



Chapter 3: Land Use Change



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Land Use Change

Briefly

Marlborough's wine industry has established an international reputation for producing consistently high quality wines. The industry has rapidly grown with total land area in Marlborough planted in grapes increasing from 2,655 hectares in 1997 to 22,277 hectares in 2008, an eightfold increase. The speed of the conversion and its visual impact, has brought with it a range of pressures for Marlborough's natural and physical resources and also importantly, for our social and cultural wellbeing.

ISSUES

- Demand for water for irrigation and frost protection.
- Changes in landscape and impacts of land conversion.
- Social concerns.
- Production of waste.
- Amenity and safety concerns.

PRESENT AND FUTURE MANAGEMENT

Demand for water

Marlborough's dry climate means most vineyards need to be irrigated. This has seen a huge demand for water. The number of water permits to take and use water has tripled in the past 13 years from approximately 500 in 1995 to almost 1,500 at present. Because of the lack of available water in some parts of Marlborough, people have looked at other ways for gaining access to water including:

- Taking water when river flows are high, and storing that water in dams, to be used during the irrigation season. A total of 120 water permits to dam water have been granted since 1995.
- Transferring water permit holders from one site to another.
- Transporting water by pipeline to water short areas.
- Communities developing irrigation schemes taking water from other catchments to supply water short catchments.

Landscape changes and impacts of land conversion

The vineyard landscapes of the Wairau and Awatere Valleys contribute significantly to the identity of Marlborough. However, there has been concern over the pace and extent of land converted for viticulture. The visual impact has been significant with trees and shelterbelts present one day and gone the next, as land is made ready for planting with grapes. There are also more buildings and structures (including wind machines) in rural areas than there were 10 to 15 years ago.

In responding to community concerns about the loss of mature trees and shelterbelts, the Council prepared landscape guidelines. The guidelines cover landscaping and planting on private land, around houses and other buildings, on roadsides, alongside streams and drains, within shelter belts, on slopes and within coastal areas. The guidelines are based on a voluntary approach but have been supported by working groups with members from the community, forestry and viticulture sector groups and the Council.

One of the other changes occurring when land is converted for grapes has been a trend to divert and/or straighten creeks and drain wetlands. In doing this work however, there is a loss of habitat for aquatic flora and fauna and this is concerning. The Council is aware it is difficult to minimise the loss of habitat and species when diversions occur and has set up procedures for making sure fish are recovered from channels that are diverted.





Social concerns

Changes experienced in the community brought about by the growth in viticulture include changes in the character of townships, a different ethnical mix, access to social and health services, access to affordable housing for both rental and home ownership and perceptions of increasing criminal activity.

With the expansion of the viticulture industry, the seasonal labour force has grown to over 3,000. Over two-thirds of seasonal workers come from outside of Marlborough. Many of these workers are brought here from overseas under the Government assisted Recognised Seasonal Employer Work Policy. This high number of seasonal workers has created a demand for worker accommodation, which has put pressure on an already tight housing market in Marlborough, both in terms of availability and affordability. Because of concerns about the availability of housing, possible overcrowding and the well-being of seasonal workers, the Council has been looking at accommodation issues associated with the seasonal labour force.

Waste production

The growth in viticulture has seen over 50 wineries set up in Marlborough to process grapes into wine. Most wineries are located in rural areas on the Wairau Plain or in the Riverlands Industrial area. There is a large amount of waste produced and needing to be disposed of from this industry, including posts, irrigation piping, bird protection netting, grape marc, glass, plastics, cardboard and filter media (during processing). Efforts are being made to look at how these waste materials can be recycled or otherwise reused so this waste does not end up in Marlborough's regional landfill. While most grape marc is disposed of as mulch or feed for stock, a significant amount is ending up in the regional landfill. Over a six day period in April 2007, 4.8 tonnes of grape marc was disposed of while in April 2008, surveys recorded 44.8 tonnes of grape marc being disposed of.

In rural areas, wastewater from wineries is irrigated onto land while in industrial areas it is discharged into the Council's reticulated sewerage system. In both cases, as the volume of wine produced has increased, wastewater volume has also increased. The Council's routine monitoring of wineries in rural areas, has shown at times too

much wastewater is applied to land. This can result in ponding and/or runoff of wastewater into water bodies. The high organic content of winery wastewater has also been a problem for wineries discharging into the sewerage treatment ponds. The Council constantly has to make sure the ponds do not become anaerobic (or oxygen starved) during vintage.

