

Stromlo Forestry Settlement

Concept Plan

January 2007

Prologue

This report presents a Concept Plan for the Stromlo Forestry Settlement.

In the ACT new subdivision projects are normally subject to a series of increasingly detailed analysis starting with a Structure Plan, then a Concept Plan followed by an Estate Development Plan. Stromlo Forestry Settlement is however an exceptional case.

While the site has never previously been subdivided there have historically been 20 dwellings on informally recognised blocks that are fully serviced by normal urban infrastructure.

Stromlo Settlement is not a greenfield subdivision.

The proposed reconstruction of the settlement has also already been very widely publicised and accepted through a series of reports including a Sustainability Study, PA and Territory Plan Variation.

This document also incorporates changes made in response to agency comments received after a first round of agency circulation (on a combined Concept Plan and EDP document).

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1 Introduction

This document presents the Concept Plan for the Stromlo Forestry Settlement.

The Concept Plan has been adopted as a Guideline under the Territory Plan. As such the Concept Plan guides planning decisions and is required to be taken into consideration in development proposals.

Stromlo Forestry Settlement will consist of 40 dwellings to be developed in a single stage.

1.1 Background

The Stromlo Forestry Settlement was established in 1928 to provide housing, community and other facilities for the forestry industry and its employees. At the time, development of the settlement reflected the increasing significance of the forestry industry to the emerging ACT economy. During the 1980's changes in work practices led to a decline in the labour requirements of the industry and an associated reduction in the need for accommodation. Management and maintenance responsibilities for the settlement were transferred to public housing, but many of the tenants retained links with the forestry industry.

Immediately prior to the January 2003 bushfires, Stromlo Forestry Settlement consisted of 20 dwellings and a substantial forestry depot. The bushfires burned all but three of the dwellings.

In November 2003, the ACT Government completed the report "Shaping Our Territory" which recommended that the settlement be re-established with an increased number of dwellings allowing the former residents to return. The opportunity was identified to establish a world-class example of a sustainable community.

The Government agreed in principle to the recommendation, subject to the outcome of a Sustainability Study with detailed advice on the social, environmental and economic aspects of the proposed redevelopment.

The "Sustainability Study: Stromlo Settlement" developed a concept plan for the settlement and recommended that 40 dwellings be developed in a considered manner to allow the community to remain and grow.

The Sustainability Study led to a Preliminary Assessment which found that the potential Environmental Impacts of the redevelopment were manageable and acceptable.

A Variation to the Territory Plan (No. 244 – Part Block 2, Section 56 Duffy, Stromlo Village) was adopted by the Legislative Assembly and came into effect in May 2005 to allow the redevelopment to occur.

A Deed of Agreement between the Territory and the Developer (Village Building Company) was signed on 20 December 2006, which facilitates the commencement of the redevelopment of the settlement.

1.2 Site Characteristics

Stromlo Settlement is located to the north of Duffy between the Cotter Road and Warragamba Avenue. The strip of land has been identified as a landscape buffer zone between the existing suburbs of Weston Creek and the probable future urban development in the Molonglo Valley.

The 12 hectare site generally slopes gently to the northeast providing for optimum solar advantage and views towards the city.

A small number of existing undamaged trees are of heightened importance since the bushfires as they provide shelter and landscape amenity that has otherwise been cleared.

Connection to the urban water, sewer and electricity networks has historically been provided and is readily available for the rebuilt settlement.

The development plan respects the historical nature of the settlement and seeks to preserve the road and block layout along with the unique rural character of the settlement.

The Sustainability Study summarised the Stromlo Settlement as:

An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry.

1.3 Planning Context

Under the National Capital Plan the Stromlo Forestry Settlement is identified as an Urban area. There is a 40 metre wide zone identified as Hills, Ridges and Buffer adjoining the Cotter Road reserve and this plan maintains this buffer zone.

Since the adoption of Variation 244 to the Territory Plan, Stromlo Settlement and its immediate surrounds are "Defined Land". The settlement itself is identified as Residential land with the surrounding area as Hills, Ridges and Buffer.

Variation 244 to the Territory Plan was adopted specifically to allow the redevelopment of Stromlo Settlement in accordance with the concept plan presented in the Sustainability Study. The variation identifies relevant principles and policies for the development of the Settlement.

2 Important Planning Principles

Section 7(3)(c) of the Land Act states that where the Territory Plan identifies land as Defined Land, it shall also set the principles and policies for its development. The development of Stromlo Settlement must, therefore, be consistent with the principles and policies established in Variation 244 to the Territory Plan. The relevant principles are listed below together with descriptions of how the Concept Plan responds to each principle and requirement. The attached plans graphically demonstrate the Concept Plan.

Response *Some of the principles and policies have been made obsolete by decisions made about the implementation of the settlement, these include policy statements that relate to community space (community title is not mandatory and is not proposed) and details such as the location of gas bottles at houses (reticulated gas is being supplied).*

They also represent the Important Planning Principles that have shaped the development of the Concept Plan.

2.1 General Planning Principles

Requirement ♦ The development of Stromlo Settlement shall incorporate sustainability principles including, social, environmental and economic considerations and shall be of a high standard.

Response *The ACT Government agreed to the redevelopment of Stromlo Settlement on the strength of a Sustainability Study that considered the Social, Environmental and Economic consequences of the development and recommended that it proceed. The Sustainability Study led to a Preliminary Assessment and to a Territory Plan variation that includes defined land principles and policies for the development. These conditions were written by ACTPLA specifically to ensure appropriate outcomes of the development. The proposal is to be assessed against the requirements of the Territory Plan including these principles and policies.*

Requirement ♦ The low-density village character of the settlement shall be retained. The existing buildings and road layout shall be preserved. There is to be an upper limit of 40 blocks for residential purposes with a prohibition on any further subdivision and dual occupancy development. The central open space shall be preserved to reflect the village character and remain available for public access and shall be a minimum of 1.5 hectares.

Response *40 large blocks are proposed to maintain the low density. The Territory Plan imposes a restriction on future subdivision. The central open space is 1.5 hectares and will be accessible from public roads.*

In the original planning study for Stromlo Settlement (the Sustainability Study) the assumption was made that preservation of all existing roads would occur and that the communal land (including the roads) would be managed through community title.

The introduction of community title at Stromlo was however not a mandatory condition on it's redevelopment, recognising that the proximity to the urban area means that the standard urban services could be provided at no incremental cost to the government, and hence the need for a body corporate to provide these services was greatly diminished.

During the tender negotiation phase between it was agreed that community title would not be introduced at Stromlo.

A consequence of this is that the roads would be public roads and that TAMS would become responsible for the management of any land not on a private lease.

In order to simplify the land management responsibilities for TAMS, it was agreed that larger, more uniformly shaped blocks would be more appropriate (the earlier concept plan has all sorts of odd shapes of community land). It was also agreed that the Y junction in the original village was difficult to resolve from a traffic management perspective and that replacing it with a T intersection would be highly desirable.

While these modifications were being pondered, the decision was also made (by CMD and LDA) that the project could not wait for the resolution of the commonwealth land issue at the western end of the village site. The 7 blocks that were on Commonwealth land had to be replaced by adding 7 blocks in the eastern part of the settlement.

The combination of the above three factors (7 additional blocks, replace the Y junction with a T, rationalise the open space), plus the desire to create an efficient road network led to the layout presented.

Importantly it preserves the original road alignment were it fronts original blocks and it also preserves the original entry point. This layout was presented to the ACT Heritage Unit and they concurred that it was appropriate.

In talking to the residents, many of them valued the tree lined entry and the road approaching the open space. In this layout Road 1 passes through a tree lined entry statement and then the wide road reserve with large trees. It extends further south than the original road to service the blocks in the south east corner of the settlement, but then gently curves around like the original road did to head towards the open space area.

Requirement ♦ Development should be a mixture of public and private housing, with the total number of houses initially under public ownership subject to ACT Housing requirements. Former residents should be given the opportunity to return.

Response *Housing ACT will be given the 19 blocks indicated on the Concept Plan which will give the opportunity for the former residents to return.*

Requirement	◆ Development shall provide an environment that facilitates pedestrian movement as well as the use of bicycles and public transport. Access for the precinct shall link with adjacent land uses by extending the surrounding pattern of paths and adopting a form that is easily recognised as belonging to, and accessible to, the wider community.
Response	<i>The small number of houses will generate minimal traffic, making the roads safe for pedestrian and cycle movement. Pedestrian links to Duffy and a sealed path to the bus stop on Warragamba Ave will be provided. The public roads and links to surrounding fire trails will make the village open and available to the wider community.</i>
Requirement	◆ Best practice environmental controls are to be adopted to ensure development and activities on the site do not adversely impact on surrounding areas.
Response	<i>Development activities will be controlled under existing ACT environmental legislation.</i>
Requirement	◆ Development should encourage the use of low energy systems for lighting, heating and cooling, and appliances. Buildings should be orientated and designed to provide for solar efficiency. Development should utilise existing infrastructure and encourage urban design that reduces potable water consumption and increases recycling of waste water.
Response	<i>All blocks achieve a 5 star energy rating. L&D's require dwellings to achieve a minimum of 5 star and to target 6 star energy ratings. L&D's also require rainwater tanks and compliance with the WSUD guidelines.</i>
Requirement	◆ Landscape elements should maximise stormwater infiltration and minimise irrigation needs. Development is to ensure that adequate downstream water quality is maintained.
Response	<i>L&D's strongly encourage permeable surface treatments and xeriscape gardening. A minimal plot ratio is mandated through the L&D's.</i>
Requirement	◆ Within 5 km of Mount Stromlo, development or installations which may, through night time illumination or significant vibration, adversely effect the operation of the Mount Stromlo Observatory or the associated seismological vault at Mount Stromlo shall be referred to the Australian National University for examination and comment. Reasonable steps shall be undertaken to mitigate adverse impacts and ensure that best lighting practices are adhered to.
Response	<i>Planning will ensure minimal light pollution and the plans will be referred to the ANU for comment.</i>

2.2 Subdivision Design and Development Density

Requirement Development should seek to preserve the low density rural character of the settlement and be consistent with the following:

- ◆ Not more than 40 dwellings shall be permitted in the settlement.

Response *40 single dwelling blocks are proposed.*

Requirement ◆ Block sizes for residential purposes should range from 1000 to 2500 m².

Response *The blocks are generally within this suggested size range with some exceeding 2500 but none larger than 3110m². These larger blocks will help to preserve the low density rural character of the settlement.*

Requirement ◆ Further subdivision shall not be permitted.

Response *This is prevented though the defined land conditions in the Territory Plan and the estate development plan approval process.*

Requirement ◆ Not more than one dwelling shall be permitted on each block.

Response *This is prevented through the L&D's.*

Requirement ◆ Buildings shall be single storey. Attics may be permissible.

Response *This is a requirement of the L&D's.*

Requirement ◆ The maximum plot ratio of all development on the block shall be as determined by the following formula:
$$P = (140/B + 0.15)100$$
 where:
P is the maximum permissible plot ratio expressed as a percentage; and
B is the block area in square metres.

Response *This is a requirement in the L&D's and results in a plot ratio of just 0.2 for the larger blocks.*

Requirement ◆ Subdivision of blocks should ensure that the solar advantage of aspect is maximised and be guided by the ACT Energy Guidelines (1993).

Response *All blocks readily achieve a 5 star rating when measured using these guidelines.*

2.3 Land use

Requirement ◆ The actual boundary between the Residential Land Use Policy area and the Hills Ridges and Buffer Areas policy area (as defined in the Territory Plan) may be adjusted as the development progresses.

◆ The open space within the residential areas shall be preserved and remain available for public access.

Response	<i>The 1.5ha space has been preserved, as have the wide road reserves and the pedestrian links providing access to the space.</i>
Requirement	◆ Sites should be provided for future appropriate uses including communal recycling and composting.
Response	<i>This is less likely to occur since a decision was made to not create community title at Stromlo. The same recycling collection service that operates throughout Canberra will be available to residents. The large blocks provide ample space for the creation of private composting and gardening.</i>
Requirement	◆ Residential leases should enable home business uses consistent with the relevant controls in the residential policy and the character of the settlement.
Response	<i>Home business will be able to be approved at Stromlo in accordance with the Territory Plan residential land use policy.</i>

2.4 Transport and Access

Requirement	◆ The road network should provide for a circular flow of traffic through the settlement with at least one additional emergency egress to a road other than the road from which primary access is obtained.
Response	<i>The road layout provides this circular traffic flow. Emergency egress will be possible via the fire trail connection to Warragamba Avenue. Access to the west will be possible towards the Cotter Road on the existing (but not formally recognised) road through Section 55.</i>
Requirement	◆ Connections with existing cycle ways, pedestrian ways, main road access points and nearby suburban bus stop shall be provided.
Response	<i>These are provided.</i>

2.5 Heritage

Requirement	◆ The existing road pattern, cottages and other items of heritage significance should be conserved, consistent with relevant heritage requirements. ◆ New development should be compatible with identified heritage values and the pre existing rural landscape character.
Response	<i>The ACT Heritage Unit have approved the subdivision layout.</i>

2.6 Landscape and Environment

Requirement	♦ Development should be consistent with a Landscape Master Plan.
Response	<i>A Landscape Master Plan will be provided as part of the Estate Development Plan. An indicative plan is included in the Concept Plan. Landscaping within the settlement will be predominantly natives.</i>
Requirement	♦ The visual impacts for the middle and distant views should be minimised by landscape planting.
Response	<i>Existing and proposed planting in the buffer zone around the settlement will reduce the middle and distant views to the settlement. This will take some time to take effect.</i>
Requirement	♦ Weed control should be a significant consideration in the detailed design, construction and management of the settlement.
Response	<i>The developer will take responsibility for weed control within the holding lease during the development period. Following development TAMS will take responsibility for the public land and all other land will be the responsibility of private leaseholders.</i>
Requirement	♦ Positive action should be taken to improve the support of wildlife in and around the settlement area, this should include appropriate planting of native vegetation to promote links and corridors.
Response	<i>The landscape master plan includes a balance of native plantings to provide habitat and encourage wildlife, and exotic species to recreate the nature of the settlement that was lost in the bushfires. The encouragement of native gardens on private leases and the low density of the development will provide good opportunities for wildlife to return to the settlement.</i>
Requirement	♦ In the relevant sustainability report, trees rated high (H) or very high (H+) in terms of landscape value shall be preserved. Trees rated as medium (M) should be conserved wherever possible.
Response	<i>A tree survey has identified just two trees worthy of preservation. They are indicated on the Tree retention plan and also in the L&Ds.</i>
Requirement	♦ Areas within the Hills Ridges and Buffer Areas Policy shall continue to be managed by the relevant Government agency and replanting will recreate the landscape buffer between the settlement and existing development in Duffy. Provision may be made for community and recreation use.
Response	<i>Noted</i>

2.7 Design and Siting

Requirement Buildings should be designed and located to preserve the existing rural character and include the following elements:

- ◆ Pitched metal roofs (to complement the existing residences and meet the objectives in the relevant sustainability report).
- ◆ Small-scale, articulated and pavilion forms.
- ◆ Informal layouts and elevations.
- ◆ Additive forms and repetitive elements to avoid the appearance of a large building mass.
- ◆ A predominance of horizontal lines, especially for wall cladding.
- ◆ Integration between indoor and outdoor living including verandas, pergolas, breezeways and gauzed areas.
- ◆ Single storey.
- ◆ Light roof colours and wall colours from a neutral palette to complement the rural landscape.
- ◆ Garages sited behind the building line.
- ◆ Minimum side setbacks of 3 metres.
- ◆ Low, transparent (eg wire mesh) front fences.

Response *All of these elements are reflected in the L&D's.*

Requirement Buildings should be designed to comply with the ACTHERS Residential Guidelines 2004 and incorporate the following sustainability principles:

- ◆ Orientation to north, with narrow north south plan to facilitate sun penetration and habitable rooms to face north.
- ◆ Double glazing, shading devices appropriate width eaves to the east, north and west aspects.
- ◆ Internal thermal mass.
- ◆ High levels of insulation.
- ◆ Cross ventilation capacity.
- ◆ Minimal wall heights to minimise heat loss and gain.

Response *The requirement to achieve at least 5 stars will ensure a suitable combination of these initiatives will be adopted for each house.*

Requirement Dwellings shall comply with Appendix III.1 of the Territory Plan. Where there is an inconsistency between Appendix III.1 and these principles and policies the latter shall prevail to the extent of that inconsistency.

Response *This requirement is reflected in the L&D's.*

Requirement	Buildings should incorporate measures in their design siting and landscaping to reduce bushfire risk. Such measures may include: ◆ Weather seals on all openings including garage doors and external doors. ◆ Enclosed gutters, considered roof shape and a preference for metal roofs. ◆ Stainless steel or bronze fly-screens. ◆ Non-combustible fencing material with strategically placed fire proof fences.
Response	<i>All dwellings will be built to comply with Level 1 construction according to AS3959. This is included in the L&D's as is reference to the Authority's Firewise information brochures (Home Design & Construction and Home Gardens).</i>

2.8 Water Management

Requirement	Water management should be based upon the following principles to achieve Water Sensitive Urban Design: ◆ Rainwater tanks should be provided to supplement the supply of potable water. ◆ Where possible grey water should be recycled within the residential block. ◆ Stormwater should be managed via swale drains directing runoff to passively irrigate public open space.
Response	<i>The principles of WSUD have been adopted with the mandating of rainwater tanks at each dwelling in the L&D's and the implementation of swale drainage adjacent to the open space. The large areas of permeable surface treatment and low density of development will ensure the development's impact on stormwater runoff is minimised.</i> <i>As the settlement is serviced by Canberra's existing sewerage network, grey and black water will be piped to Lower Molonglo Water Quality Control Centre where it can be treated (more efficiently in a large plant than in smaller systems) and released for reused by humans and the environment downstream.</i>

2.9 Energy Management

Requirement	Energy management should be based on the following principles: ◆ All homes will meet passive solar design outcomes. ◆ Gas will be used for cooking and heating applications where possible. ◆ The use of high efficiency appliances should be encouraged.
Response	<i>Passive solar design and good design techniques will be utilised to meet the minimum 5 star energy rating for each house. Reticulated gas will be available within the settlement. High efficiency appliances will be used when supplied by the developer and encouraged in other dwellings.</i>

2.10 Bushfire Management

Requirement	The Authority requires all new urban areas to achieve adequate levels of bushfire protection. Consistent with the ACT Planning and Land Authority's guidelines for bushfire risk mitigation, a bushfire risk assessment was undertaken to determine the level of risk posed from ember attack, radiant heat and/or flame contact. The assessment identifies the necessary site specific mitigation measures, which include level 1 construction standards, reduction in fuel loads, landscape controls and asset protection zones. These requirements have been incorporated into the Bushfire Protection Measures plan (C06076-BPM). Bushfire Management will be based on the following principles: ♦ The hydrant system should meet the necessary standards.
Response	<i>The hydrant system will be compliant with F6 requirements.</i>
Requirement	♦ There should be a second means of vehicular egress from the settlement.
Response	<i>The primary access to the settlement is to the east onto Cotter Road. A second emergency egress point is via the fire trail to the south connecting to Warragamba Avenue. There are also three other locations (normally controlled by a locked gate) where vehicles may pass from the settlement into the surrounding fire trail network.</i>
Requirement	♦ Internal roads should provide access for fire appliances.
Response	<i>The design of the internal roads has been accepted by the ACT Fire Brigade.</i>
Requirement	♦ Fire trails should provide access to fight fires.
Response	<i>The location of fire trails has been accepted by the ESA, with the detailed design to be built according to their standard requirements.</i>
Requirement	♦ Fire fighting resources should meet the standard required by the ACT Fire Brigade or Emergency Services Authority.
Response	<i>Other than hydrants and fire trails, the necessary fire fighting resources will be supplied by these agencies.</i>
Requirement	♦ Landscaped gardens within dwelling curtilage should be limited to 20% of area with remainder maintained as mown lawn or other low fire hazard surface.
Response	<i>Management of fire risk within the Home Asset Protection Zone within private leases will be the responsibility of individual leaseholders.</i>
Requirement	♦ Public areas should be regularly maintained to reduce the fire risk.
Response	<i>This will be the responsibility of TAMS.</i>

3 Site Planning Opportunities and Constraints

Preparation of the Sustainability Study included considerable site analysis and led to the development of the concept plan presented in that report and subsequently used as the Outline Plan in Variation 244 to the Territory Plan.

Given the detailed planning that shaped Variation 244 and the specific policies and principles contained in it, there are minimal opportunities to stray from the established plan.

3.1 Constraints

The constraints to development of the site are generally articulated in the policies and principles listed above. They focus on the need to preserve the rural nature of the village, to limit development to 40 dwellings, to ensure sustainable building practices area adopted and to protect the development from bushfire risks.

The existing road and block pattern dictates the layout of much of the site and the few remaining trees will be preserved wherever possible.

The central open space area is to be retained for public use.

There are no significant natural constraints

3.2 Potential

Stromlo Settlement presents enormous potential as a unique development in the ACT. It will build on the following features:

- ◆ Gently undulating land to create interest but not constrain development.
- ◆ General northerly aspects for optimum solar orientation
- ◆ Elevation affording views to the city
- ◆ Proximity to urban areas providing services and facilities
- ◆ Well connected to arterial road network
- ◆ Shielded from encroaching development by landscaped buffer areas
- ◆ A maximum of 40 dwellings to ensure a close-knit community
- ◆ An existing community with strong social networks and high social capital
- ◆ Connectivity to Canberra's open space network for recreation opportunities
- ◆ Large blocks allowing for rural style living in close proximity to the urban environment

The concept plan presented in this document makes the most of this potential.

4 Planning Proposal

This proposed development of Stromlo Forestry Settlement builds upon the proposal that was assessed in the Sustainability Study, commissioned by the Shaping Our Territory Implementation Group in 2004. The Concept Plan is presented on drawing C06076-EDP.

4.1 Features of the Design

The main features of the design have been retained from the earlier works and refine the Outline Plan that was featured in the Variation to the Territory Plan No.244. The features are:

- ♦ A subdivision of 40 blocks
- ♦ 12 of the blocks are defined by their pre-fire boundaries, these blocks will be returned to Housing ACT
- ♦ 7 additional blocks will be returned to Housing ACT to replace the houses that were lost from within the Commonwealth land immediately west of the village site.
- ♦ The general road layout is preserved with wide verges to allow substantial roadside planting
- ♦ The original entrance point is maintained
- ♦ Large block sizes compatible with the pre-fire pattern will ensure a low density of development and large areas of green space.
- ♦ Design controls on housing, imposed through the L&Ds will maintain the semi-rural nature of the settlement.
- ♦ Accessibility through the site will be maintained to facilitate recreation in the landscaped buffer land.
- ♦ Urban quality servicing in a semi-rural environment.

4.2 Compliance with Draft Guidelines

The Draft Guidelines for the Planning and Design of Residential Estates (2005) have informed the preparation of this Plan. It should be recognised however that the desired outcome from the development is an estate which is integrated with the urban area, but distinctly separate from it.

The following comments are provided in response to each element.

4.2.1 *Element 1.1 Neighbourhood Design*

The proposal meets the general intent of the performance criteria where applicable. The settlement will provide a convenient, accessible and attractive neighbourhood which will meet the needs of the community. Importantly, the settlement will add to the diversity of housing choice in Canberra.

The size of the blocks allows for the correct solar orientation of houses.

4.2.2 *Element 1.2 Integrated Movement Networks*

The proposal meets the general intent and performance criteria where applicable. The layout of the settlement provides for functional and safe movement networks that will minimise traffic impacts on the residential neighbourhood.

Pedestrian connection to the existing public transport services in Warragamba Avenue is provided.

Connection to the wider cycling and walking network is provided via the existing forestry trails and roadways.

4.2.3 *Element 1.3 Street Networks*

The simple street network meets the appropriate performance criteria and the general intentions of the guidelines.

4.2.4 *Element 1.4 Pedestrian and Cyclist Facilities*

The proposal meets the appropriate performance criteria and the general intentions of the guidelines.

The existing pathways that connect the settlement to the Duffy pedestrian and cycling network will be formalised.

Footpaths will not be required within the settlement because the traffic generated will be minimal and the road pavement will be available for pedestrian and cycling use.

4.2.5 *Element 1.5 Public Transport*

The proposal meets the relevant performance criteria and the general intentions of the guidelines. All but one of the 40 dwellings lie within 400 metres of the existing bus stop on Warragamba Avenue.

4.2.6 *Element 1.6 Public Open Space*

The provision of open space within and around the settlement is consistent with the intentions of the guidelines. The quantity of open space is higher than would normally be provided, this reflects the desire to achieve a semi-rural lifestyle rather than standard urban development.

4.2.7 *Element 1.7 Block Layout*

The intention of the guideline is to provide a range of block sizes to enable a variety of household types to meet user requirements and to provide suitable solar orientation. The proposed plan contains block sizes that reflect the desired semi-rural nature of the settlement, and follow the pattern set by the existing blocks. The large blocks in the settlement will provide a type of living that is not otherwise available in Canberra, adding to the variety of urban lifestyles that are available. The size of the blocks is sufficient to allow houses to be correctly oriented for solar gain irrespective of the orientation of the block. The general arrangement of the streets in an east-west direction will allow correctly solar oriented houses to also address the street.

4.2.8 Element 2.1 Street Design and On-Street Car parking

The streets at Stromlo provide access to the residential blocks and access for servicing. The verges are wider than normal standards to provide a semi-rural setting and increase the amenity and open nature of the settlement. Details of the road design and service locations are presented in the drawings. Road widths are adequate to accommodate ample street parking.

4.2.9 Element 2.2 Street Construction

Street construction will be based on the relevant Austroads Design and Australian Standards.

4.2.10 Element 2.3 Utilities

The blocks will be serviced with the full suite of urban utilities. The details and locations of these are presented in the attached drawings. The design reflects the intentions of the guidelines and makes use of existing services in the area.

4.2.11 Element 2.4 Waste Management

Kerbside waste collection in the settlement will continue during and post redevelopment. This may involve collection by the civil contractor during critical stages of the construction contract.

4.2.12 Element 3 Water Sensitive Urban Design

Appropriate elements of water sensitive urban design have been incorporated into the concept plans. They are described in the attached drawings and will be implemented through a combination of estate level initiatives and lease and development conditions. The initiatives include rainwater tanks for all houses, swale drainage adjacent to open space and a retention pond at the stormwater outfall.

5 Concept Plan Details

5.1 Stormwater Concept Plan

Being on top of a ridge, this development does not possess any well defined water courses. However the site could be considered to have two catchments, separated by the east/west ridge. The natural northern catchment generally drains toward the north east to the west of the Access Road from the Cotter Road. Discharge from the northern catchment is collected in the southern table drain of Cotter Road. The southern catchment drains generally in a south easterly direction which would result in sheet flow runoff from the catchment. The runoff from the southern catchment would essentially be collected in an earthen cut off drain to the north of Warragamba Avenue.

The stormwater system proposed for this development is based on providing road drainage via inlet sumps and on block drainage accepting the 5 year Average Recurrence Interval (ARI) runoff from rooves and impervious surfaces. Given that all blocks are to be provided with an underground stormwater service connection, the proposed stormwater system includes a general single pipe discharge adjacent to the Access Road off Cotter Road (Refer DWG C06076-SWMP) into the table drain in the southern verge of Cotter Road. Generally the 100 year ARI flows will be conveyed via the road network to discharge in a similar location to the pipe network, i.e. adjacent to Cotter Road.

The location of the site, and the small quantity of the impervious areas, does not warrant a Gross Pollutant Trap (GPT). Overland flows or flows from pervious areas will generally discharge from the site in a sheet flow manner and will effectively be treated by a vegetation buffer provided by the open space beyond the block boundary. Erosion protection will be provided for the discharge point to limit erosion potential in the Cotter Road open drainage channel and minimise the creation of polluted runoff. A small detention pond will be installed at this location to further this pollution control function.

5.2 Sewer Concept Plan

There is some existing sewer infrastructure servicing the site as illustrated on the Sewer Concept Plan (DWG C06076-SMP) which currently drains to the sewers reticulation in Duffy at Warragamba Avenue. Some of this infrastructure shall be retained and used as appropriate.

The Sewer Concept Plan (C06076-SMP) illustrates the proposed layout and the predicted flows generated from the two sewer catchments. One catchment will drain to the existing reticulation outlet and the other catchment (the northern catchment) shall drain to another existing branch main further to the east of the existing connection in Warragamba Avenue. All sewer mains will be 150mm diameter. Grades will comply with ActewAGL Water Supply and Sewerage Standards.

5.3 Water Supply Concept Plan

There are water mains in the existing Stromlo Forestry Settlement providing water to dwellings and above ground hydrants. The reticulation system is connected to the existing 750mm trunk main which runs past the site, adjacent and parallel to Warragamba Avenue.

It is intended that the existing system will be extended to cover the whole site with watermain constructed in the road verge. Given the development comprises only standard residential blocks, 100mm diameter mains are expected to satisfy the water demands, whilst meeting the ActewAGL design standards. Hydrants will be placed at 90m spacing along the mains for fire fighting purposes.

5.4 Utilities

Underground power cables will be provided throughout the settlement. The new electricity cables will be provided in a common trench with other utilities in the road verges.

There is a gas supply main in the southern verge of Cotter Road but no gas mains within the existing forestry settlement site. A connection to the main in Cotter Road and an underground gas main will supply gas to the development. The gas main will be provided for in a common trench with telecommunications and electricity services in the road verges.

The existing dwellings are provided with overhead Telstra services attached to the existing electricity poles. These will be replaced by underground services. The Telstra service will be provided for in a common trench with other utilities in the road verges.

5.5 Bushfire Protection Measures

A report on Bushfire Risk Management Options informed the Sustainability Study on Stromlo Settlement. A further assessment led to the measures shown on the Bushfire Protection Measures Plan (C06076-BPM).

The measures are consistent with the requirements of the Strategic Bushfire Management Plan and the Planning for Bushfire Risk Mitigation guideline.

The specific recommendations for bushfire management include:

- ◆ Provision of secondary access and connection to surrounding fire trails
- ◆ Road and trail widths to provide for fire service access
- ◆ Establishment of a Community Fire unit
- ◆ Inner and Outer Asset Protection Zones linked to the surrounding road network
- ◆ Clear management targets and responsibilities for Asset Protection Zones
- ◆ Development of an emergency response plan

Further details on the bushfire management for the settlement are included in the attached report.

5.6 Landscape Master Plan

The Landscape Master Plan (1957-G3 A) describes the landscape treatment within the road reserves and open space within the settlement.

5.7 Tree Survey and Retention

A tree survey has been conducted and identified a small number of medium value trees. The impact of the bushfire has led to many tree deaths and many other trees being in poor condition.

The tree retention plan identifies just 2 trees of medium value to be retained. Refer to drawing 1957-G2 A.

5.8 Energy Audit

An Energy Audit of the concept plan has been conducted in accordance with the Energy Guidelines¹ (C06067-EAP).

All of the blocks achieve a 5 star rating.

