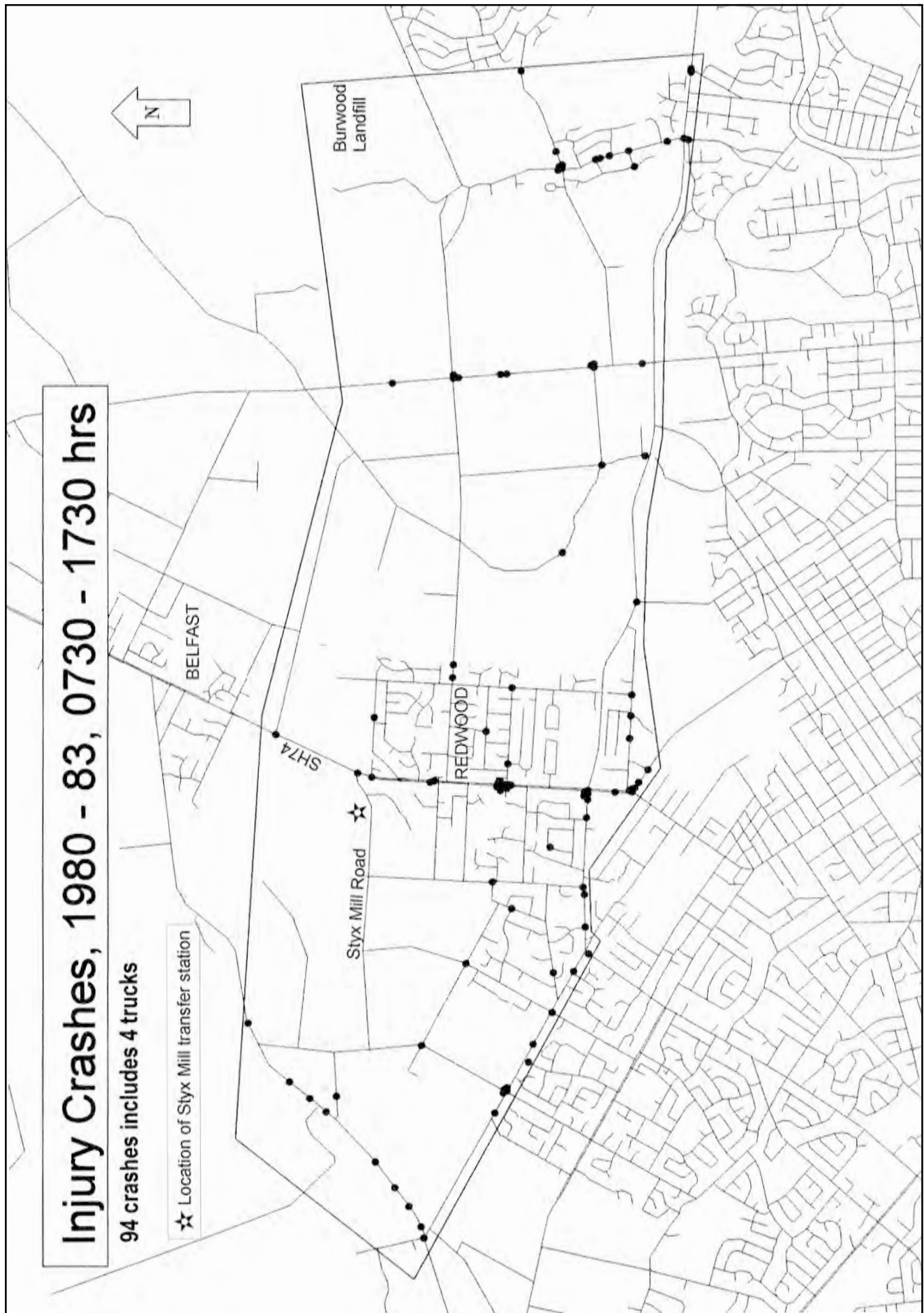
¹⁶ An analysis of property value trends and patterns will be carried out for this case study as part of the next stage of the research, funded by the Foundation for Research Science and Technology.