Amenity and safety concerns

While there have long been complaints between the effects of traditional rural land uses like farming on residential living, complaints have increased as viticulture has taken over traditional farming areas. Noise complaints have become common with the large number of wind machines erected - some 900 have been erected in the past 10 years. Bird scaring devices (gas guns, motorbikes and shot guns), harvesting equipment and wineries processing fruit in rural areas have also been sources for noise complaints.

Odour from wineries processing fruit and from winery treatment effluent ponds, spray drift from agrichemicals used in vineyards, smoke from vegetation being burnt as part of land conversion, burning of grape prunings and the use of frost-pot burners to protect grapes during frosts, are all aspects of the viticulture industry that have been the subject of complaint. Traffic safety on local roads has also been a problem where there has been an increase in traffic volume and spillages of grapes from trucks transporting fruit from vineyards to processing facilities.

Land Use Change



In depth

Over the last 30 years the Marlborough wine industry has established an international reputation for producing consistently high quality wines. It is therefore not surprising that the viticulture industry has rapidly grown with rural land being readily converted to viticultural production. Up until about 2001 the industry and the planting of vines had been growing at a steady pace. However, in 2001 the conversion of land to viticulture accelerated rapidly, with large areas of pastoral and horticultural land being converted. This change in land use and the significant growth of the viticulture industry has staggered many people. The speed of the conversion and its visual impact has brought with it a range of pressures for Marlborough's natural and physical resources and also importantly, for our social and cultural wellbeing.

Some of the pressures on their own are quite manageable, but when an activity increases in intensity or grows significantly, the effects can also increase in intensity or scale. Land is still being converted and with the establishment of irrigation schemes and water storage options gathering pace, it is likely the planting of vines will continue into the future.

It is because of these pressures that we have included a specific chapter in this report on the changes arising from the expansion of the viticulture industry. We have described the state of plantings as at 2008, the impact on Marlborough's water resources, changes in landscape and loss of waterways, amenity problems (noise, smell, odour) and some social concerns. The detail of some of these pressures in terms of monitoring results or data can be found in other chapters of this report. For example, results over time from the annual winery waste survey are found in the Land chapter, while information about investigations into improving water efficiency is included in the Freshwater chapter. (Where more information on a particular issue is found in another chapter, we have directed the reader accordingly.)

History of Viticulture in Marlborough

The first Marlborough grape vines were planted in about 1873 by David Herd and Charles Empson. Herd ran a commercial vineyard, producing wine at the Auntsfield property, at Meadowbank Farm. After Herd's death in 1905, his son-in-law Bill Paynter continued winemaking at the property until it was abandoned in the 1930s, with the land reverting to farming use. Meadowbank Farm was a huge landholding and much of that land is now the Fairhall/Brancott grape growing area.

George Freeth of Koromiko in 1882 set up Mount Pleasant Wine Vaults, producing fruit wines of all kinds, but this closed down in the late 1950s on the death of his sons. Others involved in viticulture from the 1900s included Harry Patchett and Mansoor Peters in Blenheim. However, the depression of the 1930s ended their ventures.

The revival of viticulture came in the early 1970s when a few international entrepreneurs established vineyards in Marlborough. In 1973, Montana planted its first grapes at Brancott Estate, although at this time, the land use planning rules did not permit grape planting as of right. With the relaxation of the planning rules, others saw the obvious potential of viticulture in Marlborough, and Penfolds (NZ) Wines Ltd, followed by Corbans Wines, had their first vineyards established by 1979. Contract growing was also introduced around this time.

The stone and pip fruit industry were also established crops in Marlborough by 1980 and steadily expanded over the next few years with the introduction of cherries. But, with the market determining better pricing for wine and a few years of inclement weather affecting the stone and pip fruit crops, that development was relatively short lived. Few orchards remain today as land has been converted to vineyards.