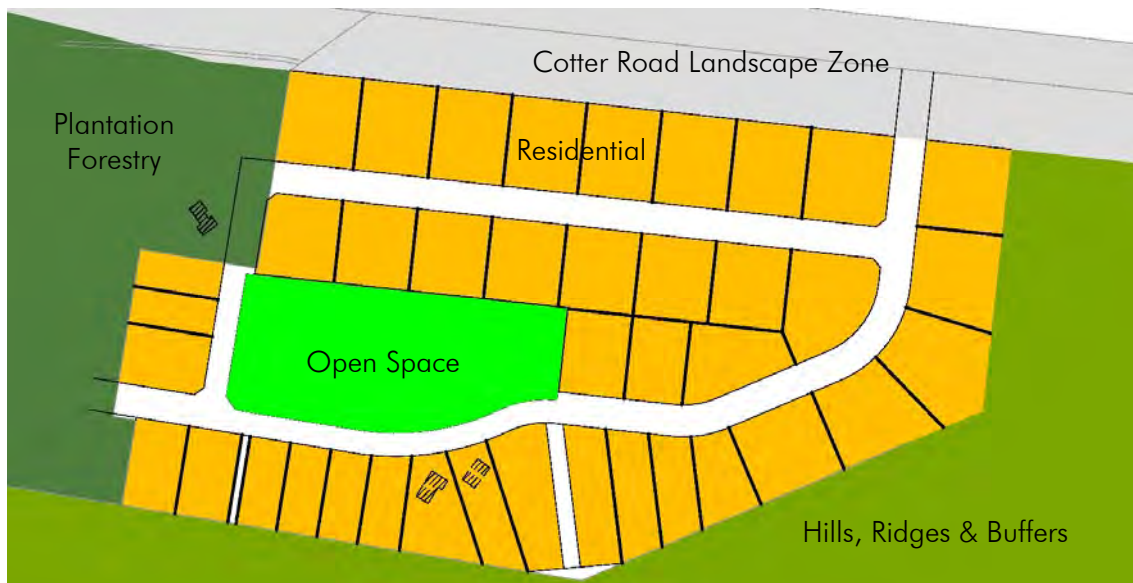
On North-South streets a frontage of 18 metres achieves a 5 star rating. The narrowest in Stromlo is 22 metres.

On East-West streets a frontage of 19 metres achieves a 5 star rating. The narrowest in Stromlo is 24.5 metres.

Angled blocks require a depth of 6 metres to the north from a standard 10 x 15 metre building envelope. Again this is easily achieved on the large blocks at Stromlo.

5.9 Land Use Plan

This plan shows the land use zoning for the settlement. The Cotter Road landscape zone, Plantation Forestry, Open Space, Hills Ridges and Buffers and roadways will all become Territory Land. The residential blocks will be privately leased land.



5.10 Staging

The Stromlo Settlement will be reconstructed in a single stage.

Access for the current residents will be maintained during construction.

¹ Energy Guidelines 1993, Planning and Land Management, ACT Government PPN13.

5.11 Off Site Works

Offsite works will include the improvement of existing fire trails, suitable road entry works, service connections and upgrading existing pathways.

Appropriate approvals for off site works will be obtained as necessary.

BLOCK AND DWELLING YIELD

ABRV	TYPE	DESCRIPTION	AREA	BLOCKS	DWELLINGS
SR5	TRADITIONAL	DETACHED	>650m2	40	40
ESTATE TOTAL				40	40

SR - STANDARD RESIDENTIAL

LEGEND

- RESIDENTIAL BLOCKS
(INCLUDING ATTACHED DWELLINGS)
- PUBLIC OPEN SPACE
- MINOR GRAVEL PATH (1.2m WIDE)
- TREES TO BE RETAINED
- TREES EXISTING
- EXISTING CONTOURS (1m INTERVAL)
- FIRE TRAIL (EXISTING)
- BLOCKS TO BE RETURNED TO TERRITORY

STROMLO FOREST PARK

URIARRA ROAD

FUTURE EAST MOLONGLO
RESIDENTIAL DEVELOPMENT AREA

COTTER ROAD

ROAD 2

ROAD 1

EXISTING HELICOPTER PAD

EXISTING BUS STOP

WARRAGAMBA AVENUE

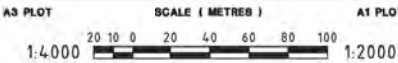
10 DUFFY

SERPENTINE ST

BURRENDONG ST

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FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
A	VAD	KRC	CP	CP	25/09/06	REVISED BLK LAYOUT FOR SEC AD, PATH ALIGNMENT ADJUSTED, BOUNDARY CHANGED
B	VAD	KRC	CP	CP	17/11/06	HOLDING LEASE BOUNDARY, SPEED CONTROL POINT
C						
D						
E						
F						



MICROFILM No.
PROJECT No.

CLIENT



PROJECT

STROMLO
VILLAGE
REDEVELOPMENT

PROJECT

Brown Consulting (ACT) Pty Ltd Engineers & Managers
15 Hall Street Lynham ACT Australia 2602
Telephone 02 6257 1466 Facsimile 02 6247 3070
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast



DRAWING TITLE

CONCEPT PLAN

DRAWING NUMBER

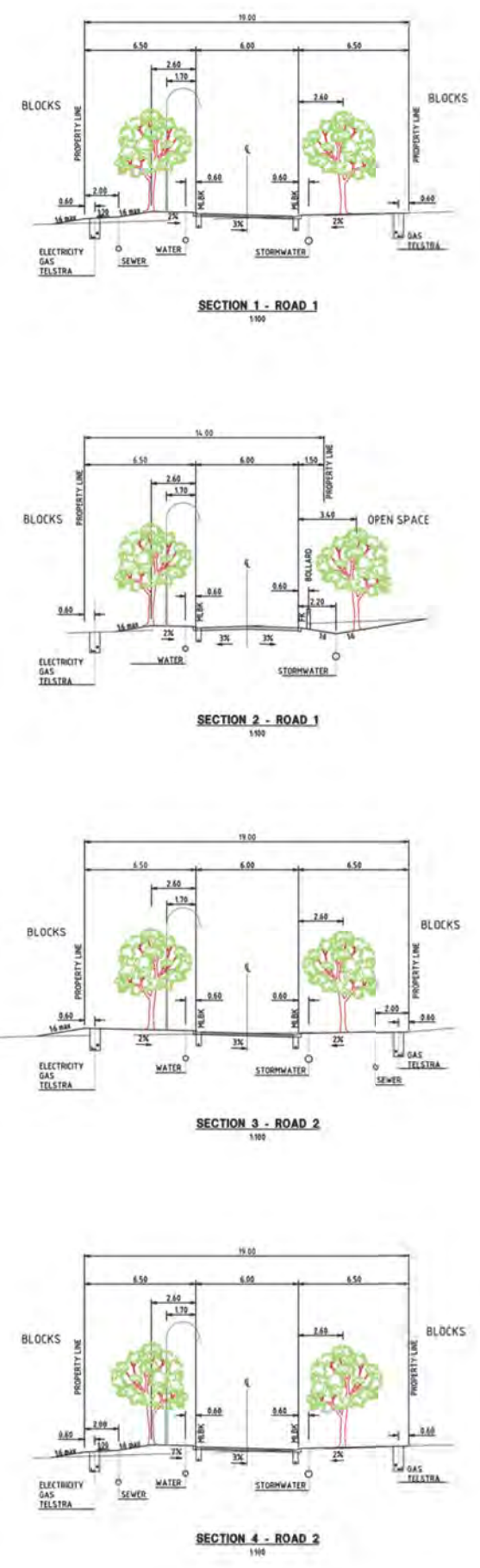
AMEND.

B

Quality
Endorsed
Company
ISO 9001
Lic 4084



- LEGEND
- EXISTING TREES
 - PROPOSED STREET TREE & OPEN SPACE PLANTING
 - PROPOSED STREET TREE
 - PROPOSED STREET TREE
 - PROPOSED OPEN SPACE PLANTING
 - PROPOSED OPEN SPACE PLANTING
 - NON-IRRIGATED GRASS



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NO.	DESIGN	DRAWN	CHECKED	VER'D	DATE	AMENDMENT / ISSUE
B	PB	MH	PB		16/11/06	AMENDMENTS TO E.O.P. RESPONSES/COMMENTS
A	PB	MH	PB		25/9/06	ISSUE FOR APPROVAL

NOTES

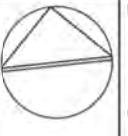
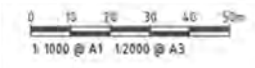
DRAWINGS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION

DIMENSIONS ARE IN MILLIMETRES, UNLESS NOTED OTHERWISE.

USE FIGURED DIMENSIONS - DO NOT SCALE FROM DRAWING

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK OR MAKING ANY SHOP DRAWINGS. ANY DISCREPANCIES TO BE REFERRED TO THE SUPERINTENDENT.

PROVIDE SAMPLES OF ANY SPECIFIED OR PREFERRED MATERIALS OR FINISHES (SUBMITTALS, PAVEMENTS) FOR SUPERINTENDENT'S APPROVAL PRIOR TO PLACING ORDERS.

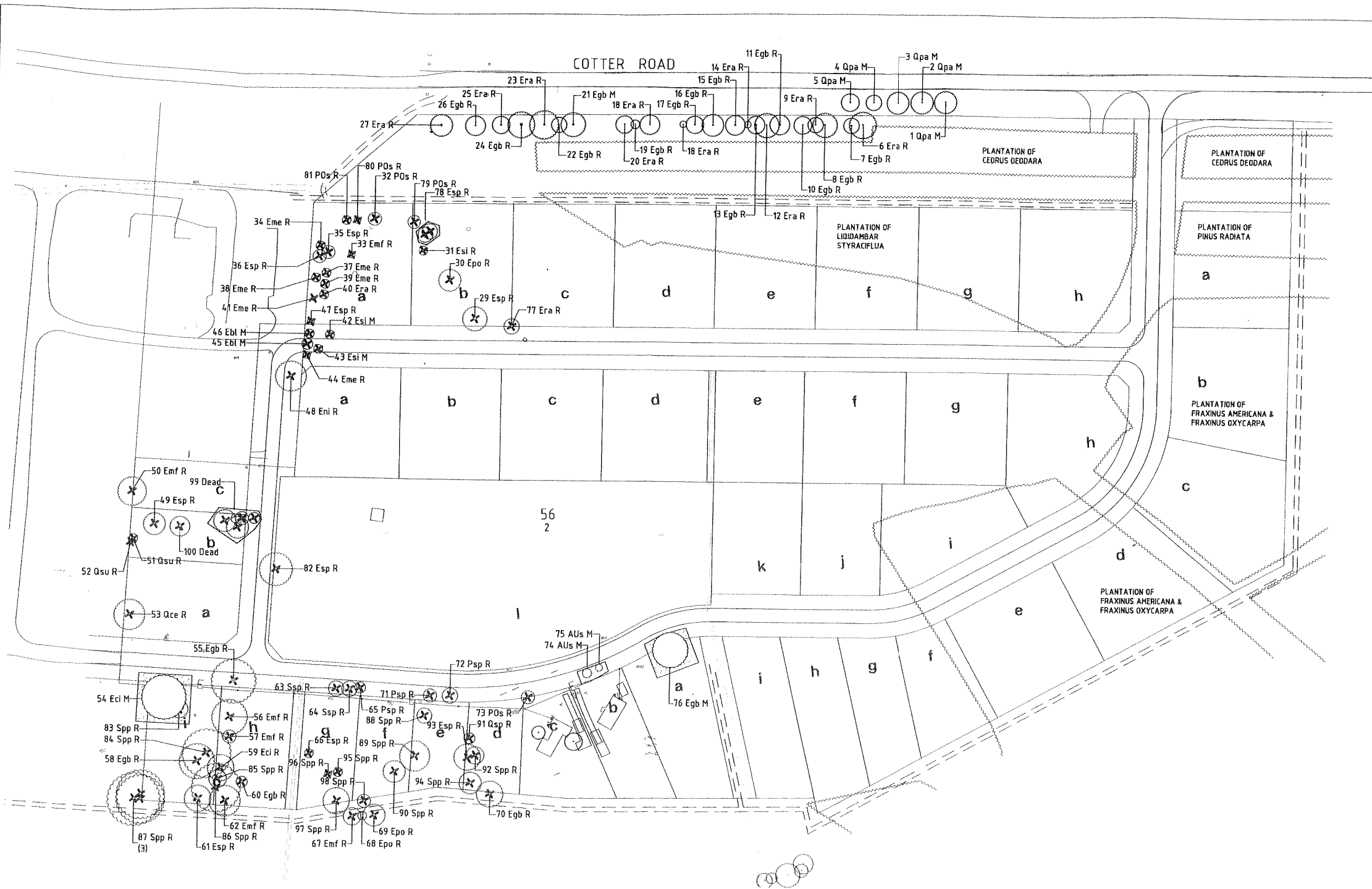


Project
**STROMLO VILLAGE
BLOCK 2, SECTION 56
DUFFY**

Client
THE VILLAGE BUILDING COMPANY

Drawing Title
LANDSCAPE MASTER PLAN

Scale **1:1000 @ A1** Plot Date: 17 Nov, 2006 Sheet No.
Drg. No.
1957-G3 B



- LEGEND & NOTES**
- TREE SYMBOL WITH REFERENCE NUMBER, SPECIES CODE AND TREE MANAGEMENT STATUS.
 - GROUP OF TREES
 - TREE TO REMAIN
 - PLANTATION
 - NO-BUILD ZONE
 - TREE TO BE REMOVED
- MANAGEMENT STATUS**
- E EXTRA HIGH - EXCELLENT TREES TO BE RETAINED REQUIRING ADDITIONAL PROTECTION
 - H HIGH - REPRESENTS THE EXISTING TREES WHICH ARE TO BE RETAINED AND PROTECTED
 - M MEDIUM - TREE/GROUP OF TREES WHICH WOULD BE DESIRABLE TO RETAIN, BUT WOULD NOT WARRANT DESIGN EXPENDITURE TO RETAIN
 - R REMOVE - SPECIMENS OF POOR QUALITY OR OF NO LANDSCAPE SIGNIFICANCE
- KEY TO SPECIES**
- AUs ALNUS SPECIES
 - Ebl EUCALYPTUS BLAKELYI
 - Ecl EUCALYPTUS CINEREA
 - Egb EUCALYPTUS GLOBULUS
 - Emf EUCALYPTUS MANNIFERA
 - Eme EUCALYPTUS MELLIODORA
 - Eni EUCALYPTUS NICHOLII
 - Epo EUCALYPTUS POLYANTHEMOS
 - Era EUCALYPTUS RADIATA
 - Esl EUCALYPTUS SIDEROXYLON
 - Esp EUCALYPTUS SPECIES
 - POs POPULUS SPECIES
 - Psp PRUNUS SPECIES
 - Qce QUERCUS CERRIS
 - Qpa QUERCUS PALUSTRIS
 - Qsp QUERCUS SPECIES
 - Qsu QUERCUS SUBER
 - Ssp SALIX SPECIES
 - Spp TREE SPECIES - DEAD

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ANNEXE A

FINAL VARIATION

Land (Planning and Environment) Act 1991

Variation to the Territory Plan No.244

Duffy

part Block 2 Section 56
Stromlo Settlement

May 2005

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1.3	Stromlo Settlement Outline Plan	3
1.4	The National Capital Plan	4
1.5	National Land	4
1.6	Current Territory Plan Policies	5
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1.8	Defined Land	6
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2.1	Variation to the Territory Plan Map	10
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1. EXPLANATORY STATEMENT

1.1 Background

The forestry settlement of Stromlo was largely devastated in the January 2003 bush fires. In November 2003, the Government completed the *Non-Urban Study (Shaping Our Territory)*. The Study was commissioned to provide advice on the best response to non-urban land use in the wake of the fires and it made a number of recommendations on rural villages including Stromlo Settlement. It found that the settlement offered the opportunity to establish a world-class example of a sustainable community. In relation to Stromlo, the study recommended that the settlement should be re-established to integrate with future urban expansion (as indicated in the Canberra Spatial Plan), while maintaining its separate character. The Study also recommended that the former residents should be given the opportunity to return. In response to these recommendations, the Government agreed in principle to redevelop the settlement pending consideration of a sustainability study, with detailed advice on the social, environmental and economic aspects of proposed redevelopment, a concept plan and related work leading to any changes to the Territory Plan and the National Capital Plan. This Variation responds to the *Stromlo Forestry Settlement Sustainability Study* (the Sustainability Study) completed in May 2004 and sets the policy framework in the Territory Plan required for an enlarged settlement.

The Canberra Spatial Plan was released in March 2004, providing a Strategic Direction for future urban growth and change within the Territory. The Strategic Direction aims to achieve social, environmental and economic sustainability by containing growth, providing good travel connections and employment locations, protecting biodiversity, and contributing to the sustainable growth of the region. A key objective of the Plan is also to provide opportunities for a diverse range of housing for the full range of household types and lifestyle preferences. The Plan states that the rebuilding of rural villages would be considered as long as their sustainability could be demonstrated, consistent with the recommendations of *Shaping Our Territory*.

The Stromlo settlement was established in 1928 to provide housing and community and other facilities for the forestry industry and its employees. At that time, the development of the settlement reflected the increasing significance of the forestry industry to the emerging ACT economy. During the 1980's changes in work practices and increased mechanisation led to a decline in the day labour requirements of the industry and associated accommodation. Management and maintenance responsibilities for the settlement were transferred to the public housing sector, with many tenants still having links with the forestry industry.

1.2 Site Description

Stromlo settlement is located off the Cotter Road, immediately north of the suburb of Duffy. It occupies part of Block 5 Section 55 and part of Block 2 Section 56 in Duffy and lies between existing residential development and the former Stromlo pine plantation. The settlement site is relatively flat and has been generally cleared of native trees. It has good access to nearby metropolitan services and facilities.

Prior to the January 2003 bushfires there were 20 houses at the settlement. The houses were sited on blocks ranging from 1200m² – 1500m². The blocks had not been formally surveyed or subdivided. Reticulated water supply, sewerage and electricity services to urban standards were available to each house. Many houses had access via a rear lane and this aspect was considered important in defining the non-urban nature of the settlement. The settlement also included a forestry machinery depot and headquarters office used occasionally for community functions. A large area of open land in the centre of the settlement was used as an open space and recreation area.

The January 2003 fires caused extensive damage to the settlement and now only three houses remain. The sealed road network and underground services have remained intact. Electricity and communications networks were destroyed but have since been reinstated to service the remaining houses.

The fires of 2003 considerably reduced the sample of twentieth century forestry houses in the ACT and this has increased the significance of surviving structures. Other features of heritage interest include the road layout, forestry equipment and the site of an informal memorial. Initial surveys indicate that future development is unlikely to impact on known Aboriginal heritage sites.

1.3 Stromlo Settlement Outline Plan

The *Stromlo Settlement Sustainability Study* recommends that residents whose houses were burnt should have the opportunity to return to a new dwelling on their former block and of a similar size to that previously occupied. The Concept Plan for the settlement as outlined in the Sustainability Study recommends an expanded settlement of 40 dwellings to promote a mixture of both public and private ownership. To maintain a village character, a maximum of 40 blocks is considered appropriate.

The outline plan at **Figure 2.2** is based on preserving the existing buildings and road layout. New blocks will be of a similar size to existing blocks. There will be an upper limit of 40 blocks with a prohibition on any further subdivision and dual occupancy development. The central open space will be preserved to reflect the village character. New residential dwellings are required to achieve adequate levels of bushfire protection. New dwellings will also address issues such as rural character and sustainability. Fire abatement zones will be established and a fire management plan is to be prepared for the settlement. A reticulated hydrant system will be connected to the ACTEW/AGL water supply.

Water supply will be based on a combination of rainwater tanks and potable mains supply. Where possible, grey water will be treated and reused on residential blocks. Roads are to have swale drains managed to direct runoff to

public open space. Access to the settlement will be provided from the existing connection along Cotter Road, as well as an emergency exit onto Warragamba Avenue using an exiting fire trail.

1.4 The National Capital Plan

A strip of land along the Cotter road is included in the Hills Ridges and Buffer Spaces Policy. The remainder of the Stromlo area is identified as an Urban Area in the National Capital Plan and is included as part of metropolitan Canberra.

Implementation of the Stromlo Settlement proposal does not require an amendment to the National Capital Plan.

1.5 National Land

As shown on **Figure 1.1**, the western part of the site is declared National Land managed by the Commonwealth Department of Finance and Administration.

As noted in clause 12.1 of part A3 of the Territory Plan:

Consideration of proposals for development within Designated Areas and on National Land not included within Designated Areas is the responsibility of the National Capital Authority.

The Territory Plan shows this national land under the plantation forestry land use policies.

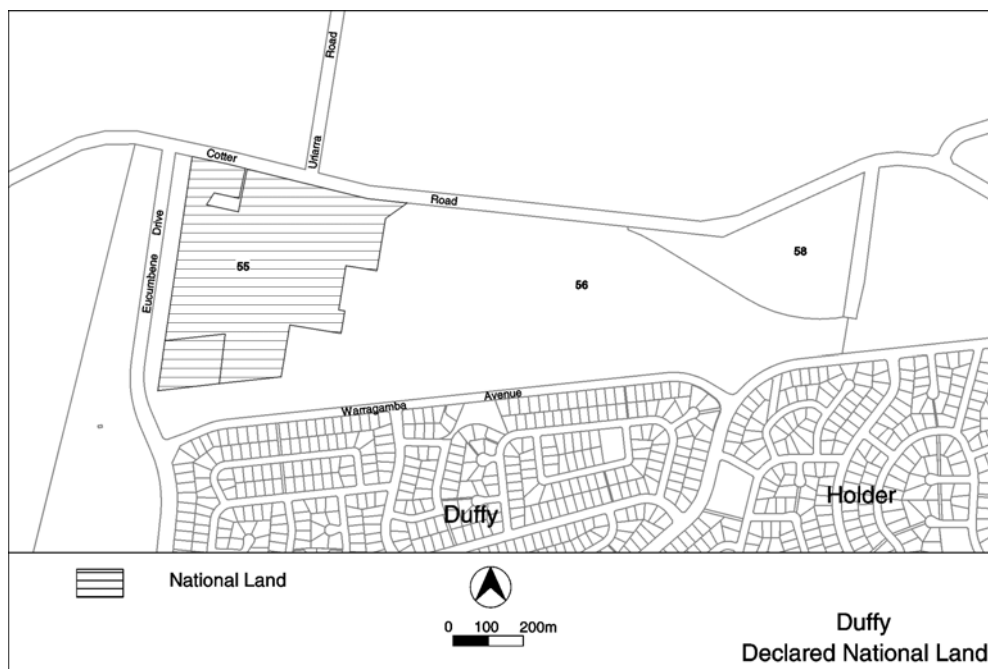


Figure 1.1 Declared National Land

1.6 Current Territory Plan Policies

In the Territory Plan, the forestry settlement, along with the Stromlo pine plantation, is included in the Plantation Forestry policy. This policy is intended to maintain a viable commercial forestry industry while also protecting soil and water quality and providing opportunities for recreation and for landscape enhancement. At the time the Territory Plan came into effect approximately 16,000 hectares were being used for forestry purposes. In addition to forestry plantation and associated activities, permitted uses included a range of agricultural, utility, tourist and recreation facilities.

The existing Plantation Forestry policy recognises the history of Stromlo as a forestry settlement but does not permit the subdivision and issuing of leases for residential purposes.

The existing Land Use Policy for the area subject to this variation is shown in **Figure 1.2**.

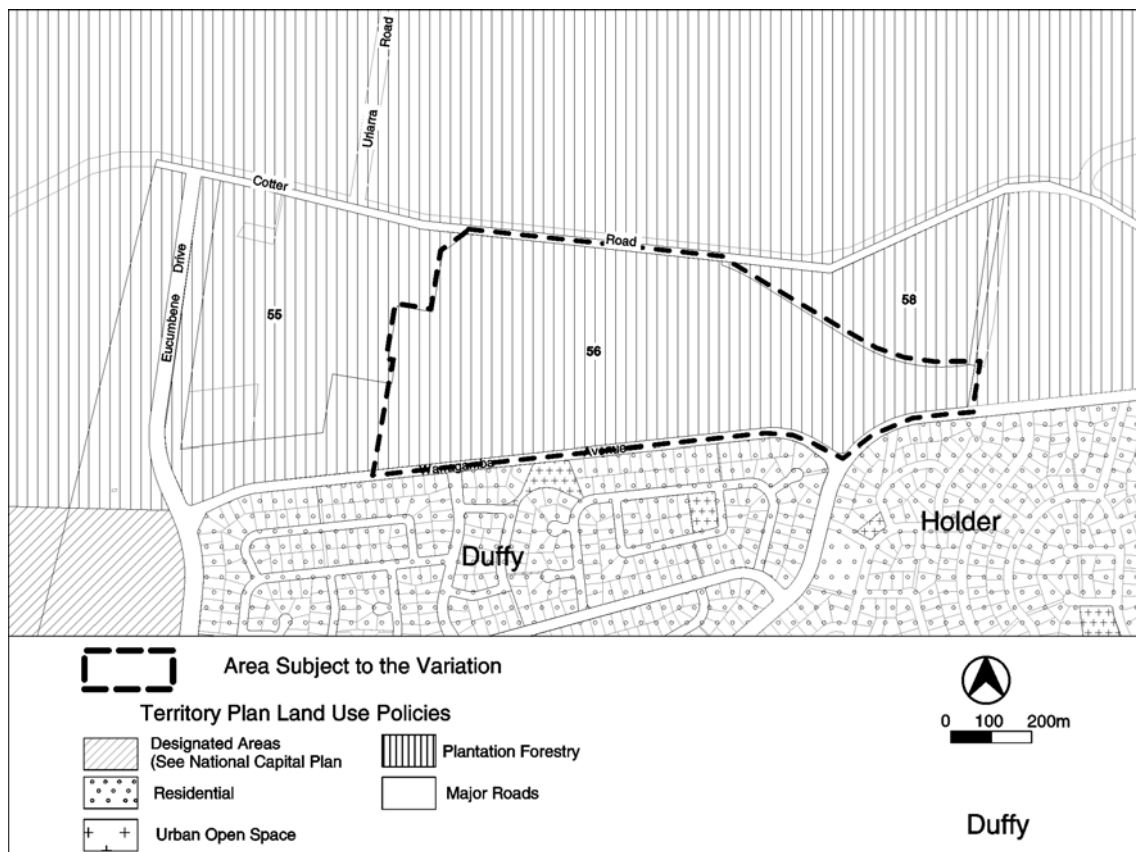


Figure 1.2 Territory Plan Current Land Use Policies

1.7 Changes to the Territory Plan

The variation amends the land use policy on the Territory Plan Map as it applies to Stromlo Settlement, by replacing the existing Plantation Forestry Policy with a Residential Policy. This change affects part Section 56 Block 2 in Duffy and will provide for residential development on the Stromlo Settlement site. A Defined Land Overlay (refer Section 1.8) will be applied to the residential area to allow for any necessary adjustments in response to detailed planning. Development will need to be consistent with the principles and policies at Section 3 of this document.

The remainder of the site will be included in the Hills Ridges and Buffer Areas Policy. The policy aims to protect Canberra's landscape setting, conserve significant cultural and natural resources and provide for recreation use.

The variation map (refer **Figure 2.1**) indicates the proposed land use policy boundaries as accurately as possible but may be subject to adjustments following detailed surveys.

1.8 Defined Land

The Variation identifies the area as defined land in accordance with the provisions of the Land Act. The Territory Plan Map is amended to add the defined land overlay. The Variation also introduces principles and policies for the development of Defined Land in accordance with Section 7(3)(c) of the Land Act.

The Defined Land process enables the Territory Plan to be progressively updated in line with the current best practices while maintaining principles and policies identified for the area. In summary, the process is:

- The land is identified as Defined Land and the principles and policies for its development are set out in the Territory Plan through the normal Plan Variation process. This Variation constitutes the first stage of the process and is subject to public consultation, Executive approval and possible disallowance by the Legislative Assembly;
- Detailed subdivision plans for the development of the site are prepared progressively in accordance with the principles and policies set out in the approved Variation; and
- On approval of the subdivision plans, the ACT Planning and Land Authority subsequently varies the Territory Plan by a notice in the Legislation Register pursuant to section 32 of the Land Act. This Variation specifies the boundaries and purposes for which the various parts of the land may be used. On commencement of the subsequent Variation, the land ceases to be Defined Land.

The principles and policies for the development of Defined Land are detailed at Section 2 of this document.

1.9 Consultation on the Draft Plan Variation

The Variation was released as a draft for public comment in June 2004 with comments closing on 9 July 2004. Written submissions received on the draft Variation were made available for public perusal. Comments from the Conservator of Flora and Fauna received prior to the release of the draft Variation were considered in preparing the document for public release.

A Preliminary Assessment (PA) was released for comment in parallel with the Draft Variation to the Territory Plan. The PA process did not trigger further environmental impact assessment. The recommendations included in the PA evaluation were considered in finalising the draft variation.

The Authority considered issues raised in the submissions and a report was prepared and submitted to the ACT Executive. Reports on consultation with the Conservator of Flora and Fauna, the National Capital Authority and the ACT Heritage Council were also submitted to the Executive.

1.10 Revisions to the Draft Plan Variation

The Variation to the Territory Plan Map has been revised in response to an issue raised by the NCA. The land use policy for the strip of land along the Cotter Road has been changed from Residential to Hills Ridges and Buffer Areas to reflect the policies in the National Capital Plan and the width of this landscape buffer has been set at 40m.

The boundary of the Residential Land Use Policy has also been amended in response to issues relating to land tenure. The proposed development will be accommodated entirely on Territory Land and will be contained within the residential area identified in the Variation. In response, the reference to part Block 5 Section 55 Duffy has been excluded from the Recommended Final Variation.

The Principles and Policies for Defined Land have been amended as follows:

- Principles and policies relating to Community Title and other references in the Explanatory Statement have been removed. The leasing process is separate to the draft Variation process and will occur when the draft Variation is completed.
- The reference in the first principle under the General Principles and Policies at 2.2.1 to a 'world-class standard' of development has been amended as the term 'world class' is not defined.
- The second principle under Section 2.2.1 has been revised to include a minimum dimension for the central open space area of 1.5 hectares.
- The third principle under Section 2.2.1 has been amended because matters relating to the rights of former residents to buy properties are addressed through specific implementation policies initiated by ACT Housing rather than through the development control process. The reference to a 50% ratio of public to private ownership has been amended to indicate that the

percentage under public ownership will be subject to ACT Housing requirements.