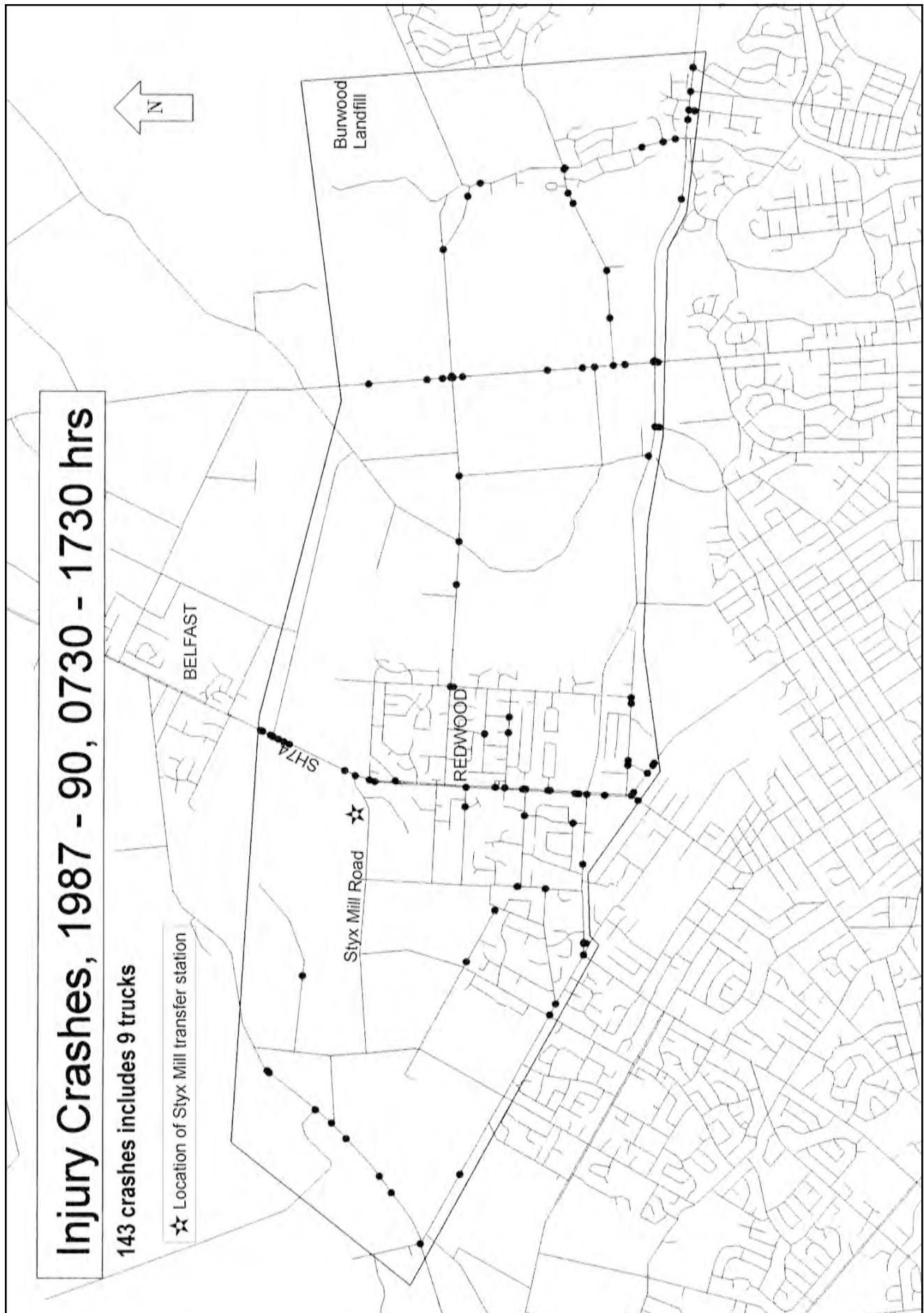
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Appendix I Traffic Accident Summary - in Redwood locality - data from the Land Transport Safety Authority

Truck crashes in Styx Transfer Station study area, 1980 -1990. 0730-1730 hrs Plain English report, run on 15-Dec-1999, Page 1												
First Street ID for landmark Distance (R)	Second street ID for landmark Distance (R)	Crash Number	Date DD/MM/YYYY	Day Time DDD HHMM	Description of Events	Crash Factors		Weather	Natural Light	Junction	Ctrl	Tot Inj F S M A E I T R N
						(ENV = Environmental factors)						
74/0/3.157	50N DANIELS ROAD	8022046	20/03/1980	Thu 1530	TRUCK1 NBD on SH 74 hit rear end of CAR2 stop/slow for PEDESTRIAN (age)	CAR2: service brake failed	ENV: dry	Bright Sun Fine	Unknown	Nil	1	
HILLS ROAD	30S LANGES ROAD	8221416	04/03/1982	Thu 1420	VAN1 NBD on HILLS ROAD hit rear end of TRUCK2 stop/slow for obstruct-on	VAN1: too fast for conditions MOTOR CYCLE1: suddenly swerved to avoid vehicle TRUCK2: failed to give way at give way sign	ENV: wild animal	Dry	Overcast Fine	T Type Junction	Nil	1
74/0/1.169	I RADCLIFFE ROAD	8321055	06/01/1983	Thu 1450	MOTOR CYCLE1 NBD on SH 74 lost control; went off road to left	CAR2: did not stop at stop sign CAR2: impaired ability due to old age	ENV: dry	Bright Sun Fine	X Type Junction	Stop Sign	1	
SAWYERS ARMS ROAD	I GARDINERS ROAD	8322115	06/07/1983	Wed 1312	TRUCK1 SBD on SAWYERS ARMS ROAD hit CAR2 crossing at right angle from right	ARTIC TRUCK(TO 1987)1: suddenly braked BICYCLE2: failed to give way at driveway	ENV: dry	Bright Sun Fine	Driveway	Nil	1	
74/0/3.177	30N DANIELS ROAD	8421188	28/02/1984	Tue 1607	ARTIC TRUCK(TO 1987)1 SBD on SH 74 hit BICYCLE2 (age 10) merging from the left	BICYCLE1: attention diverted by scenery or persons outside vehicle TRUCK2: load not well secured or moved	ENV: dry	Bright Sun Fine	Unknown	Unknown	1	