In 1986 an oversupply of poor varieties of grapes threatened the viability of the viticultural industry. In order to overcome the oversupply issues the Government intervened and subsidised the removal of grape plants. In Marlborough some 189 hectares of grapes were removed under fund monies from the vine extraction programme. However, this was not that significant with the North Island bearing the highest level of extraction. Despite this minor setback the viticulture industry has continued to grow and was estimated by 1986 - 1987 to cover 1,300 hectares. In 1999 the Council started gathering data on the land area planted in grapes because of developing concerns about the impact of the crop on the limited water resources in the Southern Valleys. Within this area alone, vineyards were estimated in 1999 to be 1,828 hectares in area.

Extent of grape plantings

The total land area planted in grapes has increased from 2,655 hectares in 1997 to 22,277 hectares in 2008, an eightfold increase. Figure 3.1 shows the growth in area of vineyards between 1970 and 2008.

The expansion has initially occurred mainly on the Wairau Plain and in the Waihopai Valley, where land previously used for orchards, cropping and pasture, has now been planted with grapes. As suitable available viticultural land become harder to obtain in these areas, the industry expanded into the Awatere and Wairau Valleys where rapid growth still continues. This extent of grape plantings in the Wairau and Awatere Valleys is shown in Figure 3.1.

The exponential growth in area planted in grapes is also reflected in the tonnes of grapes harvested as shown in Figure 3.2.

Demand for water

Given Marlborough’s climate and soils, the majority of vineyards require irrigation to sustain production. As a result, the last decade has seen unprecedented demand for water in Marlborough. The number of water permits authorising the taking and use of water has tripled in the past 13 years from approximately 500 in 1995 to almost 1,500 at present.

Although the water demand of grapes is less than for other crops, the sheer scale of the land use change has resulted in an overall increase in the demand for, and use of, water since 1995. The expansion of viticulture into areas not intensively farmed in the past has resulted in the desire to access water where there was previously little or no demand. This has put pressure on many of Marlborough’s water resources. The water allocations made available to users through rules in the Marlborough Sounds Resource Management Plan and the Wairau/Awatere Resource Management Plan have become fully utilised with the exception of takes for storage purposes, in the Waihopai River and the Awatere River.

In the Southern Valleys, the taking and use of water from underlying aquifers has exceeded aquifer recharge, resulting in the drawdown of aquifer levels over time. This has subsequently affected the ability of existing users to get enough quantities of water from the aquifers and has resulted in the voluntary rationing of authorised allocations (see Freshwater chapter for further details).

The pressure on water resources, and the fact that some allocation classes have become fully allocated, have prompted people and communities to investigate and pursue innovative approaches for gaining access to water. Examples include:

- Individuals taking water from surface water bodies when flows are high, and storing that water in dams, so that it can be used over the irrigation season when flows are low. A total

FIGURE 3.1: VINEYARD GROWTH 1970 - 2008

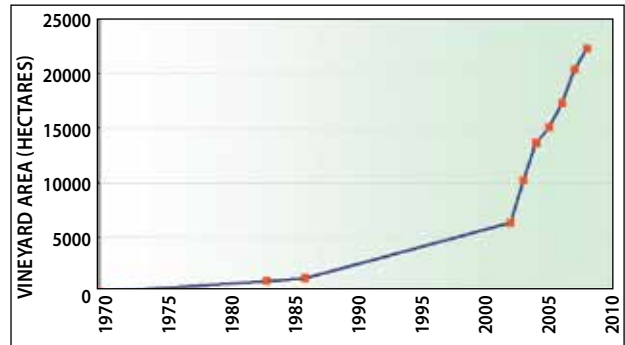
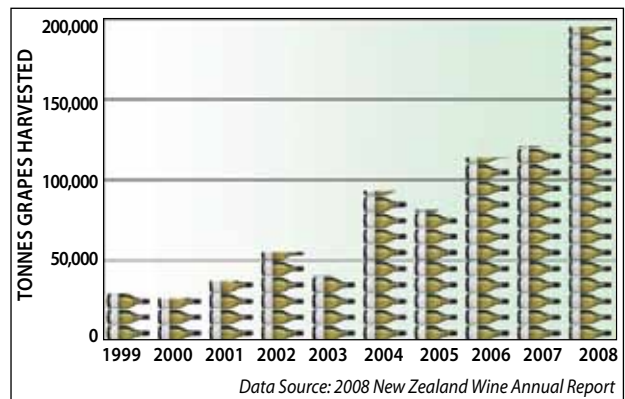


FIGURE 3.2: TONNES OF GRAPES HARVESTED IN MARLBOROUGH 1999 - 2008



of 120 water permits to dam water have been granted since 1995. In some catchments that have limited yield, storing water is the only means of securing access to water.