- The submission from the Australian National University indicated that the Stromlo Observatory has no objections provided best lighting practices previously discussed with the Authority are adhered to. The submission from the NCA also raised the issue of impacts on the Mount Stromlo Observatory. A new requirement has been added to the General Planning Principles at Section 2.2.1 to reflect the requirement in the National Capital Plan.
- The maximum plot ratio control of 0.35:1 at Section 2.2.2 has been replaced by the sliding scale in the residential policies to limit development. The sliding scale relates to block size and takes account of the larger block sizes proposed in the settlement.
- Subsequent advice has indicated that higher construction standards for new residential dwellings may be required to reduce the risk of bushfire damage, subject to the findings of a Bushfire Risk Assessment. The relevant principles and policies at Section 2.2.2 have been reworded to reflect the Authority's *Planning for Bushfire Risk Mitigation Interim Guidelines, 2004*.
- The policies relating to energy efficient building design at Section 2.2.2 have been clarified to refer to the relevant guidelines (ie the ACT House Energy Rating Scheme (ACTHERS) (Residential Guidelines) 2004). The policies have also been amended to indicate that wide eaves or verandas on the southern aspect are not energy efficient and should not be used because there is insufficient light and solar penetration.
- A policy has been added under the policies relating to subdivision design and development density to indicate that subdivision of blocks should maximise the solar advantage of aspect and be guided by the ACT Energy Guidelines (1993).
- The policy relating to pet control under Landscape and Environment at Section 2.2.2 has been deleted in view of the proximity of the suburb to the urban area.
- In response to issues relating to land tenure, a revised outline plan has been developed to accommodate the proposal entirely on Territory land.

The following changes have been incorporated in response to comments from the ACT Heritage Council:

- The word 'generally' has been removed from the policy relating to building height to ensure that buildings are single storey.
- The reference to 'other items of European heritage' in the policy relating to heritage has been replaced by a reference to 'identified heritage values.'
- The policies relating to Design and Siting have been clarified as follows:
 - ♦ Pitched metal roofs are to complement the existing residences and meet the objectives in the relevant sustainability report
 - ♦ Additive forms and repetitive elements are to avoid the appearance of a large building mass

- ♦ Light roof colours and wall colours from a neutral palette are to complement the rural landscape
- ♦ 'Single storey appearance' has been replaced by 'single storey'
- ♦ Garages are to be sited behind the building line rather than the property line
- ♦ The requirements included a relevant interim Heritage Places Register or Heritage Places Register will take precedence over the principles and policies in this document and controls in Appendix III.1 in the event of inconsistency. (This change has subsequently been deleted as a result of recommendations made by the Planning and Environment Committee and changes made by the Heritage Act 2004, (see below)).
- ♦ Driveways are to be gravel and should be consistent with the existing landscape character
- ♦ Minimum side setbacks are set at 3 metres
- ♦ Front fences should be low and transparent (eg wire mesh).

The Variation has been further revised as a result of recommendations made by the Planning and Environment Committee in its Report Number 5 of April 2005 and changes introduced by the Heritage Act 2004. In particular:

- At Section 2.2.2 the detailed design and siting principle indicating that the requirements included in a relevant interim Heritage Places Register or Heritage Places Register take precedence over other requirements in the event of any inconsistency has been deleted.

Determining heritage significance and its implications is a matter for the ACT Heritage Council and is now made in accordance with the ACT Heritage Act 2004 which works in parallel with other statutory planning documents. Under the heritage legislation, the preparation and assessment of heritage requirements is the responsibility of the Council. The ACT Planning and Land Authority considers the Council's advice in determining development applications and is obliged to ensure the impact on heritage significance is avoided or minimised.

- At Section 2 Outline Plan, a notation has been added to indicate that the block layout is indicative and may be amended to allow opportunities for solar access to be maximized.

In addition, to clarify the intentions of the principles and policies at Section 2, an indicative Area Specific Policy has been included. The Area Specific Policy will be incorporated in the Territory Plan Map and Written Statement to ensure that relevant controls continue to apply after the Defined land Overlay is removed.

2. VARIATION

2.1 Variation to the Territory Plan Map

The Territory Plan map is varied for the area shown as subject to variation by replacing the Plantation Forestry Land Use Policy with the Residential Land Use Policy and Hills Ridges and Buffer Areas Land Use Policy and adding the Defined Land Overlay as shown in Figure 2.1 below.

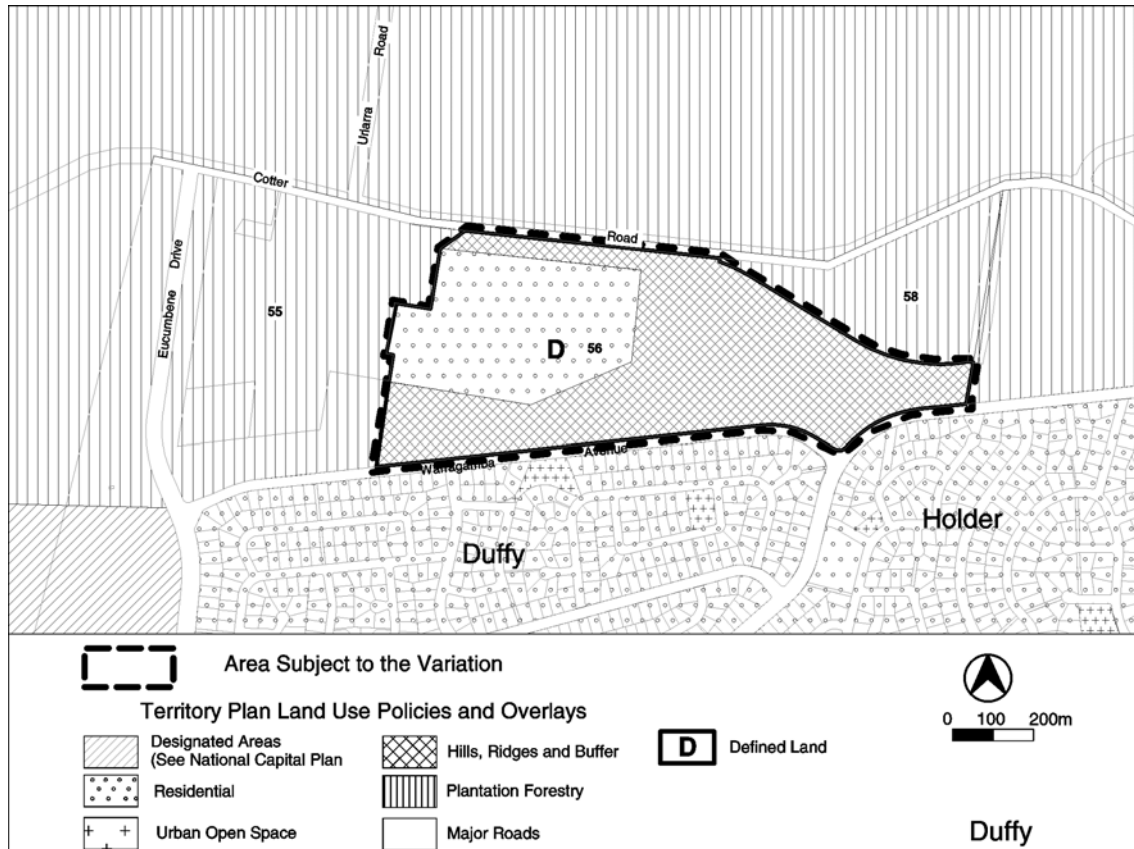


Figure 2.1 Territory Plan Land Use Policies

2.2 Defined Land Principles and Policies

Section 7(3)(c) of the Land Act states that where the Territory Plan identifies land as Defined Land, it shall also set the principles and policies for its development. The Land included in this Variation is proposed to be 'Defined Land' pursuant to section 7(3)(c) of the Land Act. The Defined Land process establishes that the development of this land must be consistent with the Principles and Policies contained in this Variation. In addition the process enables the Territory Plan to be progressively updated as the detailed designs for the area unfold.

2.2.1 General Planning Principles

- The development of Stromlo Settlement shall incorporate sustainability principles including, social, environmental and economic considerations and shall be of a high standard.
- The low-density village character of the settlement shall be retained. The existing buildings and road layout shall be preserved. There is to be an upper limit of 40 blocks for residential purposes with a prohibition on any further subdivision and dual occupancy development. The central open space shall be preserved to reflect the village character and remain available for public access and shall be a minimum of 1.5 hectares.
- Development should be a mixture of public and private housing, with the total number of houses initially under public ownership subject to ACT Housing requirements. Former residents should be given the opportunity to return.
- Development shall provide an environment that facilitates pedestrian movement as well as the use of bicycles and public transport. Access for the precinct shall link with adjacent land uses by extending the surrounding pattern of paths and adopting a form that is easily recognised as belonging to, and accessible to, the wider community.
- Best practice environmental controls are to be adopted to ensure development and activities on the site do not adversely impact on surrounding areas.
- Development should encourage the use of low energy systems for lighting, heating and cooling, and appliances. Buildings should be orientated and designed to provide for solar efficiency. Development should utilise existing infrastructure and encourage urban design that reduces potable water consumption and increases recycling of waste water.
- Landscape elements should maximise stormwater infiltration and minimise irrigation needs. Development is to ensure that adequate downstream water quality is maintained.

- Within 5 km of Mount Stromlo, development or installations which may, through night time illumination or significant vibration, adversely effect the operation of the Mount Stromlo Observatory or the associated seismological vault at Mount Stromlo shall be referred to the Australian National University for examination and comment. Reasonable steps shall be undertaken to mitigate adverse impacts and ensure that best lighting practices are adhered to.

2.2.2 Detailed Planning Principles and Policies:

The Authority requires all new urban areas to achieve adequate levels of bushfire protection. Consistent with the ACT Planning and Land Authority's guidelines on bushfire risk mitigation, a bushfire risk assessment will be undertaken to determine the level of risk posed from ember attack, radiant heat and/or flame contact. The assessment will also identify any necessary site-specific mitigation measures, which may include higher construction standards, reduction in fuel loads, landscape controls or asset protection zones. Any requirement will be incorporated into and inform detailed planning and construction.

Subdivision Design and Development Density

Development should seek to preserve the low density rural character of the settlement and be consistent with the following:

- Not more than 40 dwellings shall be permitted in the settlement.
- Block sizes for residential purposes should range from 1000 to 2500 m².
- Further subdivision shall not be permitted.
- Not more than one dwelling shall be permitted on each block .
- Buildings shall be single storey. Attics may be permissible.
- The maximum *plot ratio* of all development on the block shall be as determined by the following formula:

$$P = (140/B + 0.15)100$$
 where:
 P is the maximum permissible plot ratio expressed as a percentage; and
 B is the block area in square metres.
- Subdivision of blocks should ensure that the solar advantage of aspect is maximised and be guided by the ACT Energy Guidelines (1993).

Land use

- The actual boundary between the Residential Land Use Policy area and the Hills Ridges and Buffer Areas policy area may be adjusted as the development progresses.
- The open space within the residential areas shall be preserved and remain available for public access.
- Sites should be provided for future appropriate uses including communal recycling and composting.
- Residential leases should enable home business uses consistent with the relevant controls in the residential policy and the character of the settlement.

Transport and Access

- The road network should provide for a circular flow of traffic through the settlement with at least one additional emergency egress to a road other than the road from which primary access is obtained.
- Connections with existing cycle ways, pedestrian ways, main road access points and nearby suburban bus stop shall be provided.

Heritage

- The existing road pattern, cottages and other items of heritage significance should be conserved, consistent with relevant heritage requirements.
- New development should be compatible with identified heritage values and the pre existing rural landscape character.

Landscape and Environment

- Development should be consistent with a Landscape Master Plan.
- The visual impacts for the middle and distant views should be minimised by landscape planting.
- Weed control should be a significant consideration in the detailed design, construction and management of the settlement.
- Positive action should be taken to improve the support of wildlife in and around the settlement area, this should include appropriate planting of native vegetation to promote links and corridors.
- In the relevant sustainability report, trees rated high (H) or very high (H+) in terms of landscape value shall be preserved. Trees rated as medium (M) should be conserved wherever possible.
- Areas within the Hills Ridges and Buffer Areas Policy shall continue to be managed by the relevant Government agency and replanting will recreate the landscape buffer between the settlement and existing development in Duffy. Provision may be made for community and recreation use.

Design and Siting

- Buildings should be designed and located to preserve the existing rural character and include the following elements:
 - Pitched metal roofs (to complement the existing residences and meet the objectives in the relevant sustainability report).
 - Small-scale, articulated and pavilion forms.
 - Informal layouts and elevations.
 - Additive forms and repetitive elements to avoid the appearance of a large building mass.
 - A predominance of horizontal lines, especially for wall cladding.
 - Integration between indoor and outdoor living including verandas, pergolas, breezeways and gauzed areas.
 - Single storey.
 - Light roof colours and wall colours from a neutral palette to complement the rural landscape.
 - Garages sited behind the building line.
 - Minimum side setbacks of 3 metres.
 - Low, transparent (eg wire mesh) front fences.
 - Gravel driveways with the existing landscape character.

- Buildings should be designed to comply with the *ACTHERS Residential Guidelines 2004* and incorporate the following sustainability principles:
 - Orientation to north, with narrow north south plan to facilitate sun penetration and habitable rooms to face north.
 - Double glazing, shading devices appropriate width eaves to the east, north and west aspects. Wide eaves or verandas on the southern aspect are not energy efficient and should not be used because there is insufficient light and solar penetration.
 - Internal thermal mass.
 - High levels of insulation.
 - Cross ventilation capacity.
 - Minimal wall heights to minimise heat loss and gain.
- Dwellings shall comply with Appendix III.1. Where there is an inconsistency between Appendix III.1 and these principles and policies the latter shall prevail to the extent of that inconsistency.
- Buildings should incorporate measures in their design siting and landscaping to reduce bushfire risk as determined by a bushfire risk assessment. Such measures may include:
 - Weather seals on all openings including garage doors and external doors.
 - Enclosed gutters, considered roof shape and a preference for metal roofs.
 - Stainless steel or bronze fly-screens.
 - Non-combustible fencing material with strategically placed fire proof fences.
 - Considered location of gas cylinders.

Water Management

Water management should be based upon the following principles to achieve Water Sensitive Urban Design:

- Rainwater tanks should be provided to supplement the supply of potable water.
- Where possible grey water should be recycled within the residential block.
- Stormwater should be managed via swale drains directing runoff to passively irrigate public open space.
- Curbs and gutters should not be provided.

Energy Management

Energy management should be based on the following principles:

- All homes will meet passive solar design outcomes.
- Gas will be used for cooking and heating applications where possible.
- The use of high efficiency appliances should be encouraged.

Bushfire Management

Bushfire Management should be based on the following principles:

- Precise details will be informed by a bushfire risk assessment, consistent with the ACT guidelines on bushfire risk mitigation.
- The hydrant system should meet the necessary standards.
- There should be a second means of vehicular egress from the settlement.
- Internal roads should provide access for fire appliances.
- Fire trails should provide access to fight fires.
- Fire fighting resources should meet the standard required by the ACT Fire Brigade or Emergency Services Authority.
- Landscaped gardens within dwelling curtilage should be limited to 20% of area with remainder maintained as mown lawn or other low fire hazard surface.
- Common areas should be regularly maintained to reduce the fire risk.

2.2.3 Outline Plan

Development shall be generally in accordance with the outline plan at **Figure 2.2**. The layout of proposed new blocks is indicative and subject to the principles and policies in this document, may be amended to ensure that the solar advantage of access is maximized

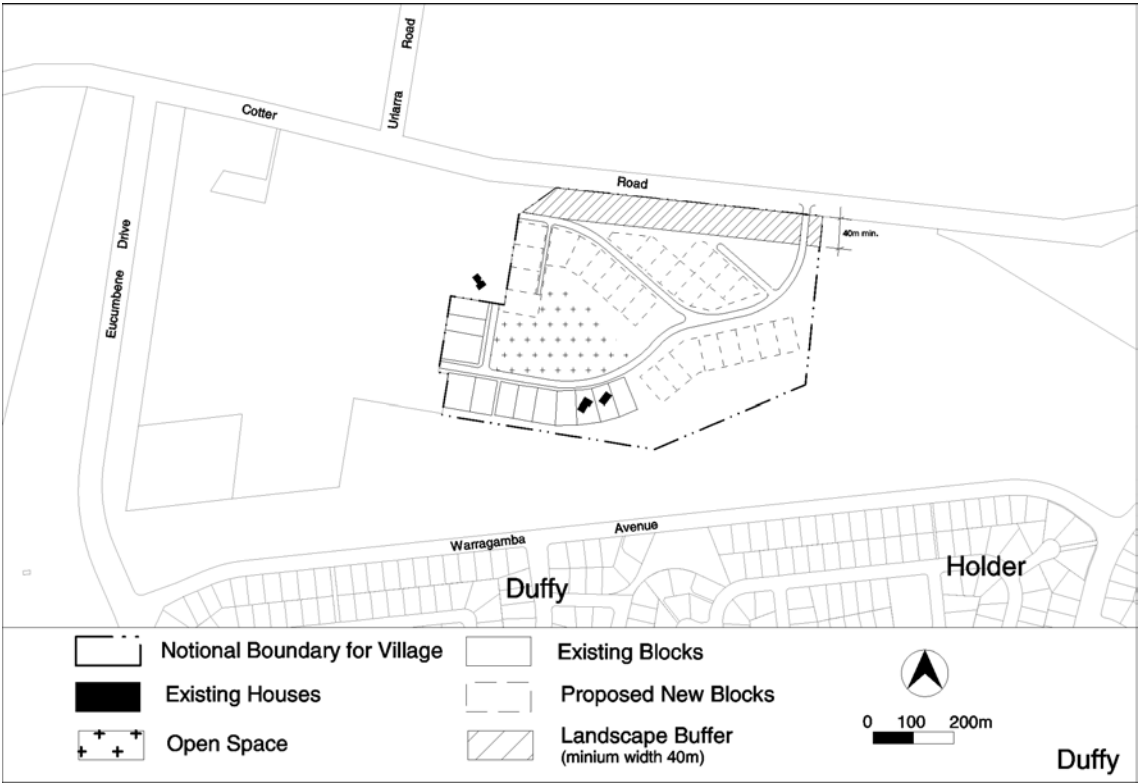


Figure 2.2 Outline Plan, Stromlo Settlement

2.2.4 Indicative Area Specific Policy

- 1) At Part B1 Residential Land Use Policies, Clause 4 Area Specific Policies, add the Area Specific Policy set out below. (This policy is indicative and may be amended subject to detailed planning and other relevant changes to the Territory Plan)

Area A12 Stromlo Settlement

Objective

To preserve the low-density village character of the Stromlo settlement.

Controls

a) Development intensity

Not more than one dwelling shall be permitted on each block. Subdivision or consolidation of existing residential blocks (including Unit Title subdivision) shall not be permitted.

b) Building Height

The maximum height of buildings shall be one storey.

c) Plot Ratio

The maximum *plot ratio* of all development on the block shall be as determined by the following formula:

$P = (140/B + 0.15)100$ where:

P is the maximum permissible plot ratio expressed as a percentage; and

B is the block area in square metres.

- 2) Amend the Territory Plan Map by adding the Area Specific Policy Overlay for the Stromlo Settlement as identified by the Residential Land Use Policy Area in Figure 2.1.

Interpretation service

ENGLISH	If you need interpreting help, telephone:
ARABIC	إذا احتجت لمساعدة في الترجمة الشفوية ، إتصل برقم الهاتف :
CHINESE	如果你需要传译员的帮助，请打电话：
CROATIAN	Ako trebate pomoć tumača telefonirajte:
GREEK	Αν χρειάζεστε διερμηνέα τηλεφωνήσετε στο
ITALIAN	Se avete bisogno di un interprete, telefonate al numero:
MALTESE	Jekk għandek bżonn l-għajjnuna t'interpretu, ċempel:
PERSIAN	اگر به ترجمه شفاهی احتیاج دارید به این شماره تلفن کنید:
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SERBIAN	Ako vam je potrebna pomoć prevodioca telefoniрајте:
SPANISH	Si necesita la asistencia de un intérprete, llame al:
TURKISH	Tercümana ihtiyacımız varsa lütfen telefon ediniz:
VIETNAMESE	Nếu bạn cần một người thông-ngôn hãy gọi điện-thoại:

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Stromlo Forestry Settlement

Sustainability Study

An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry.

Foreword

From Sch 2.2(a)(ii)



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Overview

This document is a sustainability study.

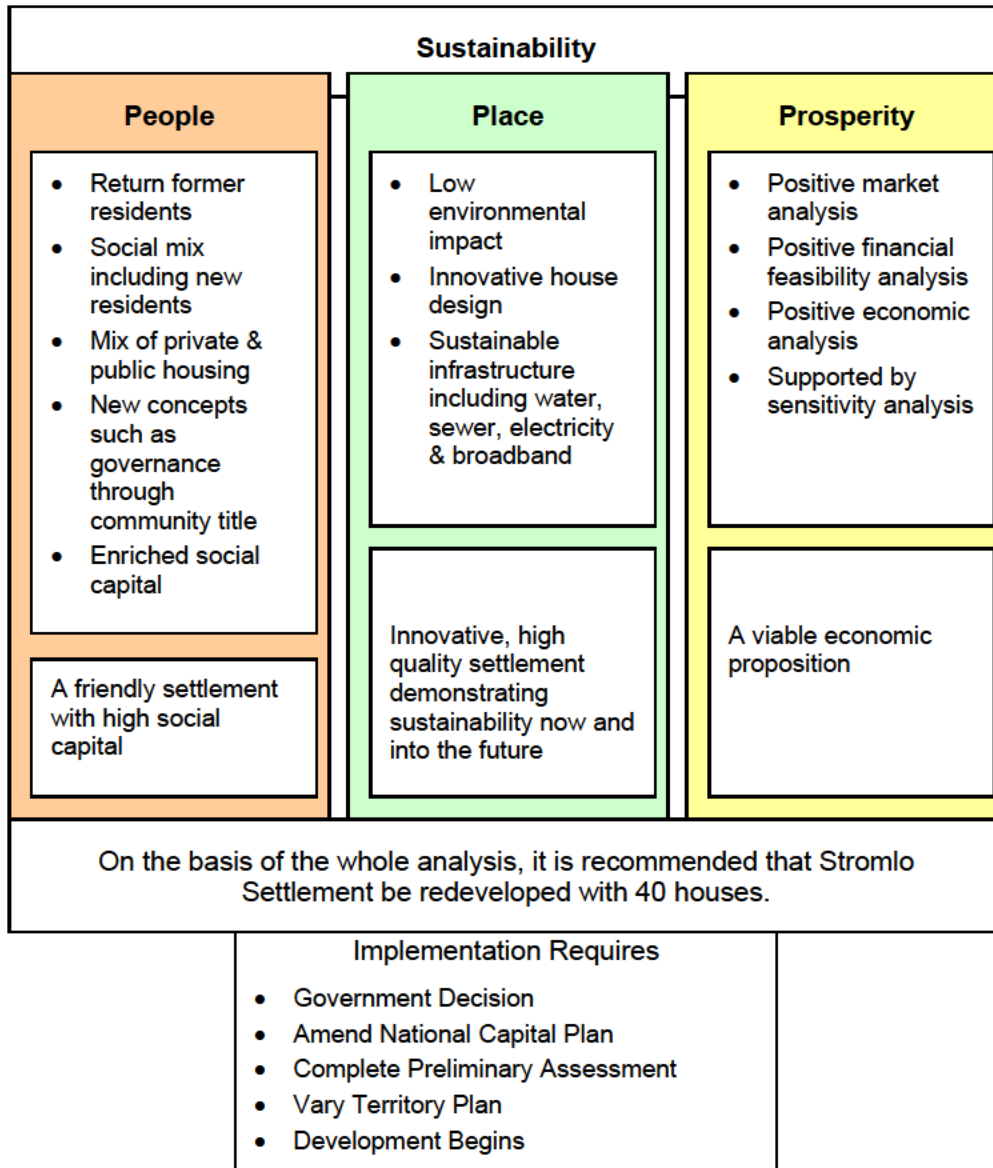
It uses the sustainability principles of the ACT Government's *People Place and Prosperity* to guide the layout of the study.

For the purposes of this analysis, a concept plan has been developed and then refined in light of the elements related to these principles.

This then provided the basis for social (People) analysis, environmental (Place) analysis and an economic (Prosperity) analysis.

The analysis of the aspects of *People Place and Prosperity* results in the resolute conclusion that the rebuilt Stromlo Settlement, as proposed, would form a viable and valued part of Canberra.

The last part of the study recommends the implementation process that should be pursued



Part One – Introduction & Concept Plan

Part One – Introduction & Concept Plan

1 Introduction

1.1 Background

The Non-Urban Study (Shaping Our Territory) was commissioned by the ACT Government to provide advice on the best pattern of future non-urban land use in the ACT in the wake of the January 2003 fires. The study, overseen by the Non Urban Study Steering Committee, was completed in November 2003 and made a number of recommendations to Government over a range of issues that were investigated during the study.

The forestry settlements of Uriarra, Pierces Creek and Stromlo that existed prior to the fires, and which were largely devastated, were a matter of particular concern. For some time prior to the fires the future of each settlement has been uncertain and a clear government policy decision was needed. The January 2003 fires provided an additional need for immediacy. Many people and families had lost their homes and possessions, and their way of life. The examination of options for recovery was a high priority. The Shaping Our Territory report made recommendations on rural villages, including the following that relate to Stromlo:

- *Any decision as to whether rural villages affected by the fires should be rebuilt requires a number of issues to be weighed, including:*
 - *the humanitarian objective of giving the displaced residents the opportunity to return;*
 - *the opportunity to develop villages as a lifestyle choice for new residents (and the opportunity to raise revenue from new land sales to help finance village infrastructure and other non-urban bushfire recovery);*
 - *the higher cost of services and infrastructure than in the urban setting;*
 - *the need to avoid unacceptable scenarios, for example, the villages being simply public housing enclaves in the bush, rural retreats for the very wealthy, or Canberra suburbs transplanted to the rural areas not in keeping with the local environment; and*
 - *the need to protect against bushfire risk.*
- *On both economic and social grounds, the Non-Urban Study does not favour the option of merely restoring the villages with replacement public housing on the small scale that existed before the fires. If the villages are replaced they should be on a scale and of a nature to permit diverse communities, with a range of housing types and large enough to warrant provision of infrastructure and services.*
- *Another important principle is that the additional cost ought to be borne by those who choose the village setting in which to live. This should be reflected in the sale price of public land and rates for residents, so that no additional burden would fall on the ACT taxpayer generally.*
- *The design and nature of new or rebuilt villages must be excellent in terms of being in harmony with the landscape and innovative in demonstrating the principles of sustainability, including social character and minimal environmental impact.*
- *There should be strict designated boundaries of villages to ensure that they may not expand in future years beyond the size and concept proposed in this report.*

- *There would need to be appropriate controls, cooperation and high levels of community and individual responsibility to address and manage the concerns expressed by rural leaseholders about possible impacts on their land.*
- *Against this background:*
 - *The Stromlo Settlement should be re-established in a manner that integrates with future urban expansion (as indicated in the Canberra Spatial Plan) but maintains the former separate character of the settlement.*
- *There should be open communication with interested parties on the likely scale and time frames for all proposed developments.*

In response to these recommendations the Government:

- agreed in-principle that Stromlo Village be re-established, but in a manner which integrates it into the urban area of Canberra and subject to the outcomes of the sustainability (economic, environmental and social) study referred to in the paragraph below;
- agreed that a sustainability study, master plan and related work leading to changes to the Territory Plan and National Capital Plan for the re-establishment of Stromlo Village be undertaken as a matter of urgency;
- noted that a works program and delivery strategy will be developed for the re-establishment of Stromlo Village;
- agreed that, should Stromlo Village be re-established, the former residents will be given the opportunity to return;

This report is the Sustainability Study for Stromlo Village that has been requested by the Government.

1.2 Sustainability

The ACT Government intends to ensure that the future growth and development of the Territory takes place in a way that is sustainable.

The Government has adopted a three dimensional concept for the definition of sustainability.

People: *individuals and community*

Place: *the natural and built environment that people live in and protect*

Prosperity: *flourishing, thriving, successful community*

The Government has taken a lead role and is in the process of setting up a framework for decision making in consultation with the community. The framework will ensure that future decisions relating to development and redevelopment of land, the installation and management of infrastructure and services and the use and management of natural systems, assist in the transition to a sustainable Territory.

The Government has articulated its approach to sustainability and published “People Place Prosperity: a Policy for Sustainability in the ACT” (2003). The policy includes a set of Guiding Principles that provide understanding and clarification of the concept of sustainability. Planning for the rural villages at Pierces Creek, Stromlo and Uriarra has proceeded in the context of these principles. The village proposals reflect the guiding principles and are a step towards a more sustainable Territory. The Guiding principles are:

Integrating social, environmental and economic factors in decision-making

Identify and integrate environmental, social and economic considerations, and seek to maximise net beneficial outcomes.

Taking a whole-of-government perspective

Take account of the potential implications of decisions for all areas of government, industry and the community, and seek to bring agencies together in the joint delivery of programs and services, thereby ensuring coherence and efficiency.

Recognising that a strong and productive economy builds upon and is supported by a healthy environment and a healthy society

A healthy economy is integral to social and environmental well-being.

Ensuring equity within and between generations

Recognise that all people have a right to reach their full potential and lead productive lives in an inclusive and tolerant society. Take into account all benefits and costs of decisions so as not to disadvantage different sectors of society. Take a long-term perspective – beyond this generation – when considering the implications of decisions and policies.

Valuing and protecting ecological integrity and biodiversity

Recognise that all life has intrinsic value and that ecological processes and biological diversity are part of the irreplaceable life support systems upon which a sustainable future depends.

Using resources prudently

Increase efficiency in using resources (such as land, energy, water and materials), generate less waste and replace the use of non-renewable resources with renewable resources – the Reduce, Reuse, Recycle principle.

Implementing the precautionary principle

Where there are threats of serious or irreversible environmental damage, do not use lack of full scientific certainty as a reason for postponing measures to prevent environmental degradation.

Empowering people

Provide access, education, opportunities and assistance to people so that they have the knowledge, capacity and confidence to contribute productively to decision-making and to participate in the community.

Engaging the community

Provide for broad community involvement of those affected by decisions. Encourage collaboration and partnering between individuals, the community, business and governments.

Focusing where risks are highest and where the ACT has a capacity to influence

Invest resources to resolve issues that are of greatest urgency or importance in the ACT and region. Focus on those areas where the ACT can exert influence, including planning, housing, transport, health, education, energy, water, waste and environmental protection.

Focusing on the wider region

Take account of the implications of ACT Government decisions on the wider region. Seek to achieve coherence and co-ordination in the development and delivery of policies between governments in the region.

Taking all costs and benefits into account

Include environmental and social costs and benefits into the pricing of goods and services and asset valuations to allow markets to operate efficiently, and use incentive mechanisms to stimulate sustainable outcomes.

Believing in our ability to create a sustainable future

Seek opportunities, value creativity and diversity, foster innovation, build upon experience, and look for solutions that inspire and reflect the unique culture and character of the ACT community.

The guiding principles provide a broad framework that needs to be supplemented by measurable parameters against which “on the ground” outcomes can be realistically assessed.

An assessment of the sustainability of this proposal is set out in Chapter 17.

2 Background

2.1 Location

Stromlo Village is located off the Cotter Road immediately north of the suburb of Duffy. It occupies part of Block 5 Section 55 and part of Block 2 Section 56 in Duffy. The location of the village is shown on Figure 1.