SAWYERS ARMS ROAD	100W GREERS ROAD	8421298	29/02/1984	Wed 0825	BICYCLE1 (age 14) EBD on SAWYERS ARMS ROAD hit obstruction, hit Debris	MOTOR CYCLE1: too fast on straight MOTOR CYCLE1: suddenly braked CYCLE1: misjudged intentions of other party	ENV: dry	Bright Sun Fine	T Type Junction	Nil	1	
74/0/4.233	I WINTERS ROAD	8421400	04/04/1984	Wed 1310	MOTOR CYCLE1 SBD on SH 74 hit rear of left turning TRUCK2	CAR1: following too closely TRUCK2: didn't signal when turning left TRUCK2: suddenly braked ENV: heavy rain	ENV: wet	Overcast Heavy Rain	Driveway	Nil	2	
1S/332/4.401	120W WILKINSONS ROAD	8521311	08/03/1985	Fri 0800	CAR1 NBD on SH 1S hit rear of left turning TRUCK2	TRUCK2: failed to give way at stop sign ENV: road slippery (rain) ENV: dazzling sun	ENV: wet	Bright Sun Fine	X Type Junction	Stop Sign	1	
MARSHLAND ROAD	I PRESTONS ROAD	8521852	25/06/1985	Tue 1230	CAR1 SBD on MARSHLAND ROAD hit TRUCK2 turning right onto PRESTONS ROAD from the left	TRUCK2: failed to give way when turning to non-turning traffic	ENV: dry	Overcast Fine	X Type Junction	Stop Sign	1	
1S/332/5.554	I SAWYERS ARMS ROAD	8520103	19/11/1985	Tue 0845	TRUCK2 turning right hit by oncoming CAR1 NBD on SH 1S	MOTOR CYCLE1: showing off racing TRUCK2: almost lost below limit TRUCK2: didn't check behind when changing lanes posn or dirn	ENV: dry	Bright Sun Fine	Unknown	Nil	2	
PRESTONS ROAD	800E MARSHLAND ROAD	8621144	01/01/1986	Wed 1502	MOTOR CYCLE1 NBD on PRESTONS ROAD hit TRUCK2 U-turning from opposite direction of travel	TRUCK2: failed to give way at stop sign TRUCK2: did not see or look for other party until too late TRUCK2: windscreen or rear window dirty ENV: road slippery (rain)	ENV: wet	Overcast Light Rain	X Type Junction	Stop Sign	1	
1S/332/5.554	I SAWYERS ARMS ROAD	8722185	19/06/1987	Fri 0928	CAR1 NBD on SH 1S hit TRUCK2 turning right onto SAWYERS ARMS ROAD from the left	CAR1: failed to keep left on intersection TRUCK2: did not see or look for other party until too late	ENV: wet	Overcast Light Rain	T Type Junction	Nil	1	