- Water permit holders who are not fully using their existing allocations, are transferring water permits from one site to another, and/or to another resource user.
- Individuals transporting water by pipeline to water short areas.
- Communities developing irrigation schemes that source water from other catchments to supply water short catchments. The best known examples are the Southern Valleys Irrigation Scheme (see the Freshwater chapter for more information on this) and the Blind River Irrigation Scheme. Other community irrigation schemes are proposed for the Wairau Valley and for the Flaxbourne area.



As vineyards are establishing in areas more prone to frost, there is also now a demand for water for frost fighting purposes. The demand for water for this purpose only occurs for a few nights every year when frosts occur after bud burst or before harvest. The volume of water required is however very large with more than 40 cubic metres of water required per hectare per hour compared to less than 1 cubic metre per hectare per hour for irrigation. Such large instantaneous water takes put pressure on smaller rivers and streams.

The frequency of extreme climatic events, including droughts, appears to be increasing in Marlborough. In the last ten years alone, Marlborough has experienced two significant droughts, which have exacerbated existing problems of securing reliable supplies of water. It is worth noting that the long-term climate forecasts predicts this trend to continue into the future.

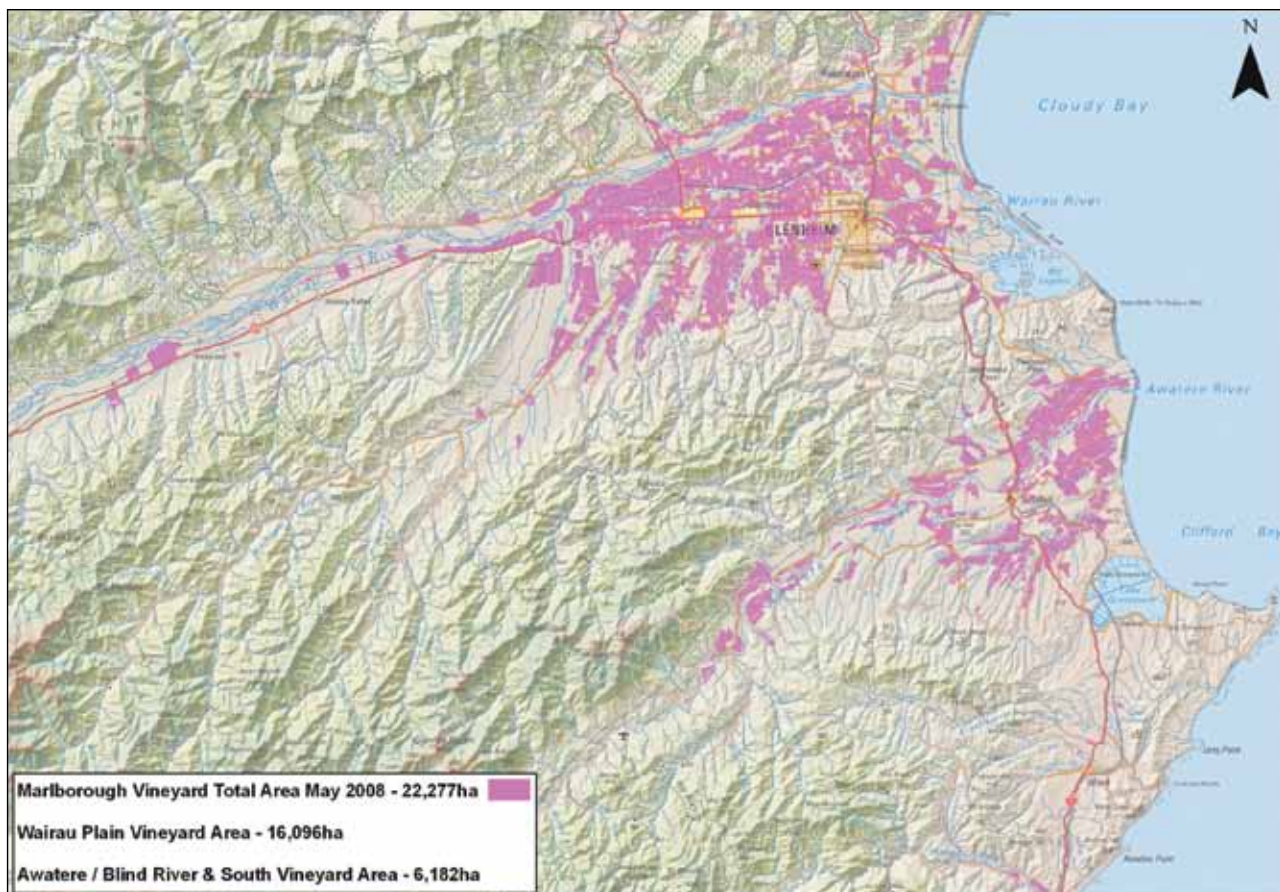
Partly in response to the increase in the intensity of water use, especially in areas where demand has been low in the past, the Council has initiated investigations to improve our understanding