2.2 Prior to the 2003 Bushfires

The settlement was originally established to provide permanent housing and an ACT Forest machinery depot and headquarters office. The first cottage was constructed in 1928, the most recent in 1972. The site has a rich history which is discussed in detail in Chapter 7.

Prior to the January 2003 bushfires there were 20 houses at the village, all were occupied. The houses were sited on blocks ranging from about 1200 – 1500m². The blocks were generally fenced but had not been formally subdivided into separately leaseable land parcels. They have not been surveyed and block numbers have not been allocated. Reticulated sewer, water supply and electricity services, to urban standards, were available to each house. Housing ACT had accepted responsibility (handed over from ACT forest) for ownership and maintenance of the houses and curtilages (i.e. the house blocks).

The village community was served by minimal formal community facilities, with the extensive facilities in Duffy and metropolitan Canberra being close by. Forestry buildings were used occasionally for community functions. A large area of open land in the centre of the village was used communally as an open space recreation area. The residents had taken some action to maintain these assets but their resources to do so on an ongoing basis, and with an uncertain future, were limited.

A report which examines heritage aspects of Stromlo (among other places) “Meet You at the RMB.” (Binns and Heap, 2001) has been prepared on behalf of Housing ACT. The purpose of this report was to identify indicative heritage values of rural residential housing stock held at that time by Housing ACT. A number of the cottages at Stromlo were assessed as having medium heritage value and detailed information was collected on the history of each house. Of particular interest is the longevity of the tenancies. The date on which the current tenants moved in is provided for eight of the twenty houses. The dates range from 1969 to 1997. The average length of tenancy was about twenty years for these eight houses. Many of these older residents have strong connections with the ACT forestry industry. They have been joined in more recent times by a number of housing ACT clients, many of whom had planned to stay for the long term.

It is clear from this evidence, reinforced by discussions with the residents, that the Stromlo settlement community is a very strong and coherent social group.

2.3 After the 2003 Bushfires

The January 2003 fires caused extensive damage to the settlement and now only three houses remain. The road network (sealed) and underground infrastructure services remain intact. Electricity and communication networks were destroyed and have since been rebuilt to ensure service provision to the remaining houses. The settlement site is extensively cleared. Reinstatement of the destroyed housing and the introduction of additional development is readily achievable.

Stromlo Settlement

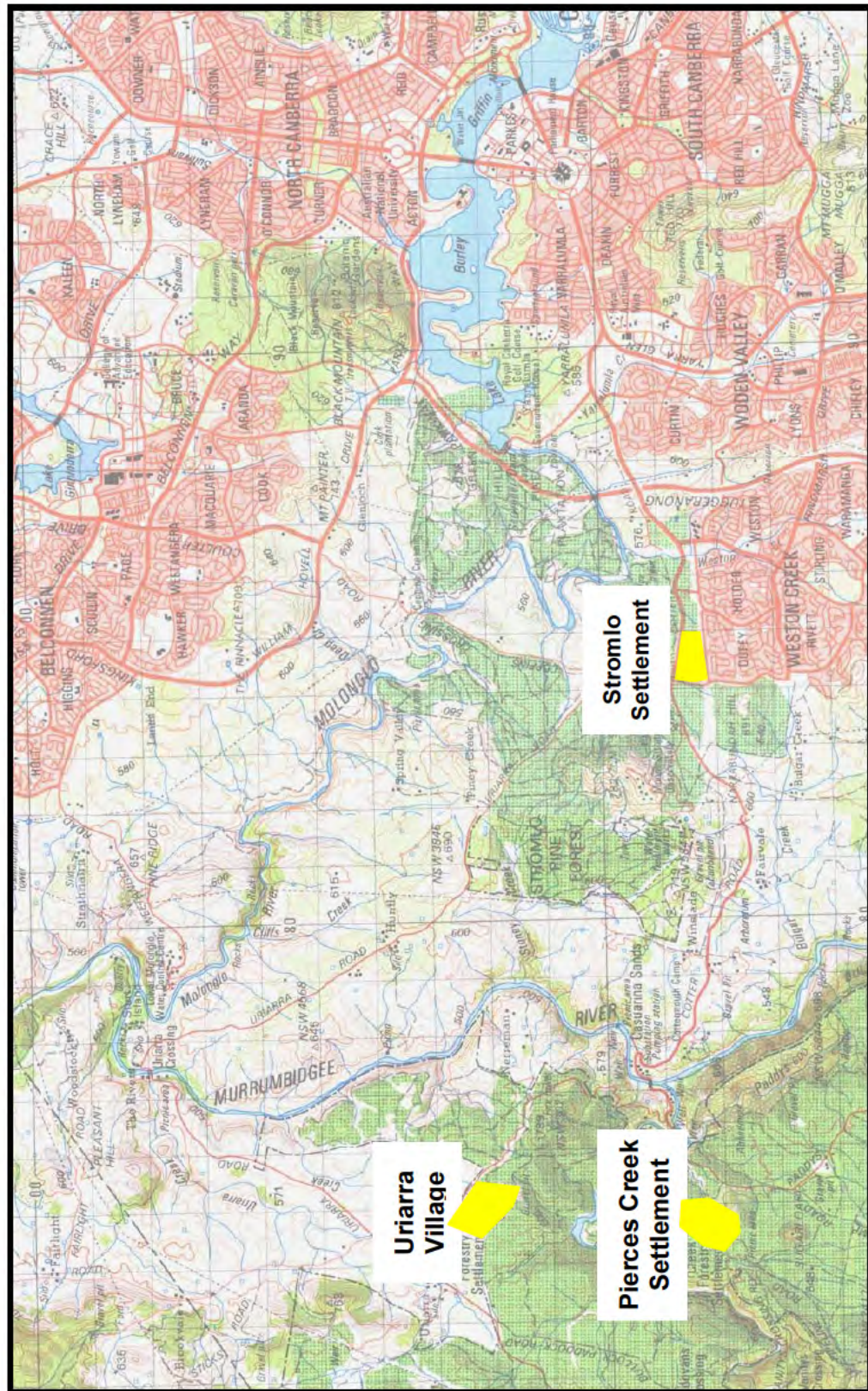


Figure 1 – Location of Stromlo Settlement.

3 Options & Opportunities

The proposal for rebuilding the Stromlo village has emanated from the “Shaping Our Territory” report and the subsequent in principle acceptance of the recommendations of that report by the ACT Government. The recommendation relating to Stromlo was, in simple terms, that options for the rebuilding of the village be explored. This project has proceeded on that basis and in doing so has considered a number of options and opportunities that have emerged. These are discussed in more detail either in the “Shaping Our Territory” report or elsewhere in this report. They are summarised below:

3.1 The “do nothing” Option

It was, and is, possible to adopt a do nothing approach to this issue. This would not be a practical or compassionate position. There are three remaining inhabited dwellings and some infrastructure items (the roads, engineering services and the like) at Stromlo. The number of residents is too small to form a viable community and the infrastructure needs maintenance and management. More importantly the residents who were burned out are entitled to a level of community support equivalent to that provided to fire affected households in the urban areas. They are entitled to a reasonable decision making process and “closure” on their very traumatic position. Doing nothing is not a feasible option.

3.2 The Demolition Option

The removal of the remaining settlement would be at odds with the tendency of policy even before the fires, namely to allow the settlement to continue existing without threat of demolition.

If demolition was to occur, the existing infrastructure would need to be removed and the site rehabilitated at a cost to Government with little or no return.

Once demolition was complete there would be two primary options for land use: urban development as an extension north of Duffy, or a landscape buffer between Weston Creek and the proposed Molonglo Urban Development area.

The land occupied by the Stromlo Settlement has previously been investigated for potential urban development and deemed suitable, hence the urban land use policy in the National Capital Plan. However, with the development of the Draft Canberra Spatial Plan and the findings of the Shaping Our Territory report it is clear that urban development is no longer proposed for this area. Landscape buffer is the only other reasonable option.

If the option of demolition was adopted, it would be important for a transitional plan to be adopted for the remaining and immediate past residents that is sensitive to their interests. Stromlo is a settlement that has developed a strong sense of history and community and the social costs would be complex and high.

For these reasons, demolition of the village is not considered to be a reasonable option.

3.3 Rebuild exactly as before

A simple approach would be to simply rebuild the village as it was before. This option has been seriously considered as it is, in the short term at least, possibly the “easiest” solution. It is not considered feasible because:

- The village would consist of only 20 households, all of which would initially be Housing ACT tenants. The creation of an enclave of public housing is not a socially acceptable approach to housing provision. Experience has shown, in Canberra and elsewhere, that socially undesirable outcomes can result from the creation of concentrations of public housing clientele. A “pepper and salt” approach of mixing public housing client with non public housing has been proven to be far more effective.
- The costs of reinstatement of village infrastructure and its upgrade to appropriate standards as well as long term services provision costs will be greatly reduced if spread over a larger number of dwellings.

These considerations have led to the conclusion that a larger number of dwellings, including a majority that are not public housing, is desirable.

3.4 Determination of an appropriate number of dwellings

The question of what is an appropriate number of dwellings for Stromlo village was not considered in detail during the “Shaping Our Territory” project. An option of 40 has been proposed initially. Ultimately, following the design investigations outlined in this report this number has been adopted as the recommended maximum. This takes into account the need to accommodate houses on relatively big blocks, in keeping with the “village” character that must be maintained, a village style street layout and the total site size. About 40 dwellings was considered to be a reasonable number in this context. Given the inclusion of 20 reinstated ACT Housing dwellings this would give a public/private ratio of 50% initially which is considered high but acceptable noting the close proximity of the Weston creek suburban areas (the highest level for any suburb in Canberra is about 30%, the metropolitan average is 10%). For this reason the forty should be considered to be a minimum as well as a maximum.

3.5 Determination of Housing Types

The settlement presents an effectively “greenfields” situation and in this context new houses could theoretically be built to any style or size. A strong element of the reinstatement philosophy has been that the “look and feel” of the settlement must be retained. The houses that did exist (and the few that still do) are typically modest weatherboard cottages. It is intended that this style be carried through into the future with the imposition of design controls that will be applied to development approvals for housing. It is important in this context to strike a balance between a level of control that will achieve the desired “look and feel” and the need to allow for design innovation. The outcome must not simply seek to recreate a quaint rustic village; rather it should ensure that the village style is carried through into a 21st century era. Design controls have been selected to achieve this as set out in Chapter 12.

3.6 Municipal Services

The destruction caused by the bushfires has provided an opportunity to rebuild the settlement on principles of sustainability; an appropriate approach to planning and development in the 21st century. This philosophy has implications at both the household and community management level. Residents will need to recognise that the settlement will have water management, waste and power infrastructure systems that are not the suburban norm. Which represent new and innovative standards. Design and costing of infrastructure systems for the settlement on both a “standard suburban” and an innovative basis have been investigated. Some innovative solutions that deliver superior environmental outcomes are to be adopted. The higher initial costs will be recouped in the form of long term financial benefits to households and a range of positive environmental outcomes. The settlement will be serviced by:

- A water supply system that relies principally on rainwater for household consumption, backed up by a mains supply.
- Treatment and re use of grey water on site by each household;
- Communal green waste recycling.

3.7 Land Tenure and Village Management

A particular feature of the pre-fire settlement was the high level of uncertainty about its future. This was traumatic for the residents and not a situation that could continue. An objective of this study has been to determine an appropriate mechanism that will ensure security of tenure and enable residents to have confidence in the future. This need has also been considered in the context of an acknowledgement that the settlement will need a well defined local management system that has responsibility for infrastructure and open space management and for bushfire protection. An approach involving individual residential leases and some form of voluntary management committee may be workable but, given the task involved, is not considered to be adequate. A community title scheme is recommended, offering the following advantages:

- Individual owners have clear title to a saleable asset of their own;
- Democratic management systems are codified by law (the body corporate);
- Legal mechanisms exist for financial contributions (body corporate fees) to cover community expenses;
- Land and assets can be owned and managed communally;
- The community as an entity (the body corporate) can deal with outside agents, eg landscape maintenance contractors.

3.8 Bushfire Management

The location of the settlement close to the western edge of urban ACT and close to extensive tracts of rural and bushland means that bushfire risk must be an important consideration. This issue has influenced both the proposed design of the settlement and the proposed future management regime. Options for bushfire protection have been considered and the recommended approach is that the village be designed, resourced and managed so that it has a higher level of self sufficiency with respect to defence from bushfires. The bushfire protection strategy will include:

- Appropriate abatement zones external to the settlement perimeter;
- Landscape management within the settlement public areas;
- Attention to private landscape design to ensure that hazards are minimised;

- Fireproof fencing on exposed residential block boundaries;
- House construction to meet appropriate Australian standards for housing in bushfire prone areas;
- A fire fighting equipment facility located within the settlement, to be sited so as to have good access to external roads, a secure water supply and remote from possible fire fronts;
- A volunteer fire fighting service to be administered by the body corporate. The principal mission of this service will be settlement protection rather than general fire fighting in the district beyond the settlement.

4 Concept Plan

A concept plan has been prepared to illustrate the proposal for the redevelopment of Stromlo Settlement. The plan is based on an analysis of all the material presented in this report. It will warrant some refinement and “fine tuning” at the detailed design stage. This report, incorporating the Concept Plan, is proposed for adoption as a ‘principle and policies’ for the development of the site under the ‘defined land’ provisions of the Territory Plan.

An annotated Concept Plan is at Figure 2 indicating the key features of the design. An un-annotated version of the Concept Plan is at Figure 3. Elements of the proposal that are considered to be important are as follows:

- The general subdivision layout;
- No further subdivision or dual occupancy development;
- The existing road pattern is to be preserved;
- Existing houses and other buildings are to be preserved;
- Community development officer to be appointed (part time) for up to five years to assist re-establishment of the settlement;
- Aboriginal and European cultural heritage sites identified at Chapter 7 are to be treated as recommended in that chapter;
- There will be 40 dwellings;
- Ecological outcomes discussed at Chapter 8 will be addressed with landscape design;
- Trees identified as being of high value at Chapter 9 will be preserved;
- A landscape plan as shown at Chapter 10 will form the basis of public area landscaping;
- Land tenure will be under a community title scheme;
- Housing design will be subject to design control as described at Chapter 12;
- A water supply system based on a combination of rainwater tanks and non potable mains supply will be installed;
- Grey water will be treated and reused on residential blocks;
- Bushfire management measures recommended at Chapter 14 will be built into village design and landscaping. The body corporate will have a specific role in bushfire management and education;
- Roads to have swale drainage. No kerbs and gutters. Drainage to be managed to direct runoff to water public open space areas; and
- No street lighting to be installed.



McCann Property & Planning



not to scale

Annotated Stromlo Settlement Concept Plan

Figure 2

Stromlo Settlement

1. Open Space
2. Cotter Road
3. Warragamba Avenue
4. Eucumbene Drive
5. Existing entry to be retained
6. Existing entry to close
7. New entry
8. Abatement zone and fire trails
9. Duffy
10. Possible future Molonglo urban area
11. Future forest recreation area
12. Existing houses
13. Ex forestry facilities / volunteer bushfire facility
14. Air services Australia installation
15. Informal memorial site



Part Two – People

Part Two – People

5 The People

5.1 Introduction

The key to a sustainable village is the people. In the case of Uriarra the people in past generations developed the history and its reason for being, and in future generations can create a viable, sustainable, self sufficient, resilient community.

This section of the study focuses on the people who will make this village their home.

The characteristics, aspirations and needs of both existing and future residents will influence, among other things, the nature of the future village.

5.2 An Overview of Former Residents

The following provides information about the people who were living at Stromlo immediately prior to the 18 January 2003 bushfires, which burnt all but three dwellings. The information is derived from the Housing ACT tenant data base.

Number of residents

Prior to the bushfires, 63 people are known to have been living at Stromlo.

Tenants sign a lease with Housing ACT. Signatories to a lease are referred to as tenants and other people living in the dwelling are referred to as either residents or dependents. More than one member of a household may be included on the lease. For the purposes of assessing rent rebates Housing ACT requires that all people living in the property are identified, but this is not required for full market renters.

Of the people living at Stromlo, one quarter were male adults (both tenants and dependents) and over 40% were dependents (Table 1). Females represented approximately one third of residents at Stromlo.

Table 1 – Number of residents

Residents	No.	%
Male tenant	12	19%
Male resident	4	6%
Female tenant	18	29%
Female resident	2	3%
Dependant	26	41%
Undeclared resident	1	2%
Total residents	63	100%

Age

The age of people living at Stromlo ranged from two (2) years to 68 years. Over one third of the population is of school age and one third are aged between 25 years and 44 years. Only 3% (2 people) are aged over 64 years and these people are not related (Table 2).

Table 2 – Age Profile

Age	No	%
<5 yrs	3	5%
5-12	12	20%
13-18	9	15%
19-24	3	5%
25-34	10	16%
35-44	11	18%
45-54	6	10%
55-64	5	8%
>64	2	3%
Total	61	100%
Unknown	2	

Length of residency

The length of residency is partly influenced by whether residents were allocated a dwelling by Housing ACT or became tenants as a result of the transfer of property management responsibilities from Forestry.

Up until 18 January 2003 tenancies were quite stable. The minimum length of a tenancy was two (2) years and over three quarters of households had lived at Stromlo for more than six (6) years with nearly one third having lived there for 15 years or more (Table 3). At the consultations it was indicated that some [adult] residents had lived there since birth.

Table 3 – Length of residency

Length of tenancy	No.
< 1 yr	0
1-2 yrs	1
3-5 yrs	5
6-9 yrs	5
10-14 yrs	3
15+yrs	6
unknown	1
Total tenancies	21

Tenancy status

Rental in public housing is based on the premise that tenants should not pay more than 25% of their income as rent. Where the market rent (reassessed annually) for a dwelling exceeds 25% of the tenant's income, they are eligible for a rent rebate. This provision applies to all tenants, irrespective of their income. In other words, moderate income tenants living in a property with a high market rent would be eligible for a rent rebate as would low income tenants.

Although a high proportion of tenants have been residents for many years and many have some association with forestry activities, just over half of the households receive a rent rebate (Table 4). Average market rentals range from \$110 to \$155 per week and rebated rents range from \$53 to \$142 per week. Given that market rents are likely to increase substantially following rebuilding of the settlement, a higher proportion of tenants in the future may receive rent rebates.

Table 4 – Tenancy status

Rental	No.
Rebated	11
Not rebated	10
Total	21

Current location

There are 3 households still living at Stromlo. Of the remaining 18 households, 13 are living in Housing ACT properties elsewhere and five have moved into private accommodation (Table 5). Anecdotally it is understood that at least three households have purchased a house. Unlike Uriarra or Pierces Creek residents, no Stromlo residents have moved away from the ACT.

Table 5 – Current location

Location	No.
Households still resident	3
Households relocated	13
Households in private accom	5
Households moved from ACT	0
Total Households	21

5.3 Future Residents

There is of course, no specific information about future new residents of Stromlo and because any re-establishment of Stromlo will be integrated with future urban development, it is more difficult to develop a profile of future residents than for either Uriarra or Pierces Creek.

In recent years existing rural villages in surrounding NSW, such as Sutton, Gundaroo and Murrumbateman have grown as a result of the demand from households wanting to live in a rural village close to Canberra. The characteristics of these populations provide a guide as to the people seeking a rural lifestyle who may want to live at Stromlo, however if the settlement is integrated into the future urban area, the profile of future residents may be more similar to that of the Canberra community.

The 2001 Census indicates that there are a number of similarities in the demographic characteristics of the three rural villages together with some variations between them and the ACT.

In 2001, people living in the NSW villages generally were relatively young, with a higher proportion of the population aged 15 years or under and a lower proportion of the population aged 65 years and over. Associated with these demographic characteristics, households are also larger and each village has at least 2.9 people per household compared with 2.6 in the ACT (Table 6). In comparison there is a higher proportion of people under 15 years in Stromlo than in the NSW villages but household size and the proportion of people over 64 years are similar.

Table 6 – Selected characteristics of rural villages

Characteristics ¹	M'bateman	Gundaroo	Sutton	ACT	Stromlo
Population	1,272	238	257	311,947	63
% 15 years and under	26%	30%	26%	21%	35%
% 65 years and older	5%	3%	4%	8%	3%
Median age	36	32	33	32	30
Mean household size	2.99	2.9	2.9	2.6	3.0
No of dwellings	439	86	91	114,842	21
% Fully owned	33%	29%	35%	33%	0%
% Renting privately	12%	9%	22%	19%	0%
% Renting in public sector	0%	0%	0%	9%	100%
Median monthly housing loan repayments	\$1,000-\$1,199	\$1,000-\$1,199	\$1,000-\$1,199	\$800-\$999	0
Median weekly rent	\$200-\$249	\$200-\$249	\$100-\$149	\$150-\$199	\$97.50
Median weekly individual income	\$500-\$599	\$600-\$699	\$500-\$599	\$500-\$599	na
Median weekly family income	\$1,200-\$1,499	\$1,200-\$1,499	\$1,200-\$1,499	\$1,200-\$1,499	na
Median weekly household income	\$1,200-\$1,499	\$1,200-\$1,499	\$1,200-\$1,499	\$1,000-\$1,199	na
% Use of Internet at home	39%	53%	38%	39%	na
% At same address 5 years or more ago	61%	48%	44%	47%	74%

The three NSW villages have higher median household incomes but the same median family incomes than the ACT. Median household incomes are equivalent to between \$62,000 and \$78,000 per annum, which places them in the fourth quintile of incomes (that is the top 40%). Information is not available on the incomes of households in Stromlo, however they would be lower.

Commensurate with the higher household incomes, median housing loan repayments are also higher in the villages than in the ACT but nevertheless is considered affordable (average housing costs are less than 20% of household income). The situation in relation to weekly rent payments varies between the villages and only Sutton has a lower median weekly rent than Canberra (Table 6). In comparison, market rents at Stromlo are considerably lower, partly because of the relatively poor quality of the housing.

It should be noted that the data in Table 6 is from the 2001 Census, the most recent reliable data. The median weekly rent for a three bedroom house in Canberra is now \$290² and it is assumed that rents will have similarly increased in the NSW villages. Market rents for rebuilt Housing ACT style accommodation at Stromlo are likely to be in the order of \$300/week. Returning residents who do not qualify for a rental rebate may therefore have higher rental costs than before the fire. To balance this higher cost they will no longer be living in a settlement with an uncertain future, they will have improved quality housing, and have a right to purchase their home if they are eligible under ACT Government housing policies.

¹ 2001 Census

² Market Facts, Real Estate Institute of Australia, December Quarter 2003.

The proportion of dwellings that are fully owned is similar between villages and between them and the ACT but there are considerable variations in the proportion of people who are renting privately. Both Murrumbateman and Gundaroo have a much lower proportion of private tenants than the ACT whereas the proportion of private tenants in Sutton is only slightly higher than in the ACT. None of the villages have any public housing stock. (This does not necessarily indicate a lack of demand but rather the location and asset management policies of the NSW Department of Housing).

The demographic profile of the rural villages of Sutton, Gundaroo and Murrumbateman and of Canberra suggests that people who will be attracted to Stromlo are likely to have the following characteristics:

- there will be a higher proportion of families with younger children than in the population as a whole;
- households are likely to have relatively high incomes;
- older people may be attracted to live at Stromlo because of its central location and potential access to services and facilities; and
- a relatively high proportion of residents will be home purchasers/owners rather than renters.

On the other hand the location of Stromlo may mean that the population profile of new residents is similar to that of Canberra as a whole rather than the NSW villages.

In terms of the mix of public and private home ownership, it is important to note that the mix for the commencement of the village reflects:

- The Government's commitment to provide the opportunity for all tenants to return to the settlement;
- This also reflects the Government's policy of security of tenure for public housing tenants;
- The percentage of public housing is reduced from 100% prior to the fires to 50% with the redeveloped village; and
- The former settlements tenants were already a mixed group with varying income and household characteristics.

5.4 Aspirations of Existing residents

As part of the study consultations were held with Stromlo residents and all but two families were represented. One of the purposes of the consultations was to gain an understanding of residents' expectations about the future development of Stromlo.

The Government has given a commitment that people whose houses were burnt will have the opportunity to return. This commitment is the main rationale for the redevelopment of the settlement site.

In the case of Stromlo this means that the families still in residence will remain in the settlement and a further 17 dwellings will be required. The total number of properties owned by Housing ACT will be 20.

There is a possibility Housing ACT may require additional housing to accommodate other clients from rural areas whose houses were destroyed and are not being replaced at the original location.

Housing and block preferences

On the whole there is a very strong desire among residents to return to Stromlo and many residents are unhappy living in suburban areas and feel that their children are not as safe as at Stromlo.

During the consultation they expressed a preference for being able to return to their former block, which they wanted to be exactly the same size and in the same location as prior to the fires. For at least some residents the fact that they tried to, and in some cases did, save their home has increased their attachment to the settlement and their sense of ownership.

They are concerned that they will not be able to move back and that the settlement will either be relocated and/or that they would be allocated a different block of land/dwelling. It was recognised that the split of land ownership between the Territory and the Commonwealth complicated the issue about the future location of some residents.

Residents of Stromlo, like the residents of Uriarra and Pierces Creek, value the former housing, recognise its heritage value and regard the surviving properties as a memorial to the fire.

They want those properties that were burnt replaced with modest cottages that reflect the rural character of the settlement. Whilst they do not want large dwellings with family rooms and en-suites, they would like the new houses to be at a standard generally taken for granted by most of the community. For example some houses did not have inside toilets, running hot water in the kitchen or built-in wardrobes in the bedroom. They also considered that the houses should have a veranda.

Many residents treated the dwellings as their own and had a strong sense of ownership of their place which was partially expressed in the funds expended to maintain both the dwelling and the landscaping, including re-stumping and the erection of retaining walls. The sense of ownership of the dwellings was reinforced by the efforts many had put into saving them and will translate into a strong desire to be involved in at least the design if not the building of new dwellings.

The residents also value the remaining landscape and do not want the large trees removed. Gardening is a significant part of the lifestyle of many residents and ideally they would like an input into the landscaping of both the blocks and the whole site, including landscaping between their settlement and Warragamba Drive. They also consider it important that the landscaping and not just the houses is replaced. They were concerned at the loss of topsoil following the fires.

Many of the houses had rear access via a back lane and this element was considered important in defining the non-urban nature of the settlement. Residents would value this being retained in any future subdivision.

There was no street lighting in the village, which has had the advantage of maximising views of the stars. Residents do not want street lighting as its absence sets them apart from suburbia. However they indicated that if they have to have it they would prefer low intensity lighting.

There was a general feeling of separation between the front road and the back road in the village the front road being the one with the Forestry depot on it and that was where all the trucks went and the other street was a quiet street with all the houses on it.

Future character

In determining the future character of Stromlo it is important to understand why people seek to live in rural areas. Residents considered that people have different reasons for living in areas such as Stromlo including a desire for space, which is used in different ways, a preference for a quiet environment and a dislike of urban areas. Residents expressed the view that people living in rural settlements usually have different needs to people living in urban areas and this difference should be valued.

In terms of the future character residents want to retain a settlement rather than become a village. There was some lack of clarity about the difference between a settlement and a village but they do not see themselves as having a shop, a church or a school although a small community hall, possibly based around the old forestry depot, would be supported.

Residents were concerned that the expansion of Stromlo would irreversibly change its character. They do not think they needed to be bigger in order to survive because of their proximity to Duffy and the Duffy shops.

Whilst residents do not want Stromlo to develop into a village they support the development of a forestry museum which would bring visitors to Stromlo, possibly in the former forestry depot. Whilst they have not assessed the impact of increased visitor numbers they expressed the view that these visitors were likely to be sympathetic to Stromlo and its forestry heritage.

Sense of community

There was obviously a strong sense of community among Stromlo residents that was expressed at the meeting through some discussion of group activities and also the friendship that existed among them as well as their awareness of what each other was doing.

Residents understood that their community spirit had grown out of the history of the broader forestry family which contained several members of families that formed a network of relations who worked throughout the forestry industry. Over time these different families had formed strong friendships. Many of the children and grandchildren of this old network still lived in these forestry settlements. The gradual “turnover” of residents enabled each new group to be progressively absorbed into the settlement and its culture. There was some fear that a massive influx of new people would change the prevailing culture at Stromlo. The outcome was the development of a very strong group, although it was also recognised that they needed a focal point for the community.

Residents also described what contributed to this sense of community in geographical terms. They considered that the physical separation of Stromlo from Duffy and Holder together with its orientation towards and access from the Cotter Road contributed to its ambience and the feeling of a rural lifestyle and clearly defined its separateness.

For this reason residents were opposed to a road connection to Warragamba Avenue, although they considered the existing pedestrian links to Duffy and Holder were appropriate. They also considered that this separation was important to the residents of Duffy and Holder.

The Stromlo settlement on the whole considered itself to be one of Canberra's best kept secrets and this contributed to the feeling of community.

Community services and a focal point

Stromlo residents have access to the range of community services that are available in the urban area, although there are no specific facilities (for example shops or church) in Stromlo and they would prefer to use facilities located in adjacent suburbs.

Whilst there is no community meeting place the Forestry depot has been used for this purpose and could be appropriate for this purpose again.

Residents have had an individual mail service for about 5 years and they would like that to continue.

The main focal point at Stromlo is the common ground at the centre of the settlement and it is important to the community. It is the place where children played, was a recognised helipad every bushfire season, community bonfires were held there each season and it has been a staging point for the Rally of Canberra. Residents thought that the area should be retained as the focal point of the settlement and supported its development as a more formally designated park, possibly with a community shed.

5.5 Aspirations of new residents

Few surveys have been undertaken of people living in rural and semi-rural areas and much of the feedback about their aspirations and expectations is based on anecdotal information from industry, and local councils and personal perceptions. One comprehensive survey that was undertaken by the Yass Shire Council in 1987, provides information about the expectations of people who move to rural villages. The survey included all residents within a 10km radius of Murrumbateman.

While the survey is now over 15 years old it still provides a basic snapshot of the lifestyle desired by (ex)Canberra residents seeking to live in a rural or semi-rural setting that provides opportunities to working, shop and recreate in Canberra. The survey included people living on 1,000m² – 2,000m² village blocks as well as people living on larger rural residential blocks and hobby farms. The results were similar for each group.

The survey indicated that residents wanted and/or valued:

- the rural atmosphere
- the peace and quiet of rural areas;
- the availability of large blocks that provided privacy;
- the ability to have animals and/or a love of the land;
- the opportunity for rural living with access to city facilities;
- the community spirit and sense of community; and
- community safety and low rates of crime.

Of these expectations, the vast majority of respondents sought a rural atmosphere and peace and quiet, indicating that the 'setting' of the area, including the surrounding activities is more important to the residents than a large block for animals gardens or privacy.

People living in the three villages also want to be well connected via telecommunication technologies. The 2001 Census indicated that between 38% (Sutton) and 53% (Gundaroo) of residents used the internet at home (Table 6). The proportion of people living in these villages using the internet at home was almost the same as or higher than the proportion of Canberra residents who used the internet at home in 2001 (39%).