TRAVIS ROAD	I PARWELL ST	8723195	29/10/1987	Thu 1545	CAR1 EBD on TRAVIS ROAD overtaking hit TRUCK2 turning from side road	MOTOR CYCLE1: overtaking at an intersection MOTOR CYCLE1: overtaking on left ENV: road surface under construction or maintenance	ENV: dry	Bright Sun Fine	T Type Junction	Nil	1	
QUEEN ELIZABETH II	I MARSHLAND	8723176	29/10/1987	Thu 1055	MOTOR CYCLE1 SBD on QUEEN ELIZABETH II overtaking hit TRUCK2 turning right	TRUCK1: didn't check behind when changing lanes posn or dirn	ENV: dry	Bright Sun Fine	Unknown	Nil	1	
1S/332/5.054	500E SAWYERS ARMS ROAD	8723260	10/11/1987	Tue 1322	TRUCK1 NBD on SH 1S changing lanes/overtaking to right hit CAR2 , hit Cliff Bank	BICYCLE1: inattentive	ENV: dry	Bright Sun Fine	Unknown	Unknown	1	
QUEEN ELIZABETH II	500W BURWOOD ROAD	8923211	27/09/1989	Wed 1537	BICYCLE1 (age 20) EBD on QUEEN ELIZABETH II DRIVE hit parked veh	TRUCK1: following too closely TRUCK1: inattentive	ENV: dry	Bright Sun Fine	T Type Junction	Nil	2	
PRESTONS ROAD	I WALTERS ROAD	8923386	11/12/1989	Mon 1445	TRUCK1 EBD on PRESTONS ROAD hit rear of CAR2 turning right from centre line	MOTOR CYCLE1: too fast for conditions MOTOR CYCLE1: overtaking vehicle signaling right turn	ENV: dry	Bright Sun Fine	X Type Junction	Stop Sign	1	
1S/332/5.554	I SAWYERS ARMS ROAD	8920118	20/12/1989	Wed 0750	MOTOR CYCLE1 NBD on SH 1S overtaking hit TRUCK2 turning right	CAR2: suddenly braked ENV: road slippery (rain) ENV: entering or leaving roadside stall	ENV: wet	Overcast Light Rain	Unknown	Unknown	1	
74/0/1.069	100N RADCLIFFE ROAD	9021426	13/03/1990	Tue 1620	TRUCK1 NBD on SH 74 hit rear end of CAR2 stop/slow for obstruction	TRUCK1: load not well secured or moved	ENV: dry	Bright Sun Fine	Unknown	Unknown	1	
1S/332/3.581	700E WILKINSONS ROAD	9022489	01/08/1990	Wed 0816	load or trailer from TRUCK1 SBD on SH 1S hit CAR2		ENV: dry	Bright Sun Fine	Unknown	Unknown	1	





Appendix II Location of Photos - Redwood locality