of Marlborough's water resources. Significant investigations include; ongoing work to model the Wairau Aquifer, investigating the source of groundwater (see Setting the Scene chapter), a study of stream fed streams on the Wairau Plains, a review of the water resources in the Flaxbourne area and research into the water demands of grapes under different environmental conditions. (Information about these last three investigations can be found in the Freshwater chapter.) In several cases investigations have resulted in changes in how water is managed by the Council.

Diverting waterways

The potential financial returns from grapes provide an incentive to maximise planted area. This has resulted in a trend to, amongst other things, minimise landscaping, recontour land to reduce slope, divert and/or straighten creeks and drain wetlands. Of greatest concern have been the diversion and straightening of creeks and drainage of wetlands. This results in a loss of habitat

FIGURE 3.3: VITICULTURE AREAS ON THE WAIRAU PLAIN, AWATERE VALLEY, BLIND RIVER AND FURTHER SOUTH - 2008





One of a series of irrigation dams, Blind River Valley, south of Seddon

for aquatic flora and fauna, especially in the few remaining small wetlands. Small remnant wetlands are also more susceptible to the detrimental effects of pest plants and animals, human induced changes to the catchment and local hydrology and pollution. This means smaller wetlands need more intensive management to keep them healthy. The systematic drainage of Marlborough's wetlands has stopped but wetlands continue to disappear with pressure to increase the area of potentially productive land.

Since 1998 the Council has granted 225 resource consents for water permits to 'divert water'. Many of these have been for the diversion of parts of waterways towards irrigation intake points, but in a few cases, the diversion of an entire waterway has occurred.

In October 2003, approximately 700 metres of Are Are Creek was diverted into a new channel to allow a vineyard to expand. (Are Are Creek runs through the southern part of the Kaituna Valley and flows into the Wairau River downstream of the State Highway 6 road bridge.) One of the conditions of the resource consent granted to allow this, was for a programme to be in place to recover stranded fish from the old channel.

The actual process of diverting the water into the new channel was a gradual one, which meant that fish species could be transferred from the old channel to the new. During this

process approximately 700 eels and 350 inanga and bullies were recovered from the old channel. Of these only about 50% were alive when recovered - these were then transferred to the new channel. However, what became very clear once the water had been completely diverted from the old channel was that there were many eels, inanga and bullies that had eluded capture and not been recovered, and which subsequently died. The lessons learnt from this operation have been used to develop new procedures for fish recovery programmes.

At regular intervals since the diversion of Are Are Creek, fish surveys have been carried out to see whether the new channel will establish populations of species equivalent to those in the original channel. To date surveys have shown that eight of the nine species recovered during the recovery programme have returned to the new channel. The numbers of each species are however, still down on what was there previously. This can be put down to a change in habitat, as the new channel does not yet have significant volumes of instream debris, streamside vegetation or undercut banks to provide suitable fish habitat.

The Council has also had to deal with occasional illegal diversions of waterways. Since 2005 the Council has undertaken seven enforcement actions for the illegal drainage or diversion of waterways and wetlands. (This involved three separate events in which digger operators and landowners were prosecuted.) The



Are Are Creek immediately after the diversion



Diverting a waterway

largest fine imposed by the Environment Court in these events, was \$15,500 against a vineyard developer who undertook a channel realignment, diverted the waterway from its natural course and cleared the riparian vegetation to allow for the expansion of the planted area of the vineyard.