5.6 Comparison Between Existing and New Residents

Comparison of the demographic profiles of existing residents of Stromlo and new residents of an expanded Stromlo suggests that there will be both similarities and differences. In particular:

- the demographic characteristics of the two population groups are likely to be similar, in terms of:
 - median age; and
 - household size;
- but different in terms of the age mix;
- the social characteristics will be different, including:
 - new residents will be homeowners and existing residents are more likely to be renters;
 - existing residents will have lower housing costs (although they are likely to be higher than before 18 January 2003; and
 - new residents will have higher household incomes.

Whilst there may be differences between existing and future residents, the available data suggests that at least some of the reasons for favouring a rural lifestyle and the values of rural living are the same.

The similarities between existing and potential new residents provide an unifying element whilst the differences need to be taken into account in the development of strategies to develop Stromlo as a community.

5.7 Community Education and Attitude Towards Bushfire

There is a high probability that future Stromlo residents, with their long-term settlement tendencies, will encounter more than one bushfire.

It is essential that the community develop an understanding of how to live with bushfires as a natural part of their landscape, rather than an infrequent natural disaster.

A clear understanding of the risks posed by bushfire and the strategies used to manage these risks is essential. Of equal importance is the understanding that bushfire is an necessary part of maintaining biodiversity in the landscape. Individual's knowledge of bushfire and their local environment will have the single largest impact on their own risk to life during a bushfire. Each member of the community requires a clear understanding of all of the measures which have been taken to mitigate the risk to life during bushfires, and the strategies they need to embrace to maintain the effectiveness of the measures.

There will need to be a strategy for continued community engagement in bushfire risk mitigation planning. This will be achieved through the volunteer bushfire brigade, community education, and the involvement of the body corporate in disaster planning and landscape management.

6 Social Implications & Community Services

6.1 Expanding Stromlo – Social Considerations

In supporting the expansion of Stromlo it is vital to ensure that it can sustain population growth and the provision of services and infrastructure while reflecting social aspirations and needs. Understanding the value of Stromlo to the community, identifying its characteristics and the characteristics of villages and settlements elsewhere, will assist in identifying the appropriate elements that should be incorporated in any future settlement. It will also assist in assessing the social sustainability of Stromlo now and in identifying ways to enhance social sustainability in the future.

This section considers the nature of the community prior to the bushfires and the potential to accommodate additional growth in a way that maintains the existing sense of community described by existing residents (see above) and is socially sustainable.

6.2 Values and Characteristics

The Stromlo community is very important to its residents. During the consultations, most of the comments made highlighted the importance of the community to each individual and their understanding of the way that they fit within it. When residents talk of “community” they are referring to the setting in which social interactions occur but especially to the social networks themselves.

From a social perspective residents value the history associated with Stromlo, the tight knit community based on friendship and familial connections, the sense of belonging and the sense of living in a rural community afforded by the physical separation. They appreciate the connectedness to the rest of the community and recognise that it offered an idyllic lifestyle. These attributes of the village and its community contribute to their sense of well-being.

Stromlo residents value the unique built form qualities of the settlement including the amount of space around their dwelling, the natural environment, the remaining landscape and the separation from the urban area as well as the separation from each other. They acknowledge that physical attributes of Stromlo had contributed to the sense of community.

On the other hand, Stromlo residents are concerned that expansion of the settlement would irreversibly change its character and believe that it is not necessary to expand to be sustainable given their proximity to the urban areas. They are worried that a large influx of new residents will change the prevailing culture.

The values that Stromlo residents have identified are consistent with the values identified by other communities and which research indicates help define the characteristics of villages³ and small communities. These are:

- *size* – needs to be sufficiently small so that people know each other or most other residents and it may not be necessary to define a population size
- *community identity* – refers to a feel of belonging and a sense of place that is best reflected when people have a genuine say and are able to work together to make the community a better place;

³ Northern Rivers Regional Strategy Secretariat: *A Region of Villages – A discussion paper* (February 2001) and *A Region of Villages: Workshop Report* (2001)

- *connectedness and integration* – is related to community identity and refers to the linkages between the village and other settlements and inter-connectedness within the village; and
- *diversity and multi-functionality* – refers to the range of services, activities and opportunities available within the village.

Whilst residents did not specifically consider that they live in a village, many of the characteristics they attribute to Stromlo and the values to which they refer, indicate that prior to 18 January the settlement had many characteristics in common with villages and smaller settlements elsewhere.

6.3 Social Sustainability

Social capital refers to the processes between people which establish networks, norms, social trust and facilitate co-ordination and co-operation for mutual benefit.

Social capital relates to:

- resources available within social groups, such as families, community, social clubs; and
- the networks of mutual support, reciprocity, trust and obligation. Social capital can be accumulated when people interact with others in families, workplaces, neighbourhoods, local associations and a range of informal and formal meeting places⁴.

Research and experience in other communities⁵ indicates that the elements of social capital include:

- *participation* in networks, which consists of interlocking relationships between individuals and groups;
- *reciprocity* – taking care of each other's interests and the interests of all;
- *trust* – to take risks within a social sphere;
- *social norms*, which are generally unwritten but commonly understood formulae for defining patterns of behaviour;
- *proactivity* where members of the community are actively participating in a range of activities; and
- *the commons* refers to pooled ownership over resources that are owned by no-one but shared by all.

Existing situation

Assessing the existing social capital of a community provides baseline information about social sustainability and enables assessment of future levels of social capital. It also assists in identifying actions that may be required to protect and enhance social capital as a community grows and changes.

Increasingly, sophisticated indicators are being developed to measure changes in social capital over time and between communities, to identify relationships between social capital and wellbeing and to monitor the success of projects to foster the growth of social capital among areas or population groups⁶.

⁴ ABS: *Social Capital* (2002)

⁵ Refer to P Bullen and J Onyx – *Measuring Social Capital in Five Communities in NSW* (www.mapl.com.au/A2.htm) and *A Community Re-building: The Coolah Story* (www.regional.org.au/articles/development/coolah_revitalisation.htm)

⁶ ABS: *Measuring Social Capital: An Australian Framework and Indicators – Information Paper* Commonwealth of Australia (2004)

In the absence of such measures for the Stromlo community, the consultation outcomes have been used to derive an indication of the social capital that existed prior to 18 January 2003. Analysis of the comments points towards a high level of social capital prior to this date. The richness of social capital is characterised by:

- residents felt very strongly that they were part of the community;
- residents felt connected to other members of the community through the development of long term friendships as well as the history of forestry associated with Stromlo and the vocational links and family relationships that extend over several generations;
- residents willingly participated in social activities arranged by the community;
- there has been a long standing capacity to gradually absorb new residents into the community;
- residents had a strong awareness of what other members of the community were doing;
- parents felt that their children were safe playing unsupervised in the village, often for a whole day;
- people feel very safe and crime and vandalism were very low;
- there are high levels of trust and friendliness between residents; and
- there is a high level of self-reliance with people maintaining vegetable gardens, animals and obtaining first aid training ;
- there was a low expectation that outside organisations would assist, for example residents have regarded their homes as their own and have not always sought assistance from Housing ACT to maintain or upgrade them.

The depth of community cohesion and social interaction, which is not always seen in Canberra suburbs, was an essential aspect of the lives of people living at Stromlo. More importantly however, it highlights what has made Pierces Creek from a social perspective, sustainable. and what is required for it to be sustainable in the future.

The rich of social capital at Stromlo attaches to the community as a whole, although individuals and families also benefit. Therefore it follows that the benefits families and individuals enjoy from a high level of social capital will decline if residents cannot return.

There is already some evidence that the level of social capital may have declined since the fires:

- some residents feel dislocated and that they do not belong in the areas in which they now live;
- there was no discussion at the consultations or in subsequent meetings about the friendship and support provided by new neighbours; and
- some parents do not believe that their children are safe in urban areas.

The former levels of social capital will not routinely form a part of any re-establishment or expansion of Stromlo and specific actions will be required to re-instate it and the associated strong sense of trust and community.

Enhancing social capital

With the expansion of Stromlo, the proportion of public housing will decline to about one third of total housing and the balance will be privately developed. This will be associated with a change in the social mix and diversity of the population. Based on housing tenure, there are likely to be several groups including existing residents who continue to be rebated or non-rebated public housing tenants, existing residents who purchase their dwelling/land if the opportunity to do so is available and new residents who will be predominantly home owners although some will also rent privately.

The increasing social mix and diversity of the community has the potential to be advantageous, however the expansion of Pierces Creek will inevitably place some pressure on the community and challenge the community cohesion that has existed. The re-establishment and expansion of Pierces Creek will pose several critical social challenges:

- the capacity of returning residents to recapture the social capital and sense of community that existing prior to the fires;
- how to absorb a population that is likely to arrive over a short time period into the prevailing culture;
- how manage the increasing social diversity and retain and enhance the high level of social capital arising from the tightly knit community; and
- how to integrate the settlement with future urban expansion whilst retaining its former separate character.

Based on research elsewhere⁷, there are a number of factors that result in a loss of the existing cohesion and inclusiveness as well as some negatives of social capital including:

- unequal social structures;
- economic inequality and increasing disparity of incomes between groups;
- less acceptance of the social norms of a community;
- high levels of residential mobility such that people do not stay in one location for a sufficient period of time to form friendships;
- the emergence of barriers to social inclusion, such as strong bonding used to exclude outsiders;
- division between groups within a community resulting in conflict rather than co-operation;
- decline in participation in community activities; and
- decline in the level of trust that exists between community members.

Indicators of declining social capital are most likely to become apparent during the re-establishment of Pierces Creek and if not managed will result in a lack of community cohesion. If the settlement is to flourish as a sustainable community, (re)building its social capital will be as important as the provision of other forms of infrastructure. In general, a community with high levels of social capital will be able to manage change better than communities with low levels of social capital.

⁷ Performance and Innovation Unit; *Social Capital – A Discussion Paper* (April 2002) (<http://www.number-10.gov.uk/su/social%20capital/socialcapital.pdf>)

The strength of social capital that existed prior to the fire offers a strong foundation on which to re-build and expand the community. There is no doubt that in wanting to return to Pierces Creek, residents are expressing a desire to regain the benefits a strong sense of belonging and community. Whilst there is considerable goodwill among existing residents, an objective of the development approach should be to also foster a sense of belonging and community and ensure that new residents are integrated and all residents feel part of a whole community.

Research in northern NSW has found that actions to enhance social capital must recognise that a “sense of belonging and the concept of community are integral features of villages”⁸ and small settlements. Based on this work and other research and the aspirations of existing and future residents the following key principles and actions provide a basis for enhancing social sustainability in Stromlo:

- the population of the community should be small enough community so that residents can know a core of the community and former residents not swamped;
- activities should focus on building trust between existing and new residents, possibly based on a shared desire to live in a “rural” area;
- diversity in terms of age groups and social characteristics should be encouraged, Diversity of income groups will occur as part of the development process;
- local ownership and responsibility should be established , including ownership or management of community spaces and infrastructure;
- residents should have a say in the development of the village, including where possible the range of services and infrastructure to be provided ;
- community pride should be fostered, for example by passing on community rituals and traditions to newcomers, holding community events and as noted above encouraging involvement ;
- a common focus or project should be established, including the establishment of community groups;
- activities to maintain community cohesion amongst at least a core of the community should be established;
- aspects of Stromlo that residents value should be incorporated into the plan and detailed design;
- the characteristics that are peculiar to Stromlo and which are not/will not be found in the surrounding urban areas should be identified and retained; and
- local responsibility, needs and preferences in relation to services and facilities should be balanced with the standardised application of government development guidelines.

The above principles provide a social framework for the re-establishment and expansion of Stromlo. Each of these principles is equally important but in the context of Government policy and the previous concentration of public housing, encouraging diversity of residents is especially important.

There will be substantial benefits to new and existing residents and the whole community if the former community cohesion is restored and enhanced. Benefits to residents and the Stromlo community are likely to include:

⁸ Northern Rivers Regional Strategy Valley Committee Workshops – *A Region of Villages: Workshop Report* (2001)

- existing residents will live in what they consider to be a supportive environment;
- a re-establishment of the local community and all that that implies, especially the opportunity to restore the sense of community cohesion;
- an ability to resume their lives and put the events of 18 January 2003 and subsequent trauma behind them;
- getting back the things that they like about living in Stromlo; and
- the return of friends with whom they have a special bond.

New residents can also be expected to benefit:

- they will move to a community where there is a strong desire to establish a sense of community; and
- existing residents have previously demonstrated a willingness to absorb new residents and therefore are likely to be accepting of new arrivals; and
- they will have an opportunity to live in a semi-rural environment.

Benefits to the broader community of rebuilding and expanding the village are likely to include:

- reduction in short and long term costs of assisting these people to manage their lives whilst waiting for the village to be rebuilt;
- a sense that equitable support has been provided to rural and urban people affected by the bushfires;
- growth in the social capital of the ACT community; and
- demonstration of the social inclusiveness and acceptance of diversity among the whole community.

It is difficult to cost the potential benefits arising from the development of a strong sustainable community, however in the longer term they are likely to result in a lower demand for community services and less use of police and emergency services. They can also be expected to have benefits for individuals and families in terms of educational attainment, employment and health.

Housing ACT supports the concept of community title where it would be consistent with increased tenant participation. That is, the community title would support owners and tenants being involved in community management decision.

Socially sustainable planning and design

Preserving and enhancing the social capital of Stromlo will primarily be achieved by maintaining existing community values and transferring those to new residents and as well as developing a supportive community. Even so, there are a number of aspects of the design and built environment could support the maintenance and enhancement of the community's social capital.

Based on the outcomes of the consultations these include:

- physical separation of Stromlo from future urban areas to the north and existing urban areas to the south;
- development of a settlement pattern where public and private housing follows a consistent theme;
- the architecture and urban design should reflect the history and heritage of the settlement and include:
 - a subdivision plan that incorporates rear laneways separating the rear boundaries of blocks; and

- the residential development conditions should aim to protect what is valued including the character, size and scale of former housing; the rural character and the privacy afforded by the separation between houses;
- the subdivision pattern should incorporate a range of block sizes, ideally with public housing blocks being equivalent in size to the blocks previously occupied. This will facilitate and opportunities for different housing types;
- retention of the separation between dwellings;
- adoption of signage that reflects Stromlo's identity and history; and
- use of public art to express community values, identity and history;
- development of pedestrian rather than vehicular connections to Duffy and Holder;
- development of focal points where the community can meet and which the community owns;
- a balance between government development standards, for example for street lighting and kerb and guttering, and the expectations and preferences of residents for a non-standardised approach;
- development of centrally located and accessible focal point(s) within the village including an oval and use of the former ACT Forestry depot; and
- identification of a site for a possible forestry museum.

The northern NSW project has also identified a number of urban design considerations that contribute towards the social sustainability of villages and which are relevant to Stromlo:

- maintenance of the human scale;
- establishing physical connections to natural features and integrating natural features, where these exist into a village;
- creation of precincts within a village, each with its own character;
- establishing non-vehicle based transport options within the settlement, including a layout that encourages walking;
- include new and sustainable technologies for waste management, water supply and wastewater disposal and energy efficient building design;
- improving telecommunications infrastructure to encourage independence;
- community facilities are designed to maximise multi-use and flexibility;
- incorporating new and alternative technologies in infrastructure provision and building design;
- encourage on-street activities; and
- limit building heights and maximise solar access.

These factors warrant attention in both the physical form and the management and ownership structures that are to be set in place. All can be readily addressed and the proposed community development worker will facilitate this process.

Support for community development

Social capital can only be built up incrementally and with a lot of positive effort but can be quickly diminished. Community capacity building provides a way of assisting communities to manage change and enhance social capital. Community capacity building could assist existing and future Stromlo residents to manage the process of expansion and change whilst exploiting and enhancing existing social capital.

One way that government could support and facilitate community capacity building at Stromlo would be to engage a community development officer to work with the local community. In the context of the expansion of Stromlo, the role of a community development worker could be expected to include:

- engaging local residents in developing a shared vision for revitalising and expanding their community, possibly based on the existing sense of identity;
- supporting the formation of formal and informal local networks and groups;
- encouraging the emergence of local leadership;
- encouraging participation in local community activities and opportunities for positive social interaction;
- identifying the need for services other than those initially provided; and
- building trust and understanding within the community.

A community development worker would require a period of about five years to achieve the above outcomes, however their work could be undertaken on a part-time basis, possibly in conjunction with community development activities at Uriarra and Pierces Creek. In creating such a position it will be important to ensure that their involvement with the community gradually declines and that the community does not become dependent on their presence.

6.4 Infrastructure and Services

Small settlement such as Stromlo are unable to support the full range of services and facilities residents require and indeed the existing residents do not expect these to be provided, mainly because of the proximity to Duffy and Holder. On the other hand new residents are likely to have different expectations about infrastructure and service provision.

The provision of infrastructure and services affects the operation of a village. "Achieving the appropriate level and mix of infrastructure and services within a village will contribute positively to community identity, connectedness and integration, function, design and diversity. This in turn will lead to a more sustainable village"⁹. The provision of some infrastructure and services at Stromlo will be essential in maintaining its identity once surrounding areas are developed.

Therefore one of the key issues that had been assessed as part of this project is to establish an appropriate, that is sustainable, level of provision of services for Stromlo.

There is currently no single basis on which to determine the range of services required or their level of provision. There are numerous guidelines that are based on determining population thresholds for community and other services, although there are none that have been developed specifically for the ACT.

⁹ GeoLINK: *Villages: An Investigation into Village Infrastructure and Services* Prepared for the Northern Rivers Regional Strategy (2003)

The *ACT Locational Guidelines for Community and Recreation Facilities*, which outlines guidelines for the provision of a wide range of facilities, identify co-location opportunities and relationships between community and recreational facilities, shops and other activities but are not based on a population threshold approach.

A population based approach does not however, recognise the diversity of communities or their individual needs and therefore a needs based approach to service provision, which takes these factors into account, is more commonly adopted. This approach recognises that the needs of the population vary between areas and over time, provides flexibility and enables local communities to participate in determining at least some of the infrastructure and services that should be provided.

6.5 Existing Infrastructure & Services

Prior to the bushfires Stromlo had both physical and social infrastructure.

The physical infrastructure included a reticulated water supply, sewerage system and grid electricity telephone and road network. The social infrastructure included mail deliveries, a common ground and to a lesser extent the former forestry depot.

Emergency Services

The need for careful attention to bushfire control and management at the village is clearly a high priority and is dealt with in detail in Chapter 14. The provision of other emergency services has also been considered. Discussion with representatives of the fire and ambulance services have indicated that response times to the village will be virtually identical to the adjoining suburb of Duffy and well within the established criteria for the metropolitan area.

Police attendance at the Village will be on an as required basis, no special considerations are necessary.

6.6 Future Infrastructure & Services

The existing services and infrastructure provide an indication of the services that will be required in the future.

In Stromlo the development of local infrastructure and services will be a key way that separation is achieved and people feel part of a separate community. On the other hand people living at Stromlo have indicated that access services and facilities in the surrounding suburbs and therefore do not require facilities to be located locally. If the community is to have a separate identity and not just a physical separation there should be some community focal point around which this can occur.

Conclusions drawn from the work in northern NSW as well as the consultation and review of existing services indicates that there are a number of principles on which future provision should be based:

- infrastructure and service provision should minimise the impact on the environment and the use of resources;
- multi and shared use of facilities should be encouraged to increase utilisation;
- the community should be responsible for the management of the facilities in order to encourage ownership and cohesion;

- the range of facilities should be adequate to support the population and conversely the population should be of sufficient size to support the infrastructure and services provided; and
- the services should be responsive to the needs of the population and characteristics of the community.

Baseline services

A community needs assessment has not been conducted and there is limited research on infrastructure and service provision in urban edge villages. The most recent research has been undertaken as part of the northern NSW project referred to in other parts of this report. This project examined the range of services operating in three rural villages and used this to derive a set of baseline services that it was considered should be located in every village in the study area, regardless of their size. The services included:

- community meeting place;
- postal services;
- grocery store providing basic items;
- transport network;
- open space;
- water supply;
- waste management system;
- electricity; and
- telecommunications.

With the exception of a grocery store, these facilities and services already exist in Stromlo and food retailing is available in adjacent suburbs. It is unlikely that there will ever be a demand for local retail facilities at Stromlo.

It is possible that there could be a demand for other services. For example residents have indicated that they consider that the common ground, which is used as open space could be developed as a park and that a community shed could be constructed. Equally future residents may have specific needs. If there is a requirement for these facilities both existing and future residents should be involved in determining the need and approach to provision.

In addition, Stromlo residents will need to be able to access services and infrastructure that are located in urban areas and which are generally located in adjacent areas. This will be facilitated by the development of pedestrian connections.

Non-physical infrastructure

The sustainability of Stromlo will depend on the non-physical as well as the physical infrastructure that is incorporated into the village. The non-physical infrastructure will include the land management arrangements, the groups and organisations that are established and also the opportunities for alternative approaches to housing management.

Land tenure arrangements are considered elsewhere in this report. Housing ACT will be responsible for management of public housing tenancies. In relation to private housing developments there should be opportunities for different housing management arrangements (that could include for example, housing associations, community titling and individually leased blocks).

Sustainability

The provision of an appropriate range of infrastructure and level of services to support the population and which in turn are supported by that population are essential to achieving both social and economic sustainability. Services that cannot be supported by the population are not sustainable in the longer term.

In addition the attainment of sustainability will also be enhanced “though the provision of utilities infrastructure and services that are designed to promote conservation, social cohesion, self-sufficiency and efficient resource use”¹⁰. The northern NSW has identified criteria for sustainable villages in terms of infrastructure and services, some of which are appropriate to Stromlo:

- provision of innovative transport links including car pooling (and community use of the school bus);
- provision for an effective telecommunications network;
- provision of self-sufficient water cycle management infrastructure;
- promotion of natural drainage systems;
- utilisation of permeable road surfaces; and
- use of high quality materials in all infrastructure to reduce long term resource consumption.

Conclusion

Future provision of infrastructure that meets the principles outlined above, is broadly consistent with the existing range of services and infrastructure, recognises that new needs will emerge, and can be supported by the size of the population, is likely to be sustainable in the longer term.

Development in Canberra has traditionally provided many facilities within a short time of initial settlement. This approach has been beneficial, however if the social capital of Stromlo is to be enhanced it would be advantageous to delay the provision of at least some services so that residents can have a say in their provision, including priorities for provision.

¹⁰ op cit

7 Heritage Assessment

7.1 Introduction

The Stromlo forestry settlement has a rich and interesting history. The study area at Stromlo Forestry Settlement falls within the Parish of Yarrowlumla, County Murray. It comprises land that corresponds to parts of former Portions 24, 25, 26, 27, 45 and 50, all of which appear to have been part of a late nineteenth century division of lands. Portion 24, which consisted of 200 acres is the largest of these; it was selected by James Rolfe as a conditional purchase in 1871. This portion corresponds to a narrow strip of land in the northeast corner of the present study area.

Portions 25, 26 and 27 form the majority of the eastern half of the study area; they are part of a series of 40-acre blocks selected by Henry Devlin in 1871. Not a great deal is known about Henry Devlin except that he was born around 1787, did not marry, and died 30 September 1873 when he apparently drowned in the Stromlo Creek¹¹.

The south western corner of the study area overlaps with the northeast corner of former Portion 45, a 500 acre block that was selected by Michael Grady on conditional purchase in 1877. Michael was the son of John and Margaret Grady, he was born in 1845, worked as a labourer in the local region and married Julia O'Mara with whom he had eleven children between 1871 and 1890¹².

Portion 50, a fifty-acre lot which overlaps partially with the northwest corner of the study area, was selected by James Holden on conditional purchase in 1876. James was born in 1845 and arrived in the district in 1866 working as a farmer. During the 1870s he selected a series of neighbouring lots to the north and the east of Portion 50 along the creekline now known as Holden's Creek. James and his wife Bridget had five children: Elizabeth (b.1866), Catherine (b.1868), William (b.1870), Patrick (b.1872) and Margaret Ann (b.1875).

The Commonwealth resumed much of the land in this area at the beginning of the twentieth century, at which time the pine plantations and forestry settlements were also being established. The oldest of the houses within the Stromlo forestry settlement was built around 1928 for Ranger Southwell¹³. It was not until a further twelve years later that the first phase of job-tied housing was constructed. Expansion of the settlement continued up until 1972, by which time there was a range of weatherboard houses, a forestry depot and headquarters, as well as recreational features such as tennis courts.

7.2 Previous Heritage Surveys

The area comprising the settlement at Stromlo has previously been the subject of archaeological and cultural heritage surveys for both Aboriginal and European sites. No Aboriginal sites have previously been recorded within the Stromlo settlement¹⁴.

¹¹ Fletcher, E. 1993 Biographical Register of the Australian Capital Territory 1820-1911. Heraldry and Genealogy Society of Canberra, Panther Publishing and Printing. p45.

¹² Procter, P. (Ed) 2001 Biographical Register of Canberra and Queanbeyan from the district to the Australian Capital Territory 1820-1930. The Heraldry & Genealogy Society of Canberra Inc.

¹³ Binns, K & J. Heap 2001, Meet you at the R.M.B. ACT Housing, Canberra.

¹⁴ Navin, K. 1993 Reconnaissance Level Archaeological Investigation of Proposed Urban Infill Areas – North Duffy & Holder, ACT. Unpublished report to CMPS&F Scott & Furphy Pty Ltd.

The settlement at Stromlo was recorded at a broad level by Boot and Bulbeck, who provided an overview of the construction history and building types at the site¹⁵. Most recently Stromlo featured in a report to ACT Housing, which provided photos, history, descriptions and basic assessments for each cottage. The cottages were at that time generally assessed to be of low to moderate significance¹⁶.

7.3 Methodology

A range of documentation was used in assessing the state of archaeological and historical knowledge for the study area. This background research was used to determine if known Aboriginal and historical sites were located within the area under investigation, to facilitate site prediction on the basis of known regional and local site patterns, and to place the area within an archaeological and heritage management context. The review of written and documentary sources included heritage registers, local histories, parish maps, biographical registers and archaeological reports.

Field survey was conducted over two days in January 2004 with on site consultation with relevant aboriginal organisations. The primary objective of the survey methodology was to attain as comprehensive ground coverage as possible within the subject areas.

The survey aimed to identify and record evidence relating to Aboriginal occupation within the study areas, as well as any evidence of European cultural heritage.

All survey within the study areas was undertaken on foot.

7.4 Results

No Aboriginal sites were identified at Stromlo during the course of this study; however, ten sites of European heritage were identified and recorded. These sites comprise three cottages, road network, helicopter pad, meteorology station, forestry equipment, wash station, roadside mailbox, and the site of an informal memorial.

7.5 Significance Assessment

Assessment Criteria

Criteria suitable for the assessment of the heritage values and significance of the archaeological resource within the ACT have been defined in Schedule 2 of the Land (Planning and Environment) Act, 1991.

Eight of the eleven specified criteria are potentially applicable to cultural remains and places. These can be summarised by the following headings:

1. a high degree of **technical** and/or **creative** achievement;
2. outstanding **design** and/or **aesthetic** qualities;
3. demonstrative of a **distinctive** way of life, process or function, now past or rare;
4. highly valued by a community or cultural group for its **cultural associations**;

¹⁵ Boot, P. & D. Bulbeck 1990 Stromlo Forest Cultural Resource Survey and Conservation Plan. Volumes I & II. Report to ACT Forests and ACT Parks and Conservation Service.

¹⁶ Binns, K & J. Heap 2001, Meet you at the R.M.B. ACT Housing, Canberra.

5. only known or comparatively intact example (**rarity**);
6. a **notable** and **characteristic** example of its type;
7. strong or special **historic associations** with significant events/people;
11. significant **scientific** and/or **educational** potential and application.

Considerable overlap exists across each of these criteria and many sites will be significant according to several criteria.

The fires of 2003 considerably reduced the sample of twentieth century forestry settlement in the ACT; this has effectively increased the heritage significance of those structures that survived the fires. The cottages recorded at Stromlo have generally been assessed to have moderate to high heritage significance at a local scale.

The settlement at Stromlo is considered to be a European site complex, which has attributes that meet criteria 2, 3, 4, 5, 6, 7 and 11 of the ACT Assessment Criteria. It should be noted that the settlement at Stromlo covers both ACT and Commonwealth land, with Cottage 10, Site of Cottage 5, the roadside mailbox, wash station and part of the road network all falling within Commonwealth land. As such these sites, and parts thereof, are not covered by ACT Heritage Legislation¹⁷. Ownership of this land is however currently under review. For ease of site assessment and comparison and due to the uncertain future of this land these sites were all assessed according to the same criteria. This is in keeping with the standard set by previous studies such as that by Binns & Heap (2001).

The table below provides a summary of the relevant assessment criteria for each identified site with levels of significance as per their context as elements of forestry settlements that have high local significance.

The criteria are indicated by their number as per Schedule 2 of the Land (Planning and Environment) Act, 1991, and the codes used for levels of significance are as follows:

- L = low significance
- M = moderate significance
- H = high significance
- NA = not applicable

¹⁷ pers. comm Jan Klaver 2004

Table 7 – Heritage Site Assessment Summary

Site	Criteria						
	2	3	4	5	6	7	11
Reasons for Significance							
Cottage 10	M	M	H	H	H	M	M
As one of only two surviving Forester's houses this cottage is representative of its type (Criteria 5, 6); the site's high cultural value (Criteria 4) is based on community feedback.							
Cottage 21	NA	M	H	L	M	L	NA
The site's high cultural value (Criteria 4) is based on community feedback; it has moderate value under Criteria 3 and 6 as part of the only remaining examples of the residential complex of the forestry settlement.							
Cottage 22	NA	M	H	L	M	L	NA
The site's high cultural value (Criteria 4) is based on community feedback; it has moderate value under Criteria 3 and 6 as part of the only remaining examples of the residential complex of the forestry settlement.							
Roads	NA	M	M	L	L	NA	NA
The roads have moderate significance under Criteria 3 as they represent the spatial evolution of the settlement; the community has also indicated that the existing road layout has importance as an integral part of the settlement layout (Criteria 4).							
Helicopter Pad	NA	NA	L	L	L	M	NA
The helicopter pad has moderate significance under Criteria 7 as a place that has played an important role in the history of bushfire fighting within the ACT.							
Meteorology Station	NA	NA	NA	NA	L	NA	NA
The meteorology station is in a poor condition and is not a unique example of its type.							
Forestry Equipment	NA	M	NA	L	L	NA	M
The Forestry equipment has moderate significance under Criteria 3 and 11 as items that relate to past activities that are no longer practised, and as items that could be of educational value in the context of the history of forestry within the ACT.							
Wash Station	NA	L	L	L	L	L	NA
The wash station is in a poor condition, however the community has expressed a degree of value to the location in terms of the memories associated with it.							
Roadside Mailbox	NA	L	L	L	NA	L	NA
The RMB is in a very poor condition, however the community has expressed a degree of value to the location in terms of the memories associated with it.							
Site of Cottage 5	NA	NA	H	NA	M	H	NA
The site of Cottage 5 has high cultural value (Criteria 4) as the place of a community built memorial; it thus also has high value as a place that has special associations in terms of the events of the fires of 2003 (Criteria 7).							

