

# Sieve mapping report – constraints and opportunities

Akaroa Harbour Basin Settlements Study  
September 2008

## Summary

Sieve mapping (the mapping and analysis of constraints and opportunity areas) has been undertaken for the eight urban settlements of the Akaroa Harbour Basin (Wainui, Tikao Bay, French Farm, Barrys Bay, Duvauchelle, Robinsons Bay, Takamatua and Akaroa). This analysis was undertaken to provide information on areas around the harbour basin that pose constraints (or opportunities) to future settlement consolidation, which would then inform options for settlement growth management.

## Methodology

'Sieve mapping' is a constraints and opportunities mapping process that builds up a number of geographical layers to produce a visual representation of areas that show less (or more) potential for future settlement growth. While there is no current intent to encourage growth of any of the harbour basin settlements, the information presented in this report will help to inform proactive growth management priorities.

### Constraint layers and scoring

Layers that have been applied in the sieve mapping process are listed below. Layers marked with an asterisk (\*) have been mapped as 'potential opportunities layers'; all other layers are constraints.

- Slope instability hazards
- Historic flooding hazard
- Waterways
- Landscape protection areas
- Areas of lesser landscape value\*
- Reserves
- Covenants
- Recommended Areas for Protection
- Areas within 250m of a reticulated water supply\*
- Areas within 250m of a reticulated wastewater scheme\*
- Coastal hazards: storm surge and tsunami (including sea-level rise)
- Potentially contaminating (past or present) land uses
- Protected Trees
- Slopes that receive the least (or most\*) sun
- Historic buildings, sites objects and areas
- Sacred sites (silent files) and Waahi Tapu areas
- Archaeological sites
- Roads, including State Highway setbacks
- Community water supply protection zones
- Setbacks from wastewater treatment plants
- Designations

Each layer has been assigned a score depending on the degree to which the constraint or opportunity is likely to limit (or benefit) built development.

### Mapping and comparison of constraints and opportunities

A final constraints map, which overlays all the constraints across the settlement study areas, has been produced by using a Geographic Information System (GIS) and a grid-based data model. A final opportunities map has also been produced to show areas with greater opportunity. The constraints and opportunities maps have then been compared by identifying areas that have:

- a) few constraints; and
- b) one or more potential opportunity layers.

### Assessment of the potential for infill and expansion

In a final step, the constraints and opportunities maps have been compared with existing residential zoning patterns and non-spatial constraints. This has enabled conclusions to be drawn regarding the potential for settlement consolidation through 'infill' (further development within existing residential zoning) and/or 'expansion' (development adjacent to the existing urban edge).

## Key findings

Some settlements have shown greater potential than others for long-term consolidation, which would therefore need to be managed appropriately. A summary of the overall potential for the consolidation of each settlement is outlined in the table below:

Settlement	Potential for infill	Potential for expansion/ connecting*
Wainui	High	High
Tikao Bay	None	Very low
French Farm	None	Low
Barrys Bay	None	Low
Duvauchelle	High	Moderate
Robinsons Bay	High	Low
Takamatua	Very low	Moderate
Akaroa	Moderate	Low

\*Considers both the potential for the expansion of existing urban zones, as well as the potential for such expansion to connect existing pockets of urban zoning.

### Areas with the most/least potential for infill or expansion

- **Infill:** Duvauchelle, Robinsons Bay and Wainui have the highest potential for development within existing residential zones.
- **Expansion:** It is preferable that any future settlement growth would lead to a more consolidated urban form by 'linking up' existing areas of residential zoning where possible. For this reason, Wainui displays the best potential for settlement consolidation, followed by Duvauchelle and Takamatua. Most settlements, with the possible exception of Tikao Bay, could theoretically tolerate some minor settlement expansion, provided that this occurs: (a) adjacent to existing Residential or Small Settlements zoning; and (b) in areas where there are few (or no) constraints.
- **Least potential:** Tikao Bay, French Farm, Barrys Bay and Robinsons Bay show the least potential for settlement consolidation. This is primarily due to the already 'scattered' or significantly constrained settlement pattern and a general lack of reticulated services.

### Areas with potential for rural-residential development

French Farm, Robinsons Bay and the upper valleys of Duvauchelle show greater long-term suitability for rural-residential development. This is because in these areas:

- (a) there is limited access to reticulated services;
- (b) there are substantial areas of lower constraint; and
- (c) there are particular opportunities present (eg sunny slopes and areas with lesser landscape value).

Further investigation of these areas would require an expansion of the study areas beyond those analysed in this report.

## Cautionary comments

This report takes a broad-scale view of land use constraints and opportunities for each settlement and as such the information in the sieve mapping report should not be used to make decisions regarding specific sites. The sieve mapping exercise is purely an information gathering and assessment exercise, and in no way suggests that certain land should or could be approved for development.

In addition to the general limitations above, this report does not take into account the preferences of landowners and residents of harbour basin settlements, in terms of where and how future growth should be absorbed. Further information gathering and detailed planning will be necessary for any investigations into areas where the management of settlement growth is deemed a priority. This process would include community involvement in identifying growth management preferences. Such detailed planning investigations would need to be undertaken prior to any decisions on whether growth should occur, to what extent and when.