Landscape changes

The vineyard landscapes of the Wairau and Awatere Valleys are regarded as contributing significantly to the identity of Marlborough. These landscapes appeal to some with the orderliness of the vines, the extent of area planted in vines and in autumn, the colours of the vines as they change from green to red and gold. Despite this there have been views expressed in the community about the pace and extent of this expansion and the changes in the landscape especially on the Wairau Plain. The visual impact of land being converted for grape growing has been significant with trees and shelterbelts present one day and

gone the next. The diverse landscape of paddocks, farm animals, stands of trees, shelterbelts and variety of crops that people had become accustomed to, have been rapidly replaced with rows of vines. Land is still being converted and with the establishment of irrigation schemes and water storage options gathering pace, the planting of vines is likely to continue.

This growth has resulted in changes in people's perceptions of what some of Marlborough's rural areas are now like. It is thought that these areas are now more 'industrialised' with greater use of machinery, more noise, more sprays and an increasing number of wineries. There are many more buildings and structures in rural areas, especially on and around the Wairau Plain and in the Awatere Valley, than there were 10 to 15 years ago. The addition of wind machines to protect grapes from frost has also added a new dimension to the landscape.

In response to community concerns about the removal of mature trees and shelterbelts from land being converted for grapes, the Council prepared a landscape concept plan, to help and encourage landowners in their plantings on the Wairau Plain. The 'Wairau Plain Landscape Concept Guidelines' were published in late 2002 and discuss overall design, where to plant and what to plant. They cover landscaping and planting on private land, around houses and other buildings, on roadsides, alongside streams and drains, within shelter belts, on slopes and within coastal areas. The guidelines are based on a voluntary approach to planting on private land and were initially supported through two working groups. The first, made up of members from the community and from forestry and viticulture sector groups, looked at ways to promote improved landscaping on private land. The second group developed landscape initiatives on public land administered by the Council. (More on the landscape groups can be found in the Heritage and Landscape chapter.)

Social concerns

There are changes being experienced in the community that have been brought about by the growth in viticulture. Some of these include changes in the character of townships, a different ethnical mix, access to social and health services, access to affordable housing for both rental and home ownership and perceptions of increasing criminal activity. A study looking at some key issues for the Seddon township is described in the box - 'Change in Seddon township'.

With the expansion of the viticulture industry there has been a need for an increased workforce to service the seasonal demands



Wairau Valley shelterbelts removed for vineyard developments

of the industry. This has seen the seasonal labour force grow to over 3,000 with the peak occurring in the winter months during the pruning season. Over two-thirds of seasonal workers come from outside of Marlborough and many of these are now brought here from overseas under the Government assisted Recognised Seasonal Employer Work Policy. This scheme allows for the temporary entry of overseas workers to plant, maintain, harvest and pack crops in the horticulture and viticulture industries to meet labour shortages. It is geared towards Pacific Island nations, although workers are able to be employed from other countries in some circumstances.

Associated with this demand for workers is a requirement for worker accommodation. In response to this demand, accommodation for workers is now provided in backpacker hostels, camping grounds, purpose built worker accommodation, rental housing and in some motels that have been converted specifically for worker accommodation. There has also been some debate about whether these workers should be accommodated in the towns of Renwick, Blenheim and Seddon; or near the areas that they are working in.

The increase in numbers of workers required in the pruning season places pressure on an already tight housing market in Marlborough, both in terms of availability and affordability. Some of the concern about the influx of seasonal workers is the impact it has on housing availability and affordability for Marlborough residents, especially for those on a low income.

The Council is aware of housing issues in the district through the work of the Centre for Housing Research. In collaboration with

the Ministry of Economic Development and Work and Income, the Centre commissioned a series of wide ranging reports on housing issues in Nelson, Marlborough and Tasman in 2006. The reports identified housing affordability issues exist not only for rental accommodation for seasonal workers but that broader problems exist for a 'wide variety of groups in the community that may struggle to find affordable housing'. An increasing and more diverse population was putting pressure on infrastructure, including housing. Housing issues are therefore not new but the seasonal worker accommodation problems place more pressure on Marlborough's resident population.