7.6 Recommendations

The recommendations for each individual site are summarised below. However, it should be noted that the recommendations regarding some of the sites, and parts thereof are on Commonwealth land and as such the recommendations in this report may not be relevant if the proposed appropriation of the land by ACT Government does not proceed.

It is recommended that:

- the remaining cottages be conserved, future roads be integrated in such a way that existing alignments are maintained,
- the forestry equipment be appropriately stored/curated,
- the option of formalising the memorial be explored, and
- that the helicopter pad, meteorology station, wash station, and remains of the roadside mailbox pose no heritage constraints.

Conservation should be confirmed by way of the processes available for listing of heritage places and items under part 3 of the Land (Planning & Environment) Act 1991.

The final management of heritage places remains subject to Heritage Council consideration of nominations and endorsements of identified places. The preparation of such nominations should be pursued along with further consultation with key state holders such as aboriginal groups and the residents of remaining cottages.

The likely heritage status of the remaining cottages will not prevent them from being lived in as normal family homes, nor will it prevent necessary upgrades or retro fitting to meet current standards, particularly for bushfire risk management or energy and water management.

Part Three – Place

Part Three – Place

8 Ecological Assessment

8.1 Ecological Sustainability in the Context of Stromlo Settlement

From an ecological perspective, the site of Stromlo Settlement is a highly modified environment. In this context, ecological sustainability involves seeking a balance between the remnants of the natural environment and the modified elements which:

- will provide an appropriate setting for the future residents to live in;
- does not conflict with, and desirably enhances, the objectives for conserving the wider ecological resources of the ACT; and
- can be managed with the human and financial resources available for the village.

Stromlo Settlement differs from the other former forestry settlements, Uriarra Village and Pierces Creek settlement, in that it is located within the boundary of urban Canberra rather than existing as a separate rural area. Consequently the issue of ecological sustainability needs to be considered in the context of the surrounding urban setting, including the open space corridor fringing the town of Weston Creek and separating it from the proposed future town of Molonglo.

Ecological sustainability cannot be divorced from social and economic sustainability, as the implementation of many desirable ecological initiatives can have significant social and economic implications. For example, should it be considered desirable ecologically to return areas of burnt pine forest adjoining the settlement site to the original native woodland and maintain such areas in this condition, this would involve significant costs and a commitment of human effort. The implementation of similar measures at Uriarra Village is seen as depending on a commitment from local residents to accept such ecological values as a priority and support this with human effort on an ongoing basis¹⁸. While the same principle could apply at Stromlo Settlement, the potential pool of human resources is larger. For example, it is also likely to include some Duffy residents, who would also benefit from the enhanced environment.

Its proximity to present and proposed urban areas has other implications for ecological sustainability issues which differentiate Stromlo Settlement from Uriarra Village and Pierces Creek. In particular, the prospect of a 'no cats' development, which has some possible merit at the other villages¹⁹, is unlikely to be of any real benefit at Stromlo, given the proximity of a typical cat-populated suburb in neighbouring Duffy.

The populations of feral animals are likely to reflect those in a typical Canberra urban area, rather than being influenced by surrounding tracts of pine forest, making feral pest control less of a practical issue from a sustainability viewpoint. Whereas Uriarra and Pierces Creek Village have some limited native woodland or forest remnants within their boundaries, Stromlo Village has only the occasional isolated woodland tree and any 'native' biodiversity will need to be established by artificial means.

Taking account of these limitations, the following criteria are proposed as a basis for making the future Stromlo Village sustainable from an ecological perspective:

¹⁸ Shaping Our Territory, Uriarra Village Sustainability Study, ACT Government 2004.

¹⁹ Shaping Our Territory, Pierces Creek Settlement Sustainability Study, ACT Government 2004.

- Native biodiversity within and surrounding the village is re-established to the extent feasible with the human and financial resources that are available within the village and nearby community and the ACT Government, with links established to other nearby areas of native vegetation to promote the movement of native fauna.
- The survival of threatened species and ecological communities is not adversely affected by the village.
- The levels of weed species and feral animals within the village precinct are maintained within acceptable levels, predominantly by the village community.

These are seen as the minimum criteria to be satisfied for sustainability, and are not intended to discourage the village community from striving for higher goals, if this is socially and economically viable.

Approaches for satisfying the above criteria are discussed further in Section 8.3.

8.2 Existing Ecological Characteristics

Stromlo Village is located within an area which, prior to European settlement, was probably covered with Yellow Box – Red Gum grassy woodland. The only remnants of the woodland that are still identifiable are occasional old woodland trees which have survived within the former forestry settlement or the neighbouring pine plantation. None of the site is identified as woodland in the draft ACT Lowland Woodland Conservation Strategy²⁰.

Other evidence of native vegetation within the site is minimal. There is some very limited cover of native grasses (*Stipa*) and occasional native forbs in the northern part of the site near the end of Uriarra Road and on one location near the southern edge, but the majority of the area is covered with introduced grasses (e.g. *Phalaris*, *Oats*) and weeds (e.g. various thistles, *St John's Wort*, blackberries). Almost all of the surviving trees on the site are introduced species. Some of the introduced eucalypts (e.g. *E. bicostata*, *E. viminalis*) and wattles are giving rise to dense regeneration, probably stimulated by the bushfires. Regeneration of some of the deciduous trees (e.g. elms) is also taking place.

The weed problem is most evident in areas of former pine plantation and on the sites of destroyed houses, where the ground has been disturbed in the course of site rehabilitation. The least disturbed part of the site is the extensive area of mown grass in the centre of the site.

The main ecological characteristics of the Stromlo Village precinct are summarised in Figure 5. This figure identifies:

1. eucalypt plantations (introduced species) which are regenerating naturally;
2. former pine plantations which have been burned and cleared, and are now dominated by weeds;
3. other areas which have been disturbed in the past and are now covered with introduced grasses and/or weeds, including remaining residential blocks and some scattered trees (mainly exotic); and
4. mown or slashed grass within the village area, including a few scattered trees.

²⁰ ACT Government. Draft ACT Lowland Woodland Conservation Strategy. Action Plan No. 27, 2003, Environment ACT, Canberra.

8.3 Planning and Sustainability Issues

Future land use opportunities and constraints in relation to biodiversity

From an ecological perspective, there are few constraints on the future development of Stromlo Village. It is desirable to retain any old remnant woodland trees as there are very few of these within the site. Most of the remaining trees are introduced species and, while some of these may be valuable from a landscaping viewpoint, they are not of particular ecological significance.

There are no significant constraints in terms of protection of ground cover as almost all of the site has been disturbed and any remnants of native grasses and forbs are small and localised.

Any future natural qualities of the area will depend on how the undeveloped parts of the site are rehabilitated as part of the village development. In particular, there is the opportunity to re-create a woodland buffer around the village which could form part of an open space corridor separating Duffy and Holder from the Cotter Road and the proposed new town of Molonglo, and linking with Narrabundah Hill, where restoration of woodland is also proposed. This is seen as part of a wider woodland regeneration project, rather than just relating to the Stromlo Village redevelopment.

The re-creation of a true woodland buffer around Stromlo Village will involve:

- the establishment of woodland eucalypts at a relatively low and variable density;
- the establishment of patches of understorey shrubs which will provide complementary habitat, particularly for woodland birds; and
- the strengthening of native grasses and forbs in the groundcover, at the same time reducing the dominance of the existing pasture grasses and weeds.

The last of these elements is likely to be the most challenging, and will require a strong commitment from both government and community participants if it is to be achieved. It is important also to plan the tree and understorey planting with a view to limiting the severity of future fires, for example, by avoiding understorey plantings beneath the trees where they could assist in igniting the tree canopy.

It is important to develop a comprehensive strategy for woodland regeneration before embarking on any extensive tree planting. An example of such a strategy is provided in the Mount Painter Vegetation Plan²¹, which was developed with the local parkcare group with ecological, aesthetic and fire protection objectives all having high priority. The implementation of such a strategy is unlikely to be achieved quickly, but should result in time in the best ecological and fire protection outcome.

Threatened species and ecological communities

There are no records of any threatened species or ecological communities within the Stromlo Village area. Because of the past disturbance to the site, the current habitat characteristics are unsuitable for any threatened plant or animal species currently listed under either ACT Nature Conservation Act or the Commonwealth Environment Protection and Biodiversity Conservation Act.

²¹ Hogg, D. Mount Painter Vegetation Plan. Prepared for Friends of Mount Painter and Canberra North District by David Hogg Pty Ltd, February 2000.

Management of Weeds

As identified in Section 8.2, weeds are present throughout most of the Stromlo Village site, and are likely to present a major management problem, at least in the short term, irrespective of the type and scale of future development.

The weed problem can be addressed in three parts, as follows:

- Within existing or new household blocks, the responsibility for weed control will rest with the occupants.
- The public land inside the village area may be maintained to a typical urban standard using ACT Government resources. The larger the area of such public land, the more thinly such resources would be spread. If there were excessive areas of such land within the village, the task of maintaining them with an acceptably low level of weeds may be sustainable only with support from the village community itself.
- The public land surrounding the village is likely to present a greater challenge to keep weed infestations at an acceptable level. As discussed in Section 8.1, this land will be an asset to Duffy residents and the wider community, as well as to residents of Stromlo Village. Caring for the land, including weed management, has the potential to attract wider community support to assist in making its management sustainable.

While it appears reasonable to expect the village community, with a reasonable level of ACT Government support, to maintain acceptable ecological standards within the village boundary, the extent to which that community could or should contribute to maintain the surrounding land is uncertain. This consideration may influence the determination of the village area boundary, in particular whether it should include a peripheral buffer area or be limited essentially to the area required for the blocks and associated urban infrastructure.

9 Tree Assessment

9.1 Purpose

The purpose of a tree assessment is to identify trees or groups of trees that contribute to the amenity or ecological value of the site. The tree assessment then enables the design of the development to avoid disturbance of high value trees and where possible retain medium value trees.

The village site was severely impacted by the January 2003 bushfires and much of the vegetation was lost, including some larger trees. This increases the importance of maintaining the remaining high value trees in the re-development process.

9.2 Methodology

Each tree or group of trees remaining within the village study area was allocated a reference number and a series of characteristics were recorded for each tree.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring and as such reflects the condition of those trees at the time of inspection on 23 January, 2004. The full report and a table of tree characteristics is available separately. Figure 6 overleaf illustrates the location of the high and medium value trees within the village site.

The following details were recorded for the trees on the site. The information recorded has informed the concept planning and is intended for use in the detail design of the development.

Species: Identification on site

Height: Approximate in metres

Trunk circumference: 1 metre above ground level.

Number of Trunks: Number of trunks larger than 150mm diameter (measured at breast height).

Health: Assessment based on crown and trunk appearance.

E - Excellent	F - Fair
G - Good	P - Poor

Tree Surgery: Recommended short term management action that would be appropriate in the event of changed conditions. All pruning to be in accordance with AS 4373 – 'Pruning of Amenity Trees'. Such action may include:

LP	Remove dead wood and light prune to improve form if necessary.
HP	General tree surgery and pruning to remove dead and/or diseased wood, to shape, balance or reduce the crown, to eliminate low growing limbs or other inferior or damaged growth, for management of top heavy or lopsided canopy or corrective work following physical damage or vandalism.
FP	Formative pruning

Crown Diameter: Shown in metres and is the maximum crown width of the tree. The crown radius, plus 2 metres (the limit of development) defines the minimum distance from the face of the trunk of the tree for any ground work under the canopy of the tree that is likely to harm the tree including building, trenching, changing soil levels, compacting or contaminating the soil. Consideration is to be given during the design stages of development to locate construction elements outside the limit of development; in particular especially tall trees or trees noted as having exposed roots or trees rated as H+.

Expected Longevity:

S	Short (less than 10 years)
M	Medium (10 - 25 years)
L	Long (greater than 25 years)

Management Status:

H+	Extra High – excellent trees to be retained requiring additional protection.
H	High - represents the existing trees which are to be retained and protected.
M	Medium - Tree/groups of trees which would be desirable to retain, but would not warrant design expenditure to retain.
R	Remove - Specimens of poor quality or of no landscape significance.

Tree Damaging Activity: Approval required under the Tree Protection (Interim Scheme) Act 2001, a tree is a Significant Tree and is protected if it is growing on urban leased land and it has:

- a height of 12 metres or more, or
- a trunk circumference of 1.5 metres (approximately 0.5 metres in diameter) or more at 1 metre above ground level, or
- two or more trunks and the total circumference of all the trunks, 1 metre above ground level, is 1.5 metres or more, or
- a minimum crown width of 12 metres or more.

9.3 Recommendation

It is recommended that the proposed site design should ensure the preservation of all trees rated as H or H+, and that trees rated M should be conserved wherever possible. The concept plan has taken this into account.

10 Landscape Assessment

10.1 Introduction

The Stromlo Forestry Settlement is situated south of Cotter Road approximately two kilometres west from the intersection of Streeton Drive and Cotter Road. The site is directly north of the suburban area of Duffy, while the west, north and eastern areas were part of the Stromlo Pine Forest. This forest has recently been felled and placed into windrows due to the fires of January 2003.

10.2 Landform

The existing settlement is set on a flat ridgeline that is directed east. The open site is high and flat on the western side, sloping away to the east with a gradient that is generally uniform. Nearby prominent topographic points are Mount Stromlo to the north-west and Narrabundah Hill to the south-west.

10.3 Vegetation

There are few trees of significance on the site. A large group of Eucalyptus species which occupy a block on the northern side of the site represent pre-fire plantings of trees other than *Pinus radiata* (softwood pine). Active management is required to ensure these eucalypts develop into a worthwhile landscape feature for the forestry settlement. A large band of *Eucalyptus cinerea* (argyle apple) is a prominent feature on the western side of the site. To extend the usefulness of these trees as a landscape feature buffer, management and further development is required. A large *Eucalyptus globulus* (maiden's gum) near several houses which survived the fire is of merit due to it being one of only a small number which dominate the streetscape.

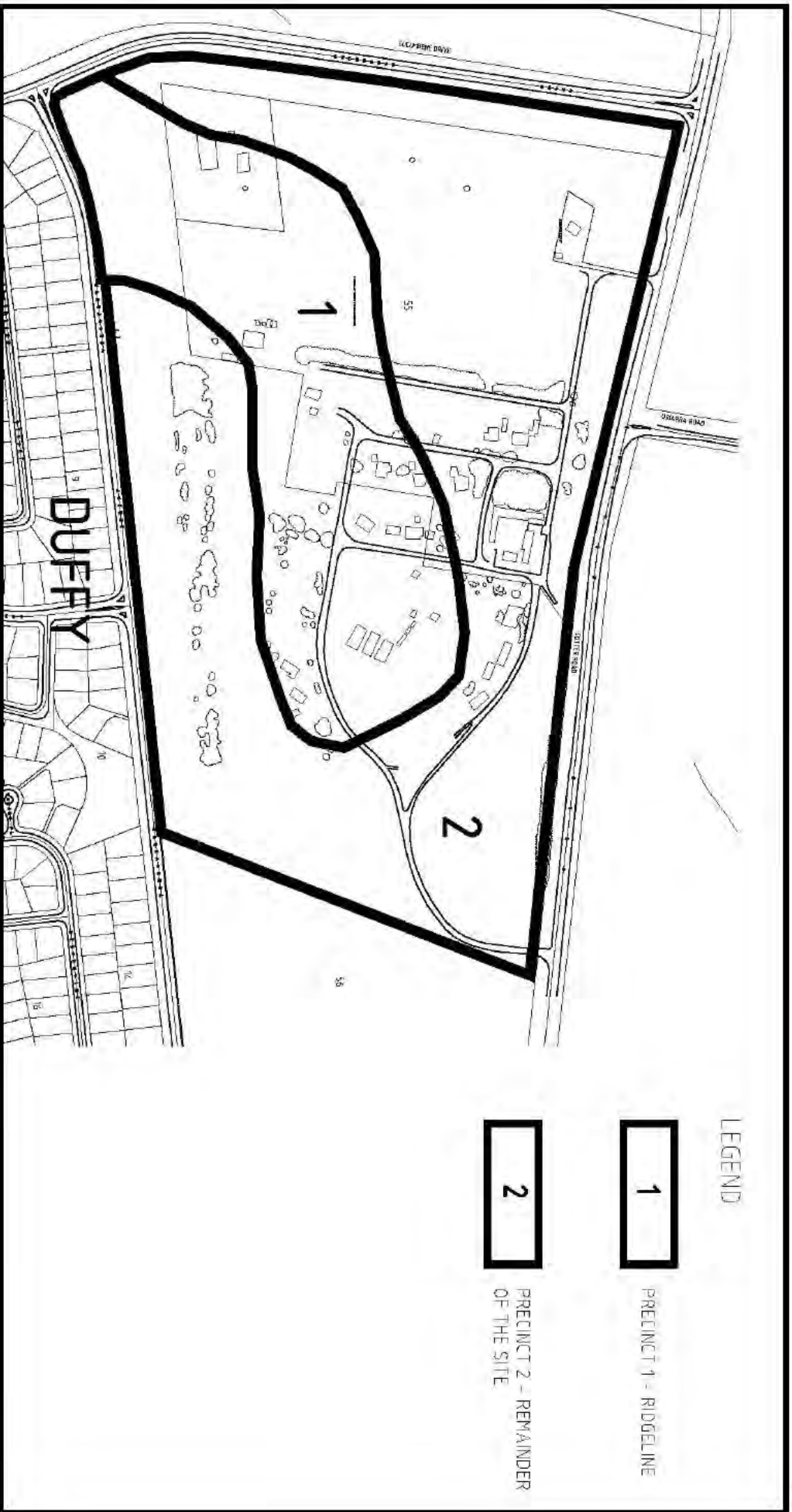
10.4 Landscape Description

The project site has been divided into precincts, identified primarily by landscape character and landuse. (refer to Figure 7) The landscape resources within each precinct – the landform, vegetation, built environment and views – are described according to their level of value²². "Value" is taken to mean recognised as valuable, either by institutional policy/law and/or some segment of the public. Although resources may be valued for their recreational, aesthetic, scientific, economic, heritage and/or infrastructural qualities, the landscape analysis that follows considers only aesthetic values.

10.5 Methodology

The analysis of the existing landscape addresses landform, vegetation and built form. Beside each of these features is a brief description of the criteria by which it has been evaluated. It should be noted that these features and criteria can not be definitive for all landscapes in all times and cultures, being reflective of normative public values as interpreted by landscape professionals in specific societies. The descriptions by precincts are summarised in Table 8 and Table 9.

²² as suggested in *Foundations for Visual Project Analysis* (Smardon, 1986)



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North

not to scale

Landscape Precinct Map

Figure 7

Landform

Gradient:	Low	offering limited views
	High	offering extensive views.
Variety:	Low	of uniform gradient
	High:	offering a wide variety of landforms &/or gradient changes
Features:	Low	featureless (within itself and by comparison with surrounds)
	High	a visually interesting terrain (within itself and by comparison with surrounds)
Integrity:	Low	obvious appearance of human modification
	High	appearance of 'naturalness' or absence of human modification
Scarcity:	Low	common landform locally
	High	unique landform locally

Vegetation

Variety:	Low	appearance of monoculture
	High	variation of vegetative forms, textures
Relevance to landform:		
	Low	vegetation pattern unrelated to landforms
	High	vegetation pattern visually reflects the shape of landforms
Integrity		(Degree of modification)
	Low	appears to retain little of the 'original' vegetation
	High	appears to be dominated by locally indigenous vegetation
Significance:		
	Low	vegetation is unimportant ecologically &/or culturally &/or aesthetically
	High	important ecologically &/or culturally &/or aesthetically

Built Environment

Features:		Residential Institutional Industrial
	Low	in sensory disharmony with environment &
		visually unattractive in itself
	High	in sensory harmony with environment
		visually attractive in itself

The precincts are as marked on the Landscape Precinct Map – Figure 7 and total two distinct units. They are:

1. Ridgeline
2. Remainder of the site

The landscape description by precincts are summarised below.

Table 8 – Landscape Precinct 1 – Ridgeline Summary Table

Attribute	Value	Comments
Landform		
Gradient	Medium	Uniform slope on ridgeline offering numerous views.
Variety	Low	Gradient is generally uniform.
Features	Low	No significant features.
Integrity	Low	Modification evident due to road alignment, housing and forestry facilities.
Scarcity	Low	Common landform locally.
Vegetation		
Variety	Low	Sparse mixture of eucalypts within a maintained area of broad grassland.
Relevance to landform	Low	Plantings do not appear to follow terrain features except for <i>E.cinerea</i> planted to ridgeline
Integrity	Low	Clearing of original vegetation.
Significance	Low	Heavily modified by clearing and fires.
Built environment		
Features	Med	Forestry elements may have some cultural value.
Built form	Low	Residential – visually interrupts the landform and views to the site.



Photograph 1: A view from Cotter Road of the western side of the site. Note the *Eucalyptus cinerea* (Argyle Apple) within the frame.



Photograph 2: Looking south from mid-site with Mount Taylor in the distance



Photograph 3: Looking south-east from mid-site.



Photograph 4: Looking east from mid-site.



Photograph 5: Looking northeast towards Black Mountain from mid-site. Mount Majura and Mount Ainslie can also be seen to the right, note arrows.



Photograph 6: Looking north from mid-site.

Table 9 – Landscape Precinct 2 – Remainder of the site Summary Table

Attribute	Value	Comments
Landform		
Gradient	Medium	Uniform moderate slope offering long views.
Variety	Low	Uniform gradient.
Features	Low	No notable features.
Integrity	Low	Modification evident due to road alignment, housing and forestry facilities.
Scarcity	Low	Common landform locally
Vegetation		
Variety	Low	Sparse mixture of eucalypts within a maintained area of broad grassland.
Relevance to landform	Low	Plantings do not appear to follow terrain features except for <i>E.cinerea</i> planted to ridgeline
Integrity	Low	Clearing of original vegetation
Significance	Low	Heavily modified by clearing and fires
Built environment		
Features	Med	Forestry elements may have some cultural value
Built form	low	Residential – visually interrupts the landform and views to the site.



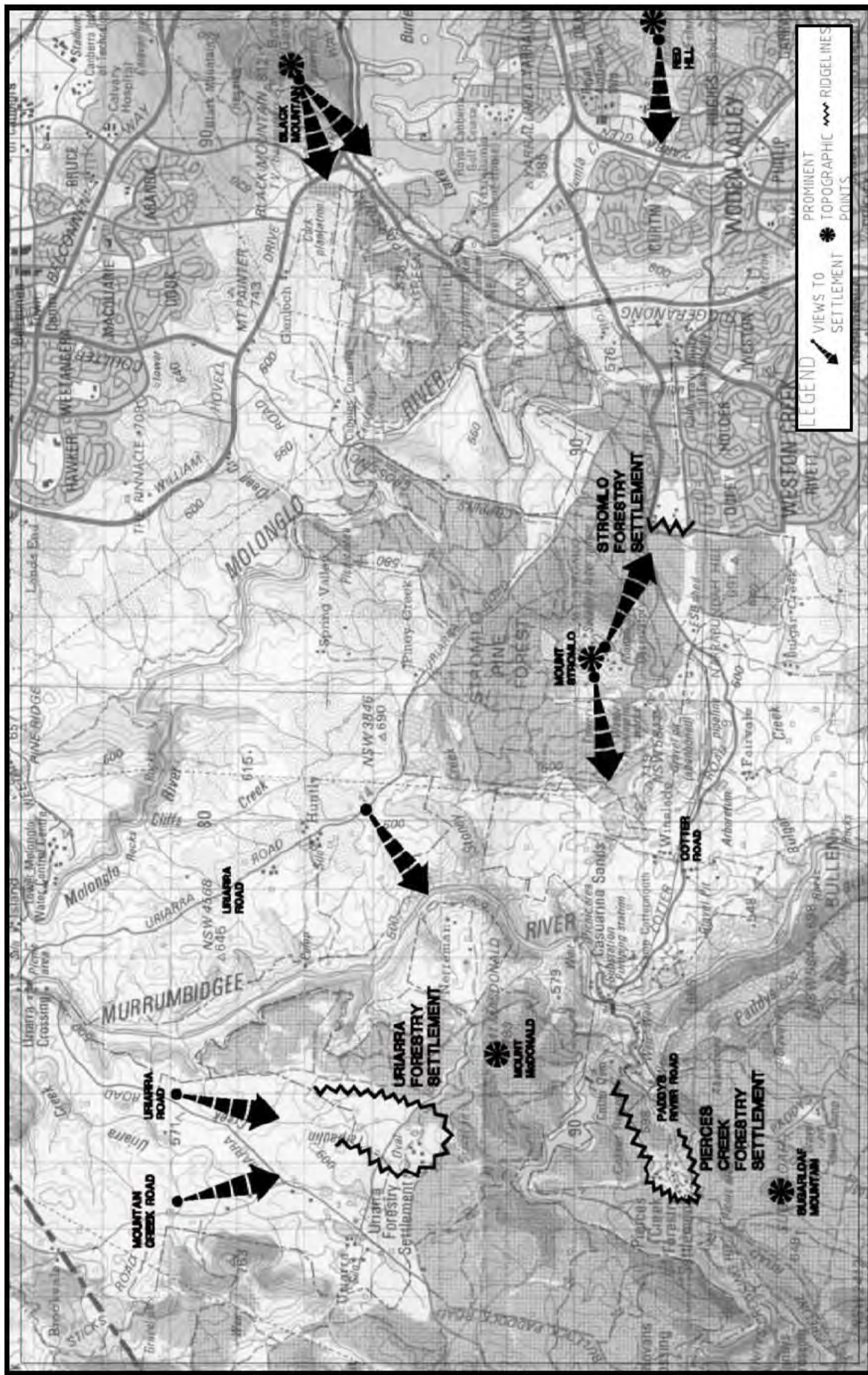
Photograph 7: Looking north-west and to part of Mount Stromlo under arrow.

10.6 Views

Stromlo Forestry Settlement is clearly visible from most aspects due mainly to its positioning on a ridge and lack of vegetation. Short to middle distance views along Cotter Road in different directions confirm this, though nearing the site on the western side reveals the site only from the neighbouring ridge.



Photograph 8: Looking west towards the settlement. Arrow is pointing to Cotter Road that borders the north of the site.



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not to scale



Landscape View Points Map

Figure 8



Photograph 9: Looking east towards the settlement. Arrow is pointing to Cotter Road that borders the north of the site.

Viewsheds from more distant points also reveal the site's prominence. These were from Red Hill, Mount Stromlo and Black Mountain.



Photograph 10: From Red Hill, Stromlo Forestry Settlement, left arrow, located on the south-eastern foothills of Mount Stromlo, right arrow.



Photograph 11: From Mount Stromlo the settlement is in clear view. The lines are a guide to the northern and western boundaries of the site. Weston Creek to the south and southeast of the settlement.



Photograph 12: A distant view shed from Black Mountain reveals the site under the left arrow. The right arrow points to Mount Stromlo.

Views within the site are open and uncontained due primarily to the exposed ridgeline. Lack of vegetation in and around the site make the site even more exposed.

Views to the settlement are summarised on the View Points Plan – Figure 8.

10.7 Conclusion

Visual Quality: The Stromlo Forestry Settlement site is exposed to short and long distance views from prominent areas in the Central National Areas of Black Mountain and Red Hill as well as the tourist area of Mount Stromlo. While these views are considered significant, the location of the settlement adjacent to the Weston Creek residential area and the potential future Molonglo residential area suggests that the settlement will visually blend with the surrounding landuses.

Middle and long views to the site prompt the need to extend and manage the existing landscape buffers and to establish new ones. Within these landscape buffers a mixture of species that meet the requirements of fast growing and long lived should be met. The landscape buffers will moderate the views to the site and provide the settlement with the landscape enclosed visual quality of pre-January, 2003 bushfires.

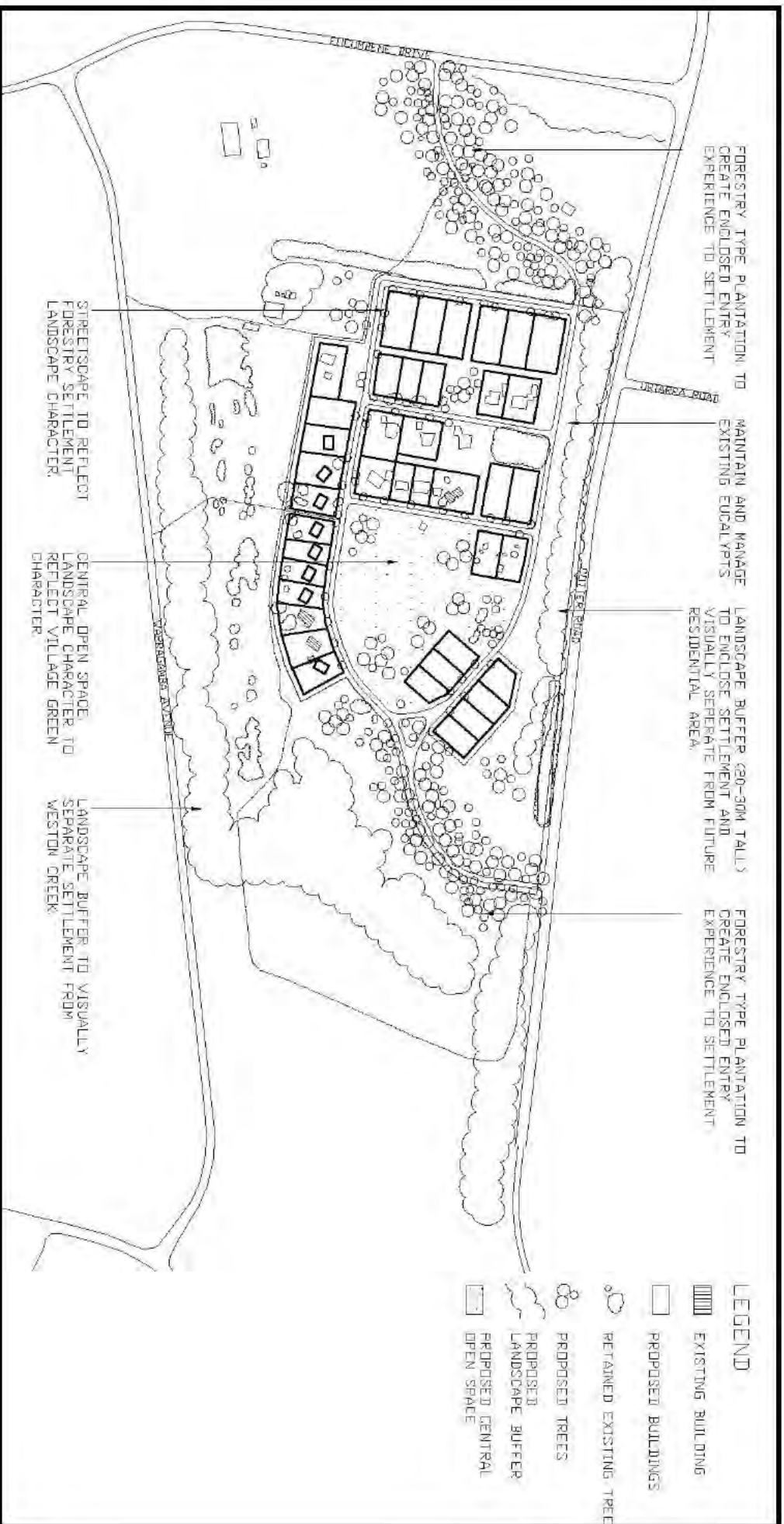
Landscape Setting: The site previous to January, 2003 bushfires had a uniqueness of a rural forestry settlement directly adjacent to suburban residential areas. Landscape development should include 'forest' planting which reflects the rural settlement and forest character. Important sites of landscape development would include entrances to the site and the village streetscape. Additional planting for the provision of screening and enclosure to building sites and public common space should be considered.

To maintain the unique character of the settlement, it is important that the landscape buffer zones visually separate the settlement from existing and future residential subdivisions.

To assist in the prevention of encroachment of future fires, fire protection measures should be implemented within the landscape. These may include an appropriate bushfire abatement zone around the village which would need to be developed and managed as open native woodland. The development of proposed residential subdivisions to the north of the settlement may reduce the need for the bushfire abatement zone. (refer to Chapter 18)

This fire abatement zone as well as public and private spaces within the site require management for the control of weeds.

Site landscaping recommendations are summarised on Figure 10.3.



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North

not to scale

Concept Landscape Plan

Figure 9

11 Transport

11.1 Village Access and Traffic Volumes

Access to Stromlo Village is currently via two priority controlled (Give Way) intersections on Cotter Road which provide access to the internal road system. Cotter Road currently carries traffic volumes of 2500 to 3000 vehicles per day in the vicinity of these access points (depending on which side of Uriarra Road the observation is made). Cotter Road is currently operating well within its environmental capacity during peak periods with peak hour traffic volumes of less than 400 vehicles per hour. The accident history does not indicate any crashes associated with intersections in the vicinity of the site. The internal road system within the village comprises sealed roads of open cross section without concrete kerbs.

The proposed rebuilding of the village will add an additional 20 dwellings and this is expected to result in an increase in traffic volumes on the road network within and adjoining the village. The typical number of vehicle trips generated by each household in urban Canberra ranges between 6 and 10 vehicle trips per day, with one vehicle trip per household during peak hours.

The additional 20 dwellings are expected to generate up to 200 vehicle trips per day, with 20 vehicle trips during the peak hours. Peak hour trips are expected to be generally outbound during the morning peak (say 18 outbound and 2 returning) and the opposite direction during the evening peak. The additional peak hour vehicle trips can easily be absorbed into the existing traffic stream as the absorption capacity of Cotter Road is the order of 900 vehicles per hour during the morning peak. The existing road will accommodate the additional traffic and the existing priority controlled intersections will be expected to continue to operate safely and without undue delay for entering vehicles.

It is noted that there are currently development proposals under consideration for the land to the north of the Cotter Road. It is anticipated that under such development of this land for residential purposes, Cotter Road will perform the function of a distributor road in the road hierarchy. It is anticipated that there may be some need for realignment and adjustment to some of the existing intersections along this section of the Cotter Road. Consideration of the impact of increased traffic volumes and upgrading of the function of the road may result in the need reduce the number of intersections directly on Cotter Road. Accordingly, the proposed Stromlo Village development includes provision for the relocation of the western access on Cotter Road to Eucumbene Drive which has significantly lower traffic volumes and vehicle speeds than Cotter Road.

12 House Design Principles

12.1 Suggested Design Principles

Apart from bushfire considerations, there are two other primary design issues: rural character and sustainability. Consideration should also be given to material selection seeking low embodied energy and low toxicity as well as opportunities to follow the waste hierarchy of reduce, re-use and recycle. These requirements should be additional to the usual ACT Territory Plan Design and Siting requirements, which is anticipated would apply to all new buildings.

Rural Character

The character of the built form should be distinct and rural, not suburban. This should be achieved using a number of elements:

- pitched metal roofs
- solid fencing, if installed, to be non-combustible
- small-scale and articulated forms
- pavilion forms
- informal layouts and elevations
- additive forms and repetitive elements
- verandas and pergolas
- integration between indoor and outdoor living
- breezeways and gauzed areas
- garaged set back behind the property line
- predominance of horizontal lines, including ridge, fascia and wall linings

Passive Solar

Sustainability of the built form can be increased by utilising standard passive solar strategies:

- orientation between North and 10° east of North
- glazing maximised to the North, single glazing only for insolation; double glazing to the East, South and West
- internal thermal mass: concrete slab floor construction; bathroom or laundry refuge
- insulation levels to be high: R 4.0 to ceilings, R 2.4 to walls and 50 mm extruded polystyrene to slab edge and 900 mm in to whole of slab perimeter
- cross ventilation facilitated by openings on opposite sides of rooms and across the building
- narrow North to South plan depth to facilitate sun penetration and cross ventilation
- principal habitable rooms to be zoned to the North elevation, to receive winter sun and passive solar warming
- minimum wall heights to reduce external surface area and heat loss/gain
- shading devices and verandas to the East, South and West

Specific design issues include:**Colour, Materials & Height**

Roof colours should be light, e.g. Colorbond Dune, Shale Grey, Paperbark.

Wall colours should be from a 'natural' palette of browns, greys and greens.

Horizontal lines should dominate, particularly in the wall cladding.

Buildings should be restricted to the appearance of single story height, except where the slope facilitates a basement level.

12.2 House Sizing

It is likely that there will be a wide range of house sizes required by the different types of prospective inhabitants.

Returning ACT Housing tenants expectations are for modest house sizes, similar to their previous 11 to 12 squares (102 to 111 square metres). However, the current "standard" for a two or three-bedroom house is approximately 150 square metres, and includes three bedrooms, an ensuite and built in robes. As the opportunity for these tenants to purchase their own home is dependent upon cost, the sizes of these houses will need to be limited at the outset. Siting should allow for future extensions, and 'growth house' strategies should be utilised.

Some new inhabitants may expect larger houses. Careful design parameters are required to ensure that these very different expectations create a compatible built environment.

Design parameters are also required to integrate expectations of freestanding garages and sheds. These elements may be as large as, or larger than, the smaller houses.

Verandas, pergolas and decks are also likely to form part of the built environment expectation.

In terms of house design, Housing ACT have indicated that the housing stock will comply with the requirements of all other houses in the village including in terms of sustainability, fire management and heritage.

12.3 Bushfire Construction Codes***Introduction***

The impact of bushfires on buildings needs to be discussed and understood. Houses do not just "explode", most buildings burn down after the fire front has passed, as a result of ember attack. Reports of buildings "exploding" seem to occur after embers enter and ignite the soft furnishings, carpets and curtains. High winds, radiant heat transfer and ember attack are significant elements of a bushfire that affect buildings.

Bushfire protection of buildings imposes construction requirements that attempt to overcome these problems. The focus is on materials that are subject to wind damage (like roof tiles), gaps that might allow embers to enter, glass that shatters from radiant heat and allows wind borne debris and embers to enter, and horizontal surfaces that allow the build up of embers and burning debris.

Assessment of the site for exposure and risk is also an important component of bushfire protection.

Relevant Codes

The two relevant codes for bushfire protection are the Building Code of Australia, Part 3.7.4 Bushfire Areas and Australian Standard AS 3959-1999 (a proposed revision, Draft DR 03182, should be used as the relevant standard at this stage.). The CSIRO has proposed further revisions to this Standard in the light of the Canberra 2003 bushfires.

Category of bushfire attack:

It is recommended that the Medium category (equivalent to Level 1 in AS3959-1999) be adopted as the minimum level. The High category may be appropriate where significance landscaping occurs close to a building. However, due to the specific requirements of passive solar design, additional construction requirements are recommended.

Appendix C of the Draft Standard identifies a checklist of factors, additional to special building construction requirements, which should be taken into account. These include:

Siting:

The category of bushfire attack for a building site is influenced by the proximity and nature of surrounding vegetation, the fuel load on the ground, the slope of the land in the direction of the fire, the aspect of the site in relation to prevailing winds and vehicle access. Fuel abatement zones can dramatically reduce bushfire attack risk, but the relevant minimum category should remain as Medium.

Landscaping:

Landscaping should not be considered just as a risk factor, as opportunities exist to use landscaping for bushfire mitigation, including windbreaks and radiant heat barriers. Management of landscaping is a critical factor in risk reduction.

Maintenance:

Maintenance of a building is as equally important as maintenance of the vegetation and the surrounding landscape.

Recommended Construction Requirements**Garage doors:**

As it is important to seal all openings of the building envelope, the Standard contains a reminder about effectively sealing garage doors. Doors should be sealed or the garage be detached from the structure so that it cannot lead to house loss.

Wind effects on roof tiles:

As bushfire conditions are accompanied by typical strong winds, there should be a recommendation that sheet metal roofs are used, not roof tiles. If tiles are to be used appropriate wind loading design should be incorporated and strictly adhered to.

Fascia, gutters and downpipes:

Despite the Standard not having specific construction requirements, there should be a recommendation that only enclosed or protected gutters be used, and that all fascias are non-combustible.

Gutters and valleys should be fitted with a fire resistant protection system which prevent fire propagation into the structure.

Fly Wire:

There should be a recommendation that only stainless steel or bronze fly wire mesh be used, and that it be used for all openable and fixed sashes and screen doors, unless non-combustible shutters are utilised. All screen systems should be tight fitting with less than 2 mm gaps.

External doors and walls:

There should be a recommendation that all external doors should be weather sealed all round, not just the base as required by the Standard for Medium category.

PVC should not be permitted as an external wall lining. External wall heights should be limited to reduce the area exposed to bushfire.

Roof Design:

Roofs should be smooth and aerodynamically designed to resist high wind loads and to prevent build up of burning debris. A metal roof with 15 degree pitch is recommended to achieve this, and flat roofs (i.e. $< 5^\circ$), parapets and box gutters should not be allowed.

Fencing:

Non-combustible fencing materials should be used.

Gas Cylinders:

Liquid Petroleum Gas cylinders should be installed on the aspect of the dwelling way from the predominant fire direction and the relief valves should be positioned away from the building. No combustible materials should be placed near the bottles.

Refuge:

The Standard does not contain any requirements for a refuge, but the opportunity exists for a bathroom or laundry or subfloor area to be constructed to a one-hour fire rating, e.g. brick or concrete floor, walls and ceiling. There are complex design issues associated with such a refuge and independent advice should be acquired on an individual basis with regard to their installation and use.

12.4 Indicative House Costs

The cost of constructing a house in these locations will include costs additional to those normally incurred in suburbia.

Additional costs will include remoteness factors (delivery, travel), and specific requirements for bushfire prevention, sustainability and passive solar elements.

Typical house construction costs in Canberra, for a 150 square metre house with an additional 40 square metre garage, ie 190 square metres, are currently \$1000 to \$1200 per square metre or \$190,000 to \$228,000.

The only bushfire prevention requirements that will incur additional costs are those for stainless steel fly wire and for sealed gutters. Stainless steel fly wire could be in the order of \$250 per square metre and as there could be 70 square metres of glazing to be protected in a passive solar house, this could add \$17,500. This is a very conservative estimate, bronze screens would be considerably cheaper and window areas may be less than 70 square metres.

Sustainability and passive solar requirements could add \$5,000 to \$10,000 for additional insulation and double glazing. This expense would be recouped over the life of the house with reduced heating, cooling and lighting costs.

Other costs could include Non-House costs, including excavation and site works for sloping ground, external works including fencing, driveways, landscaping and paving and site servicing. In a typical suburban location these costs would average approximately \$50,000.

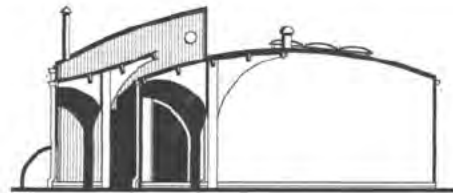
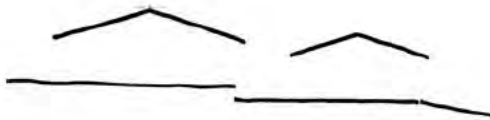
Autonomous servicing costs for non-sewer toilets and rainwater tanks with pumps are discussed in Chapter 13.

Fitout costs not allowed in the typical house rate above include floor finishes, window furnishings and higher levels of appliances, joinery and equipment.

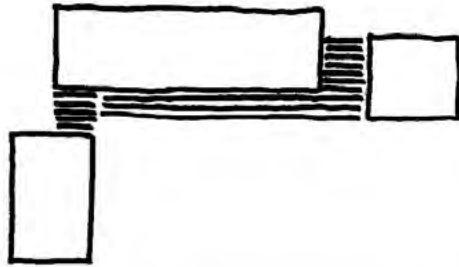
Excluding these fitout costs, a typical house will therefore cost from \$277,250 to \$299,400 (\$1459 to \$1576).

Suggested Housing Typologies

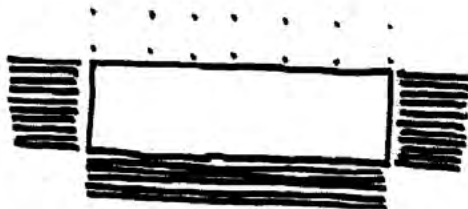
A variety of architectural styles working in harmony with the rural setting and the village character achieving sustainable outcomes. Solar passive, single storey, north orientation, indoor-outdoor living and bushfire safe.



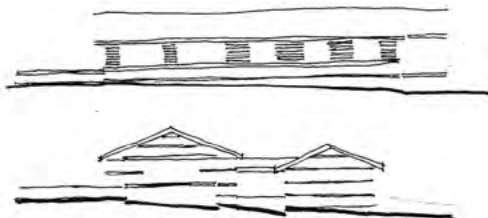
Preferred Roof Styles



Pavilion, Articulated, Small Scale Forms



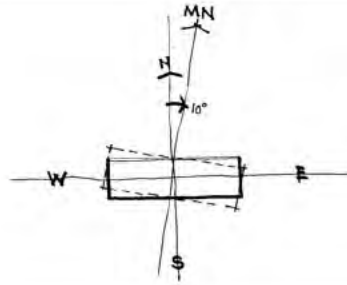
Verandas and North Pergolas



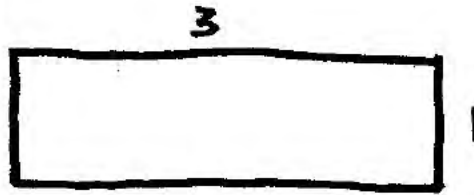
Emphasis on Horizontal



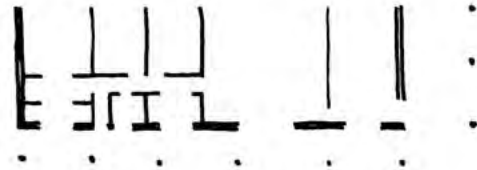
Recommended Orientation



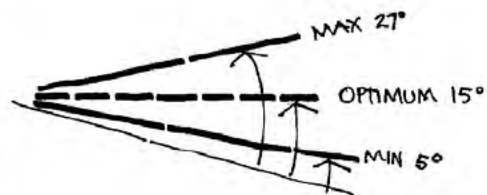
Narrow N-S Plan, Long E-W



Principle habitable rooms to North

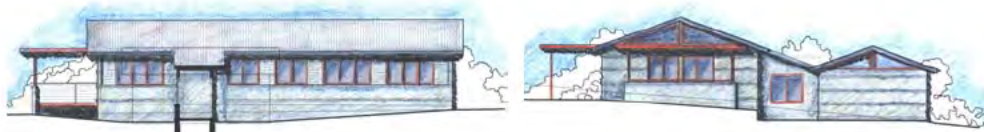
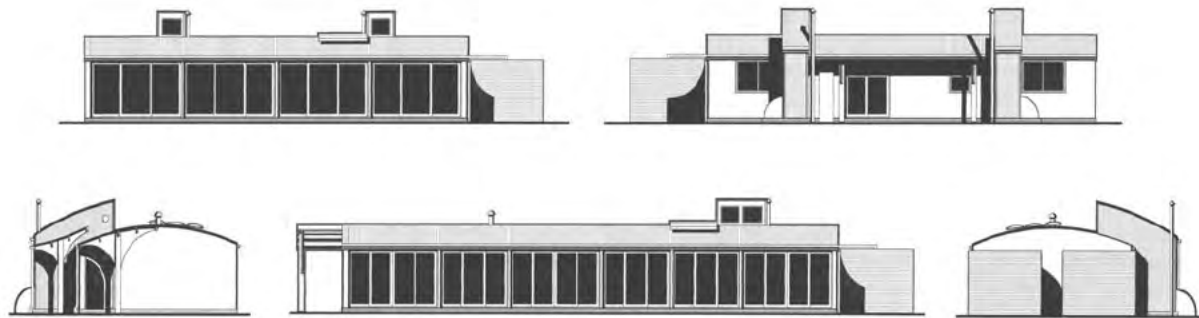


Roof Pitches



Minimise wall heights





13 Sustainable Infrastructure Options

The site of the Stromlo settlement is very close to suburban Duffy. Hence engineering services for the settlement are connected to the normal suburban networks, including electricity, natural gas, telecommunications, water and sewerage. The cost of building a standard type development is close to the same cost in suburban Canberra, with allowance for the larger block size and greater percentage of open space in the settlement.

The maintenance of most of the existing road network allows existing road, water and sewerage infrastructure to be re-used. Site confirmation of the condition of these assets is required before the extent of re-use can be properly determined. The proposed block layout can be served by the existing water and sewerage infrastructure.

Development of a sustainable village would require residents to have a commitment to low energy and water consumption. Whilst each house would be provided with a standard suburban connection, the house design should minimise energy and water use. The energy use is determined, in large part, by the proposed five star energy rating of the buildings. Water use can be markedly reduced by use of greywater and rainwater.

ActewAGL have experience in greywater, rainwater and blackwater reuse schemes for individual houses connected to Canberra's water and sewerage network. This experience, combined with some computer modelling shows that a 1500 m² property with roof area of 200 m², when provided with a 22 kL rainwater tank, and 22 kL greywater tank can produce a 66% reduction in demand on the potable water system. This is achieved by connecting rainwater to the toilet and laundry, and using greywater (and any excess rainwater) for garden irrigation. While each property should be designed for the individual needs of that property (garden size, lawn size, people etc), very significant potable water savings can be achieved with this approach. This approach would add \$11,100 to the final cost of each house/land package.

The following table sets out the summary costs per block for Stromlo settlement.

Table 10 – Cost Estimates per block for Infrastructure and Servicing

	Standard approach			Sustainable approach		
	on estate	Headworks	Total	on estate	Headworks	Total
Roads	\$11,402		\$11,402	\$11,402		\$11,402
Sewerage	\$3,839		\$3,839	\$14,939		\$14,939
Stormwater	\$9,515		\$9,515	\$9,515		\$9,515
Water Supply	\$5,885		\$5,885	\$5,885		\$5,885
Common Trenching	\$1,881		\$1,881	\$1,881		\$1,881
Paths	\$1,760		\$1,760	\$1,760		\$1,760
Landscape	\$4,422		\$4,422	\$4,422		\$4,422
Lines and Signs	\$506		\$506	\$506		\$506
Driveways	\$1,980		\$1,980	\$1,980		\$1,980
Electricity and Lighting	\$5,390		\$5,390	\$5,390		\$5,390
Transact broadband connection	\$2,337	\$1,038	\$3,374	\$2,337	\$1,038	\$3,374
Subtotal	\$48,918	\$1,038	\$49,954	\$60,016	\$1,038	\$61,054
Reduction for no rock	\$1,375		\$1,375	\$1,375		\$1,375
Increase for slope	\$0		\$0	\$0		\$0
Subtotal	\$47,543		\$48,579	\$58,641		\$59,679
Fees – consultants and Project managers	\$11,885		\$11,885	\$11,885		\$11,885
Selling and other costs	\$8,589		\$8,589	\$8,589		\$8,589
Total	\$68,018	\$1,038	\$69,055	\$79,115	\$1,038	\$80,153

In the standard approach the 'on estate' costs are significantly higher than the equivalent costs in urban areas because the block sizes are larger, resulting in longer street frontages and longer roads and pipes to service each house.

The costs for the 'sustainable' initiatives are estimates only and are considered to be conservative.

14 Bushfire Risk Management Options

14.1 Introduction

A study has been conducted to assess the potential bushfire threat to the reconstructed rural village of Stromlo and provide recommendations on bushfire protection measures to mitigate the threat from future bushfire events.

The study area goes beyond the immediate village precinct and includes portions 24-27, 45 and 50, Parish of Yarrowlumla, County Murray

The study area of Stromlo consists of a rectangular portion of land orientated east to west across the western fall of the Weston Creek catchment area.

Topography in the study area consists of an extensive and broad crested ridgeline shoulder and minor spurs and drainage gullies. This ridgeline forms the watershed between Weston and Holden Creeks. A tributary of Holden Creek occurs to the north-west of the study area.

Vegetation in the area consists mainly of natural and exotic grasses and isolated pockets of regrowth eucalypt. The burnt remains of the *Pinus Radiata* that once covered much of the area surrounding the settlement are in the process of being removed.

All of the main access roads in the study area are sealed bitumen. In the eastern end of the study area there is a large open tract where a helicopter landing pad and remains of a meteorology station are located.

Of the 20 ACT Housing properties situated at Stromlo 17 were lost during the January fires of 2003 (SOT 2003). None of the other buildings associated with the forestry depot survived the fires.

14.2 Site Analysis And Risk Assessment

The Rural Village of Stromlo is located to the north of the residential development within the suburb of Duffy and is bounded to the west by Commonwealth land east of Eucumbene Drive, Cotter Road to the north and Warragamba Avenue, Duffy, to the south.

The village previously contained 20 ACT Housing dwellings located on a low ridgeline with slopes to the north west and south-east. These slopes were covered, prior to January 2003, with mature *Pinus Radiata* forest vegetation which became involved in the fires advance towards the suburb of Duffy. The risk to the Stromlo village, prior to the January fires was High due to the extent of the surrounding forest vegetation.

The clean up of the forest vegetation post fire has reduced the likely impact of future fires to grass fires with a low/moderate level of risk.

The future level of risk to re-development within the Stromlo village will be dependant on the type of land-use proposed for the previous forested areas to the north, north-west and west of the village.

It is therefore important that re-vegetation to these aspects consider the need to establish abatement zones to provide protection to the dwellings within the village.

14.3 Site Layout / Building Placement / Land Tenure

The re-development of Stromlo Rural Village will re-establish the twenty housing lots which contained the existing dwellings with additional lots located to the east and west of the existing village precinct.

This layout concentrates future development within an area bounded by Warragamba Avenue, Duffy, the Cotter Road and east of Eucumbene Drive forming the perimeter road network providing the boundary of the bushfire protection zones to the village.

The land tenure within the village should provide Community Title ownership or an equivalent management mechanism over the whole of the village, including the fire protection zones thus providing a mechanism for the community's involvement in the protection of the village against the impact of future bushfires.

14.4 Access / Egress

General Requirements

Villages should have a road network which provides a circular flow of traffic through the village with at least two entry / exit points to / from the village onto arterial roads.

Where possible, a perimeter access road should be provided to encircle the village. Where this is not possible, or desirable from planning perspective, a perimeter fire trail shall be provided.

Access Roads

Access roads should have a minimum formed width of seven metres with an additional one metre verge to each side clear of trees / street signs / service poles etc. The formed surface should be constructed to enable the passage of a fully laden fire appliance (normally 14 tonnes G.V.M for fire appliance and 28 tonnes G.V.M for bulk water tanker).

Internal radius of corners / intersections should be 6 metres with full turning heads of 24 metre diameter clear of all obstructions.

Access roads should be clearly sign posted with a system of property identification provided at each dwelling or a village location board provided at the entry points to the village.

Road signs should also indicate the direction of travel to the emergency assembly area / refuge zone.

The proposed village layout provides satisfactory vehicular access from Cotter Road to internal loop roads servicing the existing village precinct and the proposed new precincts with an alternate access from Eucumbene Drive.

An emergency access / egress road should be provided which connects the village internal road to Warragamba Avenue, Duffy. Locked gates should be provided to the emergency access / egress road with keys provided to all residents and the Emergency Services.

Fire Trails

Fire Trails should have a minimum formed width of four metres with passing bays of seven metres width x twenty two metres length provided at approximately two hundred metre intervals and at corners where sight clearances prevent safe passage for approaching vehicles.

A one metre wide verge should be provided to each side of the fire trail, kept clear of all vegetation with over hanging branches cleared to a height of six metres above the trail.

The formed width of the trail should be constructed to carry a fully laden 4WD tanker of fourteen tonnes G.V.M.

Internal radius of corners should be six metres with turning circles of twenty four metres unobstructed diameter.

Maximum gradient of unsealed fire trails should be 150 with average slope being preferably 100. Fire trails should connect to the internal / perimeter road network at regular intervals (maximum 500 metres) with 3.6 metres wide gates provided at the entry / exit points.

Locked gates should be fitted with Emergency Service compatible locks.

Signs indicating exit points from fire trails should be provided at regular intervals along the trails. The village directly board should display the location of the fire trails and their entry / exit points.

Fire trails should be inspected annually and maintenance provided where necessary to ensure serviceability.

Fire access trails should be provided to the perimeter of the village precinct and to the rear of lots not benefited by a perimeter road.

14.5 Fire Fighting Resources

Stromlo Rural Village is located adjacent to the northern boundary of the residential area of Duffy and is within the service capabilities of the ACT Fire Brigade however it is recommended that, dependant on the final landuse patterns to the north and west of the village, the community association should be supplied with and maintain a 'slip-on' fire fighting unit or a light 4WD tanker based on a Toyota Landcruiser / Nissan Patrol vehicle.

A bushfire brigade would need to be established within the village under the control of the ACT Bushfire Brigades with the Stromlo village members forming an auxiliary to the local Bushfire Brigade and having an operational territory defined by the Chief Fire Control Officer.

Training of the members should be undertaken by the Bushfire Brigade with the brigade operationally responsible for bush fires, the maintenance of fire breaks, hazard reduction burning and forming the focus for community awareness of bushfires.

Structural fire fighting should remain the responsibility of the ACT Fire Brigade.

14.6 Fire Abatement Zones

Fire Abatement Zones should be implemented at the settlement. They should consist of a primary fire protection zone within and surrounding the village with a secondary fire protection zone extending beyond the primary zone.

The management objective of the primary fire protection zone is to separate tree canopies and maintain ground and shrub layer fuels to a maximum fuel weight of 3-5 tonnes / hectare.

The management objectives of the secondary fire protection zone is to allow the replanting of suitable forest species which will tolerate periodic fuel management by hazard reduction burning or mechanical slashing to maintain ground fuel weights to 8-10 tonnes / hectare.

An alternate management objective could be determined using a fire hazard assessment process with targets of low and medium hazard in the inner and outer zone respectively. This detail should be resolved during the establishment of the community.

The extent of the abatement zone required to the perimeter of the Stromlo Settlement largely depends on the future landuse of the neighbouring lands. If the adjoining Forestry lands are not replanted with contiguous areas of exotic or native forests and are in fact replanted with corridors of these species interspersed with low fuel vegetation that is periodically fuel managed, the bushfire threat to Stromlo village will be significantly reduced, therefore reducing the need for wide abatement zones to be implemented.

The following widths of primary fire protection zones should be provided:

Between the Cotter Road and the northern aspects of the dwellings

- Full width except for a 30 metre wide visual corridor planting to the southern side of Cotter Road.
- The visual corridor should be maintained as a secondary fire protection zone.

West of the Settlement

- 100 metres wide primary fire protection zone with a secondary protection zone provided between the primary zone and Eucumbene Drive.

South of the Settlement

- A primary fire protection zone provided south of the dwellings to the visual corridor on Warragamba Avenue.
- The visual corridor should be maintained as a secondary fire protection zone.

East of the Settlement

- A primary fire protection zone of 40 metres width should be provided from the eastern aspects of the dwellings.
- The remainder of the village precinct to the east of the primary fire protection zone should be managed as a secondary fire protection zone.

Within the Settlement Precinct

- This area should be maintained as managed lawns and landscaped gardens.

14.7 Management of Fire Protection Zones Beyond the Settlement

Primary Fire Protection Zone

The primary fire protection zone extends from the dwellings within the village as discussed above and provides for the establishment of scattered woodland vegetation with cultivated/natural grasses which should be regularly slashed during the late spring/summer months to maintain a ground fuel loading of 3-5 tonnes/hectare.

The Community Association or equivalent shall be responsible for the monitoring and implementation of this maintenance program.

Secondary Fire Protection Zone

The secondary fire protection zone extends beyond the fire trail on the edge of the Primary Fire Protection Zone. Its extent and management will depend on future landuse decisions in this zone.

This vegetation should be periodically fuel reduced by hazard reduction burning (or slashing where appropriate) to provide a mosaic fuel loading of 8-10 tonnes per hectare.

The Community Association or equivalent may provide assistance to the responsible ACT Government Agency (Canberra Urban Parks and Places if the land is designated as “Urban Open Space”) in the management of this zone however it is deemed to be the responsibility of the agency to monitor and undertake the works.

14.8 Management Of Fire Protection Zones Within The Villages

Landscaping within the Dwelling Curtilage

The maintenance of the dwelling curtilage is a critical component of providing protection against the impact of bushfires, particularly ignition from flying embers. Future dwellings should be constructed clear of existing trees with new tree plantings located so that the fully grown canopy shall be five (5) metres clear of the dwelling.

Landscaped gardens should not occupy more than 20% of the dwelling curtilage and should be kept clear of the building, small, non contiguous beds are preferred.

Plant species should be selected for their ability to retard the spread of fire and only or inorganic mulches (gravel, rock, recycled brick/concrete) should be used. Trees with very poor bushfire performance, such as Pencil Pine and Golden Cyprus, should be avoided in the landscape. Pine bark mulch may be used 75 metres from the dwelling.

The area of the curtilage not landscaped should be maintained as a mown lawn.

This landscaping, combined with the low density of housing and varied setbacks will also reduce the risk of house to house ignition in an extreme bushfire event.

Fuel management of Common Areas

The common areas within the villages should be regularly maintained to reduce the accumulation of ground fuel. Grasses should be slashed and pockets of Woodland vegetation maintained to remove the leaf litter. Branches should be removed below three metres above ground level.

The maintenance prescription for this management zone is to reduce ground fuel loadings to 3 tonnes/hectare.

14.9 Building Construction Standards

Residential Development

The recommended width of the Primary Fire Protection Zone results in the level of bushfire attack to the future dwellings in the rural villages being low.

Non Residential Development

The Building Code of Australia (BCA) does not require that non-residential buildings be protected against the impact of bushfire.

It is most likely the case that non-residential buildings are constructed to a higher standard of fire rating, especially for external walls, than residential buildings however, the potential impact from air borne embers remains the same.