People have raised concerns through the media and in complaints to the Council about the issues of overcrowding and unsanitary conditions, as well as landlords making large profits in commercial type activity in residential houses.

The main concerns are:

- The health and safety issues associated with overcrowding. The health risk of communicable disease, especially Tuberculosis (TB) and Hepatitis A and the effect overcrowding has on the mental health of its occupants is very relevant in Marlborough. All cases of TB in the last 3 years have been identified with international seasonal workers.
- There is also a high degree of concern from the Fire Service around the potential for a major incident and loss of life in some of the accommodation provided for seasonal workers, especially where large numbers of people are accommodated in unregulated residences.



- Some operators in the tourism industry have also voiced concern over the impact seasonal worker issues will potentially have on an industry that delivered \$188.8 million to the Marlborough economy in 2006.
- There are also concerns around the well-being of seasonal workers, especially those workers from overseas.

At the time of preparing this report, accommodation issues associated with the seasonal labour force were being investigated by the Council. A focus for the investigations was the extent and issues associated with seasonal workers' accommodation and the most appropriate options available to the Council to address these.

Waste production

The growth in viticulture is reflected in the number of wineries that have been established to process the grapes into wine. There are now over 50 wineries in Marlborough, most of which are located in the rural environment of the Wairau Plain or in the Riverlands Industrial Estate. In rural areas, wastewater is irrigated onto land (see the Land chapter), while in industrial areas the wastewater is discharged into the Council's reticulated sewerage system.

As each year's vintage has increased alongside the expansion of planted area, wastewater management has presented significant challenges for winery managers and the Council. In some cases, insufficient land has been set aside for land disposal of winery wastewater, resulting in excessive application and ponding of wastewater and/or runoff of wastewater into water bodies. The high organic content of winery wastewater has also created problems for the management of the Blenheim sewerage treatment ponds, with the Council working hard to ensure that the ponds do not become anaerobic (or oxygen starved) during vintage.

Grape marc



In addition to the waste produced from processing grapes, there is a significant amount of other waste that is being generated by the viticultural industry. Posts, irrigation piping and bird protection netting are constantly being replaced in vineyards. With the increased area of vineyard plantings, there is an increased amount of waste being disposed of each year. During processing, aside from winery wastewater and grape marc being produced, glass, plastics, cardboard and filter media are also generated.

While there are efforts being made to look at how these waste materials can be recycled or otherwise reused, there is the potential for significant amounts of waste to end up in Marlborough's main landfill. The volume of grape marc being disposed of in the landfill over the past two years has risen dramatically. In surveys undertaken at the landfill over a six day period in April 2007, 4.8 tonnes of grape marc was disposed of. In April 2008, surveys recorded 44.8 tonnes of grape marc being disposed of. This is reflective of the significant increase in harvest from 2007 to 2008 - 120,888 tonnes of grapes were harvested in 2007, while in 2008, 194,639 tonnes of grapes were harvested. More information about the volumes of vineyard waste and some of the responses to deal with this waste can be found in the Waste and Land chapters.

Amenity and safety concerns

There have long been conflicts between traditional rural land uses such as agriculture, horticulture and forestry, and residential living. The conflicts can be long running or are sometimes only apparent for short periods of time. These conflicts occur on the boundaries of towns, where town meets country, and where residential living is surrounded by rural land. Sometimes conflicts may also arise where industrial or commercial developments have been allowed to set up in rural areas. While some people do not regard viticulture as 'new', others do not accept it as a 'traditional' land use in the same way that farming is regarded. However, whether people view viticulture as a new or traditional land use, there is no denying that it has a range of amenity effects that have been the cause of complaint. The types of issues that cause concern are:

- Noise, especially from bird scaring devices such as gas guns, motorbikes and use of shot guns, wind machines for frost protection, harvesting equipment and wineries processing fruit in rural areas.

CHANGE IN SEDDON TOWNSHIP

Often the changes that are being experienced within our communities are most acutely felt in the smaller townships. One example of this is Seddon, a small rural township in the Awatere Valley. Since mid 2007, the Council, the Awatere community and key agencies have been looking at some key issues identified by the local community. These were:

- Pressure on the current community infrastructure to provide for the social, recreational and housing needs that already exist.
- The lack of resources to meet the social and recreational needs of young people in the community and the lack of response from agencies to serious issues when identified.
- The influx of vineyard workers expected in the community to meet the labour force required to service the existing vineyards and those proposed.

Following on from this, the Council commissioned a study to see what information was available on issues facing the Seddon community, which had been made worse with the influx of seasonal workers now in the community.

The study did find the rapid increase in numbers of seasonal workers living in the area as vineyards are developing, was having a huge impact on Seddon's normally resident population of 513. The labour requirement for vineyards in the Awatere Valley has been estimated to be 800 to 1000 workers during the pruning season and 500 temporary workers and about 200 permanent workers, during summer. Over 200 vineyard workers are living in the Seddon area, while others are travelling in from Blenheim and other areas every day. Of these 200 workers, 80 to 100 are workers brought here through the Government assisted Recognised Seasonal Employer Work scheme.

With the introduction of this scheme, which is geared towards Pacific Island nations, many of the new workers in the Awatere Valley are Pacific people. The ethnic makeup of the Seddon population is therefore changing, as the Pacific population grows further and the number of Asian workers decreases. Interestingly though, the 2006 census figures for Seddon show a 3.1% increase in residents identifying with the Asian ethnic group, compared with 0.6% in the

2001 census. The story is the same for the Pacific Peoples ethnic group with 0% identifying with this grouping in the 2001 census, rising to 3.1% in the 2006 census. The figure is likely to be higher now given the governments Recognised Seasonal Employer Work scheme is focussed on workers from Pacific island nations.

The study found that the Asian population has a fairly low profile, as its workers work long hours and don't tend to congregate in public areas. The Pacific workers are more visible as they do tend to socialise in groups in public areas.

There have also been changes in housing with an increase in rental properties occupied by vineyard workers and homes being sold and becoming rented since the 2001 census. Sixty-five percent of dwellings in Seddon were owned with or without a mortgage in the 2006 census, down from the 73% recorded in the 2001 census. Purpose built housing for vineyard workers has increased and more is planned for Seddon. These changes should be able to be quantified in the next census. The study noted that residents have reported seeing people regularly sleeping in cars and also living in overcrowded or poorly maintained houses.

Pastoral care (or the well-being of workers) is a requirement of the Recognised Seasonal Employer Work scheme for vineyard workers. This is a responsibility of contractors who bring overseas workers to New Zealand. The Seddon community has been concerned contractors have not performed well in this area. This has resulted in church groups and local people stepping in and providing help with clothes, firewood, meals, advocacy and friendship.

Overall the report identified that Seddon is a community rich in community buildings, recreation areas and community spirit. The people are generally welcoming of the seasonal worker population but are currently feeling overwhelmed by the rapid changes that are occurring. The capacity of the Seddon community to maintain services and relationships is being stretched and they are seeking support to move forward, as these changes are forecast to continue with current vineyard development planned out to 2013.



- Smell from wineries processing fruit and from winery treatment effluent ponds.
- Spray drift from agrichemicals used in vineyards particularly where this happens in close proximity to urban areas or to residential dwellings in rural areas.
- Smoke where vegetation is burnt as part of land conversion, burning grape prunings and the use of frost-pot burners to protect grapes during frosts.
- Traffic safety on local roads where there is an increase in traffic volume and spillages of grapes from trucks transporting fruit from vineyards to processing facilities.

More information about noise issues can be found in the Land chapter especially about the use of frost protection fans. Use of these fans has increased significantly in the last couple of years, as the plantings of grapes have shifted into areas that once would have been marginal for planting because of frost. The use of helicopters for frost protection also creates ongoing noise issues for the community. However, there is little the Council can do to manage this use, as the control of helicopters once they are aloft, becomes Civil Aviation's responsibility.

Issues with odour, smoke from frost-pots and spray drift are described in the Air chapter. Effects on the transport system from the rapid growth of viticulture in Marlborough includes an increase in road freight, an increase in the amount of slow and/or oversized vehicles and machinery on the road, and a change in settlement patterns with vineyard workers seeking accommodation closer to vineyards. With the large volumes of grapes being harvested every year, and transported by local roads to wineries there have also been increases in grape spillages on roads which can cause safety problems for other road users.



Frost protection fan

Vineyard