Therefore it is recommended that non-residential buildings be constructed to comply with the Level 1 Construction specifications, in accordance with Australian Standard AS 2419.1 (1994).

14.10 Water Supplies

The village will have a reticulated hydrant system connected to the ACTEW water supply.

The hydrant system should be designed and installed to comply with the relevant Australian Standard.

Electric supply / pressure pumps should be supplemented by direct powered auxiliary pumps.

Hydrants should be equipped with hose box complete with two (2) lengths of 38mm diameter canvas hose, nozzles and spanners.

14.11 Fences

Timber and brushwood fences shall not be used.

'Colorbond' steel or equivalent fireproof fences should be erected to the exposed boundaries of lots which adjoin the Primary Fire Protection Zones.

The fence should be installed to minimize the gap between the ground and the lower rail of fence with this gap closed off using non-combustible material (i.e. stones/bricks/concrete kerb, etc).

14.12 Fire Management Plan

A Fire Management Plan should be prepared for each village. The plan should address the fuel management requirements of the community lands, private lots (including landscaping) grazing paddocks, primary fire protection zones and the management of access roads, fire trails and water supplies / hydrants.

The Community Association or equivalent shall be responsible for the implementation of the Fire Management Plan and its recommendations.

14.13 Evacuation

An evacuation plan should be prepared for the settlement. The plan should advise on the timely relocation of residents/visitors in the event of an emergency (bushfires, gas leaks, storm, etc).

The evacuation plan should develop protocols for each defined emergency and determine a communication strategy, escape routes, methods of evacuation, assembly areas and refuge zones.

The Community Association or equivalent should be responsible for the preparation and monitoring of the Evacuation Plan, the provision of safe assembly and refuge zones, street signage and the promulgation of the plan to the residents and the emergency services.

The Community Association or equivalent should also maintain an emergency Helipad within the village to provide for emergency and Medivac evacuations.

During a bushfire emergency residents within the Stromlo Village should, when directed, muster at the assembly area within the village common from where evacuation via Cotter Road or the emergency access road onto Warragamba Avenue can occur.

The existing Helipad can also be used for medivac purposes.

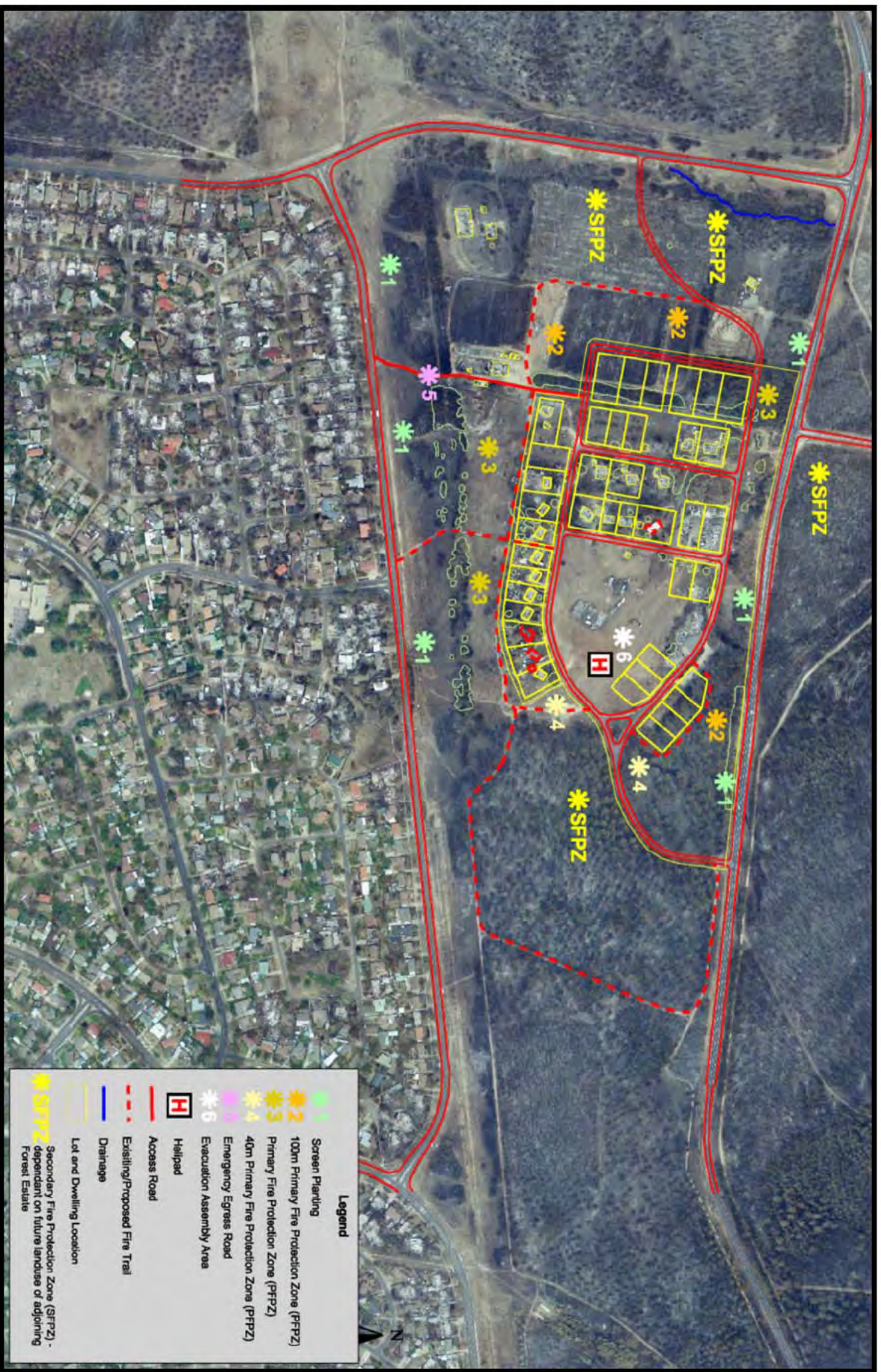
14.14 Conclusion

The re-development of Stromlo Village will place the existing families, and the new families that will join them at risk from future bushfire impact, similarly to the nearby residential suburbs.

In the case of Stromlo, future development and changes to landuse patterns will significantly reduce the potential risk from catastrophic bushfire impact.

Changes to fuel management practices within the forested areas west of these villages will help to mitigate bushfire impact and the recommendations contained in this report provide a 'whole of village' basis for the provision of bushfire mitigation measures which will provide further protection against regular and severe bushfire events.

Community understanding of these mitigation strategies is essential to their successful implementation and long-term effectiveness.



Conacher Travers



not to scale

Bushfire Protection Measures

Figure 11

Part Four – Prosperity

Part Four– Prosperity

15 Market Research

Stromlo is located directly adjacent to the existing residential suburb of Duffy. The area is in close proximity to local schools and shops (2 kilometres) and is accessed via the Cotter Road. Civic, the Central Business District of the National Capital is approximately 14 kilometres distant to the North whilst the Woden Town Centre and Cooleman Court Group Centre are within 5 kilometres.

Any residential development in Stromlo would be directly related to the ACT urban (residential) market.

By way of background the following general overview is provided in relation to the Canberra Residential Market.

15.1 General Overview:

The Canberra residential market has over the last 10 years experienced varying market conditions. 1995 saw the market in a period of oversupply however, as we neared the year 2000 the trend reversed with a return to equilibrium between supply and demand.

The market continued to gain momentum through 2000 and 2001 due to an increase in buyer confidence particularly for inner locations. Outlying areas followed in the latter part of 2001 and in 2002. This trend was driven initially by market reaction to the introduction of the Goods and Services Tax in July 2000, which brought construction forward. The volume of completed residential sales in the ACT in 2002 was 11,604 compared to 1999 at 9,100.

Interest rate falls through 2001 contributed positively to the residential market with values rising. Interest rates remained stable through 2002 and into 2003. The two recent 0.25% increases in interest rates have taken the “steam” out of some section of what has become an over heated market. With limited land supply in Gungahlin and Tuggeranong strong take up rates have seen land values increase significantly over the past 3 years in all new residential subdivisions including West Belconnen and Gungahlin.

The ACT Real Estate Institute report for the September 2003 quarter, issued in December 2003 showed the trend residential vacancy rate at 3.5% an increase of 1.6% on the March 2003 quarter. Ongoing research shows that the vacancy rates in the inner locations are lower compared to vacancy rates in the outer areas, which range from 2% to 4% depending on the quality of the property.

Following the 2001 Census the Australian Bureau of Statistics’ estimated Canberra’s population to be 322,000. This is a significant increase of 8,000 from the previous estimate. Indications are that this population has increased gradually over the past 3 years, not as a sudden “jump” and is supported by the strong and steady demand for residential housing over this period.

With continued employment growth, the ACT region’s population will increase, as migrant workers are required to fill the newly created jobs. The ACT unemployment rate stands at 4.4% for August 2003.

One major project that is due to commence in the region is the Defence Facility to be established near Bungendore. It is estimated 1000 permanent jobs will be created on completion in 2007, as well as employment created during the construction phase.

The January 2003 bushfires, which destroyed over 500 homes in the region, impacted on the market from mid year 2003. Reconstruction work has brought upward pressure on the building industry in an already “tight” construction market. Recent interest rate rises now appear to have had an adverse affect on the residential market and research indicates a softening in the market, with declining auction clearance rates and a build-up of residential stock. Further interest rate increases may continue to have an adverse affect on the market.

15.2 ACT Land Release Policy

Since 2001 the Government has moved towards a policy of public land release of fully serviced sites in Greenfield areas. The market reaction to this approach has contributed in part to price escalation of ‘englobo’ sites as land developers have envisaged each parcel to be the last privately available land. Examples include, Horsepark Estate (I and II), Dunlop East and Conder 4. The Government’s land release programme now includes a mixture of public, private and joint venture releases. This should result in a more balanced view on the supply/demand for land.

Production of vacant residential sites (standard residential/courtyard) currently makes up a total of between 1,000 and 1,400 dwelling sites per annum. Over previous years overall demand for residential sites including urban renewal/redevelopment sites totals 2,500 dwellings per annum.

In assessing values within the proposed development layout of Stromlo we have taken into consideration similar urban ‘infill’ style developments such as North McKellar Estate in Belconnen and North Watson in north Canberra. These estates are currently being marketed and range in value from \$300,000 to \$380,000 per standard residential site and the developers of these estates are indicating levels of take up in the order of 100 to 150 blocks per annum.

15.3 Stromlo Values

Application of the above sales evidence leads to the conclusion that the proposed Stromlo would achieve sale prices in the order of \$350,000 to \$380,000 per block. This includes a premium over and above the North McKellar and North Watson Estates due to the following;

- Separate access off Cotter Road
- Large ‘community’ areas
- Unique address remote from other residential development

The value also accounts for the likely percentage of public housing within the settlement.

Assuming an average of \$365,000 per block and a total of 40 blocks the total revenue from the proposed estate would be \$14,600,000 inclusive of GST liability.

The values assessed are also supported by vacant land sales in the fire-affected suburbs of Holder, Duffy, Chapman, Rivett and Weston. The preliminary plan layout for Stromlo indicates a total number of 40 blocks, which market analysis indicated would sell at the rate of 50 to 80 blocks per annum. On a conservative scenario a 2-year cash flow could be allowed, including construction programme.

In relation to the demand and from where it will be sourced, it is concluded that the land purchasers would come from within the ACT particularly Woden and Weston. The site is similar to North McKellar where demand has been strongest from Belconnen residents and North Watson where demand has been strongest from North Canberra residents. It is envisaged that the community settlement, once constructed, will be similar to Wybalena Grove in Cook.

A discounted cashflow has been prepared, adopting the sustainable infrastructure costs prepared by ACTEWAGL, and using the values and timing outlined above. The underlying 'holding lease' value of the land has been assessed at \$7,300,000. This is an estimate of the amount the development opportunity would sell for on the open market to a property developer, allowing for the street sustainability criteria.

The following fundamental assumptions have been incorporated into the rationale:

- That each block is a separate Title and each of the Titles;
 - are good and marketable as serviced sites
 - are available with vacant possession
- There is no entry for this site in the Environmental Contamination Register for the ACT. While the land appears suitable for the proposed use a site history contamination assessment may need to be completed prior to development. The valuation assumes that there are no surface or subsurface soil problems including instability, toxic or hazardous wastes or building material hazards in or on the property that would adversely affect its existing or potential use or reduce its marketability. Should any problem arise then the valuation should be reconfirmed.
- That the valuation is assessed on the basis of an orderly marketing campaign, and not a forced sale.
- Each site is serviced with:
 - Reticulated water, sewer, stormwater and natural gas
 - Bitumen sealed roads and earthen formed swale drains
 - Electricity and Transact connection
 - Landscaped Streetscape

The **market value** determined is in accordance with the Australian Property Institute definition:

Market value is the estimated amount for which an asset should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction, after proper marketing, wherein the parties had each acted knowledgeably, prudently and without compulsion.

15.4 Conclusion

- Average land sale value \$365,000 and all blocks are likely to sell within a 2 year timeframe
- Underlying holding lease value of land assessed at \$7.3 million
- Estimated that all new residents will come from within the ACT or would otherwise purchase within the ACT.

16 Economic Analysis

16.1 Introduction

Re-establishment of the settlement, and particularly its expansion, will have a range of fiscal implications for the ACT Government²³. The nature and extent of these impacts depends primarily upon whether the development results in additional land development within the ACT or substitution for development elsewhere in the ACT.

Market research suggests that the (prospective) future non-Housing ACT residents of Stromlo would otherwise live in similar developments within the ACT. To that end it will not be additional development, it will essentially substitute for otherwise suburban purchases — although the market research suggests people will pay a land price premium for the ‘village’ lifestyle, compared to suburban locations.

Against this background the fiscal implications have been considered in terms of:

- development costs;
- investment by Housing ACT, including implications for the value of its portfolio;
- sales and other revenue from private sales; and
- other costs and revenue issues.

In considering these issues the key starting point is the in-principle decision by Government to re-establish the settlement to accommodate Housing ACT clients and private demand.

16.2 Development costs

A prime concern for the ACT Government is whether the fiscal outcome of the settlement development scenario, in combination with the priority goal of giving Housing ACT tenants the option to return to the settlement, is manageable. For the Housing ACT house-sites and the other house-sites a range of development costs will be incurred. These comprise:

- “on-estate” land development (roads, pathways, landscaping, common trenching electricity, broadband and, installation of water tank and grey water systems);
- “off-estate” costs (electricity supply, broadband infrastructure, project management of the development); and
- the developer margin reflecting the capital and risk involved in the development.

These costs are calculated to total \$114,000 per developed block, based on the estimates provided earlier in this report. If anything, this figure is at the upper end of the range.

²³ Broader economic effects, for example, increased well-being of future residents over and above what they pay for land, housing and services (what economists call ‘consumer surplus’) and externality issues have not been examined in detail. However, they are not expected to be much different to suburban development and therefore not significant from the perspective of net impact on the ACT.

16.3 Housing ACT

To fulfil its obligations to the former Stromlo residents Housing ACT will require 20 blocks. This will involve a land development cost of \$2.3m, based on the above land development costs. Housing ACT will also need to finance house reconstruction and renovations.

With this investment in land and housing, the value of the Housing ACT asset portfolio will be increased by around \$600,000 (land value plus the new housing investment). Prior to the bushfires, Housing ACT had effectively no value on the houses as, not being on a lease, they were not saleable assets.

In re-establishing Stromlo, Housing ACT will thus have an asset to meet the needs of former tenants or new tenants or, depending upon decisions by former tenants, to realise the asset value and utilise those funds elsewhere within its responsibilities.

The above costs represent what the Government will have to outlay up front to re-establish the Housing ACT properties in Stromlo. However, the additional cost to the Government is, in fact, smaller than that figure since the alternative situation has to be considered. If the Government had decided not to re-establish Stromlo, then Housing ACT would have had to find other houses for the tenants – just as it has done since the bushfires. Housing ACT options would include purchase of properties elsewhere in the ACT, rental of other ACT properties or rental of private properties in a future Stromlo. While the land value itself might be higher than Housing ACT might pay elsewhere in the ACT, the proposed homes are modest. Given the average purchase price in 2003 for a three bedroom houses purchased by Housing ACT was \$335,000 the Stromlo properties can be said to be costing the ACT Housing (and the Government) an additional \$270,000. Against these benchmarks, the additional cost to the ACT Government to meet Housing ACT Uriarra requirements would total \$5.4m.

There are four other issues.

- Rental income. The increased asset value of the ACT Housing stock at Stromlo will flow through to higher rental income to Housing ACT given that the base for calculating market rents will be higher, and therefore the market rents themselves. The extent of higher rental income has not been calculated as it depends upon the specific circumstances of the tenants and their eligibility for rent rebates. Again the additional rent is likely to be small given the rent now being paid by the tenants.
- Rates and land tax. Housing ACT pays rates on its properties and makes a payment in lieu of land tax. These liabilities will extend to the Stromlo properties. However, the net effect for the ACT Government is zero as these payments are simply transfers between Departments.
- Option to purchase. In developing the settlement, Housing ACT tenants will have an option – for the first time – to purchase a property in Stromlo (subject to the usual Housing ACT criteria of length of tenancy and so forth). Such purchasers would allow Housing ACT to sell down its investment in Stromlo.
- Additional costs. Additional costs for additional government services for Housing ACT tenants in Stromlo are likely to be minimal, since these services have been provided in the past. The only exception is a possible 'part share' of the cost of providing for community development support, although this could be reasonably said to be relevant only to the new rather than past residents.

In summary:

- the ACT Government will face up front costs, net of insurance money received, of \$2.3m plus the cost of houses to re-establish the Housing ACT tenants. This will create an asset worth possibility \$12m, based on estimated market prices for the combined land house property for all Housing ACT properties.
- Providing rental accommodation at Stromlo for the former Housing ACT tenants is estimated to cost the ACT Government an additional \$5.4m compared to securing rental accommodation elsewhere in Canberra.
- Housing ACT will gain higher market rentals but net receipts will depend upon the extent of rent rebates to tenants. This has not been estimated but would be positive.

However, compared to the alternative of providing rental properties for the Stromlo tenants somewhere else in the ACT, the additional costs for Housing ACT and the Government from re-establishing the settlement are likely to be small and may not even be an additional cost.

Sales to others

Based on development of 40 sites with 20 taken up by Housing ACT, the remaining 20 will be purchased by others. As noted above, market research suggests all of the purchasers will be continuing ACT residents. This is important since the revenue implications for the ACT Government are quite substantial.

- Sale of land to a continuing resident has no net impact, since a sale in the settlement is at the expense of a sale of new land elsewhere in the ACT.
- There is, however, expected to be a premium paid for a settlement block compared to a suburban block. Market research suggests that this could be 15 per cent.

Some of the services already available to village residents are underutilised and increased use is not expected to alter costs. Specifically, the school bus service and road maintenance program. Additional services which may be demanded, for example, bus services (other than school bus) will be supplied on a user pays basis.

The summary net fiscal impact from private sales of village blocks is shown in Table 11. It shows that overall the ACT Government's fiscal position will be improved by a equivalent lump sum \$0.5m (NPV):

- there will be development costs up front, with land sales spread over three years; and
- the principal source of the gain is the premium paid for land sales in a 'settlement' environment.

Table 11 – Stromlo: Fiscal impact for ACT Government relative to suburban development from non-Housing ACT properties (net present value \$m²⁴)

	Additional Revenue	Costs	Net Additional Revenue
Continuing Residents (Premium Paid)	\$1.1	\$0.6	\$0.5

A detailed spreadsheet of calculations and assumptions is presented in Figure 12.

²⁴ Net Present Value: All costs and benefits from 2005 to 2015 converted to a present value using the standard ACT Treasury discount rate of 7 per cent.

Sensitivity analysis

This positive fiscal benefit for the ACT Government is robust against the major uncertainties. The major variables that have been tested are the number of blocks and the estimated market value.

16.4 Summary

While the net fiscal impact of re-establishing (and expanding) Stromlo is negative (because of comparing the cost of land at Stromlo with an average for Canberra), the sum of the value of the asset to Housing ACT together with the net fiscal gain is positive. The costs of providing the option for Housing ACT tenants to return involves an up front outlay of \$2.3m by the Government plus the cost to build the houses. While an asset is then created worth around \$12m (house and land) the rental accommodation provided is estimated to cost around \$5.4m more than would be required to provide comparable rental accommodation in other areas of Canberra. Some of this additional cost may be recouped through higher rental income where rents are market based.

Sales of land to private purchases would deliver the Government a net lump sum gain of \$0.5m, when account is taken of substituted land sale values plus consequential additional rates and stamp duty and other revenue.

The net additional fiscal benefit to the ACT Government can therefore viewed as totalling \$0.5m plus the increase in Housing ACT assets, but in achieving that gain the Government is likely incurring an additional cost of \$5.4m to provide equivalent standard accommodation for Housing ACT tenants in the village compared to elsewhere in Canberra

If the current opportunity to develop Stromlo is lost, then the value of the Housing ACT asset will never be realised because the land will become simply a landscape buffer.

Village: Stromlo

Revenue / cost item

		ACT Housing allocation		Village development			Total	Notes
Revenue		NPV to 2015 7%		Base case: Village "no different to suburb development"	NPV to 2015 7%	Additional outcomes from sustainable village character: Continuing ACT residents	NPV to 2015 7%	Additional outcomes from sustainable village character: New/retained ACT residents
Sale of land (developed, net of acquisition costs)	Number of blocks	Unit		NPV to 2015 7%			NPV to 2015 7%	All values in 2005 prices
	ACT Housing	no	40					Discount rate used in ACT Treasury analysis
Balance for market sale	ACT Housing	no	20					Previous residents all accept offer to return to the village
	New /retained ACT residents	%/no	0%					Number of blocks offered for sale to the market
Other ACT residents	Other ACT residents	%/no	100%					Land purchasers who would have otherwise purchased in village/rural/ urban environment outside of the ACT
	Sale time frame (Beginning 2005)	years	2					Purchasers from continuing ACT residents
Market realisations	Average sale price market sales	\$	\$331.818					Market sales spread equally over 3 years commencing in 2005; All ACT Housing blocks utilised in 2005
	ACT Housing	\$	\$331.818					Average market sale price, excluding GST
Sales value to new/retained ACT residents	Average sale price across balance of village	\$	\$331.818					Market value of ACT Housing homesties
	Sales to Other (Continuing) ACT residents	\$	\$331.818					Revenue from sales to new/retained ACT residents
Premium above alternative ACT site	Premium above alternative ACT site	%	15%					Revenue from sales to new/retained ACT residents
		\$/block	\$50,000					Land purchasers who would have purchased land elsewhere in the ACT. Premium as % of
Sales value to Other ACT residents (excl premium)	Sales value to Other ACT residents (excl premium)	\$/block	\$50,000					Revenue from sales to other ACT residents
		\$						Revenue from sales to other ACT residents
Total revenue from land sales	Total revenue from land sales	\$						Revenue from sales to other ACT residents
	Additional revenue compared to otherwise (no village)	\$						Revenue from sales to other ACT residents
Net fiscal impact of attracting an additional person to the ACT	Net fiscal impact of attracting an additional person to the ACT	\$						Revenue from sales to other ACT residents
	Average household size	\$/capita	2.6					Revenue from sales to other ACT residents
Net per capita fiscal benefit	Net per capita fiscal benefit	%	1.5%					Revenue from sales to other ACT residents
	Rate % reduction reflecting reduced services	%	0%					Revenue from sales to other ACT residents
Value for rating as proportion of land value	Value for rating as proportion of land value	%	90%					Revenue from sales to other ACT residents
	Real increase in land values (av. Per annum)	%	3%					Revenue from sales to other ACT residents
ACT Housing (Standard rates: Yes/no)	ACT Housing (Standard rates: Yes/no)	No						Revenue from sales to other ACT residents
	Rates receipts	\$						Revenue from sales to other ACT residents
Land tax	Land tax	%	1.5%					Revenue from sales to other ACT residents
	Stamp duty	%	4.5%					Revenue from sales to other ACT residents
Proportion of properties changing hands each year, after 2007	Proportion of properties changing hands each year, after 2007	%	10%					Revenue from sales to other ACT residents
	Average value (multiple of raw land sale value)	%	200%					Revenue from sales to other ACT residents
Stamp duty receipts	Stamp duty receipts	\$						Revenue from sales to other ACT residents
		\$						Revenue from sales to other ACT residents
Total	Total	\$						Revenue from sales to other ACT residents
		\$						Revenue from sales to other ACT residents
Acquisition	Acquisition	\$	\$0					Revenue from sales to other ACT residents
	On estate development Total	\$/block	\$60,016					Revenue from sales to other ACT residents
Roads, stormwater	Roads, stormwater	\$/block	\$20,917					Revenue from sales to other ACT residents
		\$/block						Revenue from sales to other ACT residents
Trenching, driveways	Trenching, driveways	\$/block	\$3,861					Revenue from sales to other ACT residents
	Paths, landscaping, signs	\$/block	\$6,688					Revenue from sales to other ACT residents
Tank water, grey water, black water	Tank water, grey water, black water	\$/block	\$20,824					Revenue from sales to other ACT residents
	Electricity	\$/block	\$5,390					Revenue from sales to other ACT residents
Broadband	Broadband	\$/block	\$2,337					Revenue from sales to other ACT residents
	Fees, management other allowances	\$/block	\$19,099					Revenue from sales to other ACT residents
Infrastructure (off estate)	Infrastructure (off estate)	\$/block	\$0					Revenue from sales to other ACT residents
	Access roads	\$/block	\$0					Revenue from sales to other ACT residents
Water	Water	\$/block	\$0					Revenue from sales to other ACT residents
	Electricity	\$/block	\$0					Revenue from sales to other ACT residents
Sewerage	Sewerage	\$/block	\$0					Revenue from sales to other ACT residents
	Project management	\$/block	\$0					Revenue from sales to other ACT residents
Broadband	Broadband	\$/block	\$1,038					Revenue from sales to other ACT residents
	Developer margin	\$/block	\$34,000					Revenue from sales to other ACT residents
Additional cost to ACT Government	Additional cost to ACT Government	\$/block						Revenue from sales to other ACT residents
	Additional costs to ACT Housing	\$/block						Revenue from sales to other ACT residents
Repairs/meeting bushfire standards existing houses	Repairs/meeting bushfire standards existing houses	\$/block						Revenue from sales to other ACT residents
	Construction of replacement houses	\$/block						Revenue from sales to other ACT residents
Rates	Rates	\$/block						Revenue from sales to other ACT residents
	Land tax	\$/block						Revenue from sales to other ACT residents
Other ACT Government services	Other ACT Government services	\$/block						Revenue from sales to other ACT residents
	School bus services	\$/block						Revenue from sales to other ACT residents
ACTION bus	ACTION bus	\$/block						Revenue from sales to other ACT residents
		\$/block						Revenue from sales to other ACT residents

Part Five – Implementation

Part Five – Implementation

17 Application of Sustainability Principles

The ACT Government has adopted a three dimensional approach to the concept of sustainability – People, Place, Prosperity – which is discussed fully in Chapter 1. This approach provides a framework for a sustainability assessment.

The table below provides an assessment of the settlement proposal against descriptive criteria that are coherent and, in many cases, measurable. The criteria provide clarity on what the settlement is and is not intended to be and the consequent characteristics of the settlement. The achievement of these characteristics will require a pro-active approach during the design process and in some cases the imposition of specific development controls. Appropriate design and development controls are described in the table.

Implementation of the sustainability principles will be at three levels:

- The Development Control Plan which will be based on the content of this sustainability study will be adopted as the “principles and policies” associated with the “defined land” status of the site and will be a statutory instrument forming part of the Territory Plan. It will specify design and management principles for Stromlo.
- Development Conditions will be in the form of specific contractual requirements placed on the developer of the site. These will ensure the delivery of the appropriately built form and site infrastructure to meet the Development Control Plan requirements.
- Lease conditions, including body corporate arrangements, will have enduring force throughout the life of the village. They will include specific land use and management measures to achieve the Development Control Plan objectives.

A Sustainable Rural Village at Stromlo					
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...				
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)	
People	An identifiable social unit, residents interact with each other socially, or on village management issues or to provide mutual assistance and support or for other reasons.	A group of dwellings where residents have no interaction with each other	Social, management and support networks that are pre-existing or introduced in ways that encourage or require participation from individuals.	- Body corporate or village management committee with clear responsibility for open space maintenance and bushfire safety (Lease). - Landscape treatments to provide visual connectivity allowing for social interaction and surveillance - public space; private front yards (DCP).	
	A community with a sense of common purpose and inclusiveness	A group of residents with irreconcilably disparate views on lifestyle and village management matters	Shared responsibility for management of local community resources	- Individual residents obligations written into leases or community title arrangements - Public space and some local infrastructure to be designed so as maintenance can be carried out by residents (DCP).	
	A community that has an appreciation of its own history and confidence in the future.	Individuals or households who see themselves as transient or not part of the ongoing life of the community.	Respect for people, places and artefacts that provide links with the past.	- Secure tenure arrangements (Leases to be 99 years). - Artefacts and links with the past are to be incorporated within the landscape and infrastructure design (DCP). - Heritage assessment recommendations to be implemented in full (DCP).	
	A place with a single low key community meeting venue, possibly utilising fire brigade facilities.	A settlement consisting of houses only	No obvious "village centre". Residents interaction via networks such as bushfire brigade or community notice board.	Landscape treatment to blend with the remainder of the community area (DCP).	

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	A community with an acknowledged system of leadership or governance with responsibility for important elements of village management	A place where all administrative decision making is imposed from outside.	A village committee or body corporate arrangement with clear responsibilities and access to some funds.	- Community Title management (Lease). - Landscape and some infrastructure to be designed to enable community to carry out maintenance
	A mixed population across age, income, gender and cultural types.	An enclave of a particular socio economic group.	A mix of housing type, size and public and private, ownership and rental tenure arrangements. Sufficient population to allow a suitable mix to occur.	- Compulsory inclusion of 25% modest cottage housing in initial development (DCP). - Designed to have a variety of active and passive landscape spaces (DCP). - Accessible and affordable Housing opportunities (Development conditions include provision of Housing ACT sites).
	Human scale	Spread over a very large area or with excessively large structures	Modest building bulk and scale, "walkability": most or all internal trips will be on foot.	- Building height limited to one story (DCP). - Plot ratio limited to 0.35 (DCP). - Landscape development to reflect intended scale of development with strong pedestrian links (DCP).
	An educated community	Cut off from access to educational opportunities for residents	Reasonable access to primary, secondary and tertiary education opportunities noting that travel may require a higher level of self management or community enterprise than for suburban areas. Internet access. Uriarra will not be large enough to support a public school.	- Landscape setting to provide opportunities for environmental education (DCP). - Broadband internet availability (Development Conditions).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	An informed community	Isolated or insular from broader issues	Possibly a local paper, newsheet or web site and community forums that look beyond the village boundary. Internet access	- Broadband internet availability (Development Conditions). - Incorporate community billboard into landscape design of public space (Development Conditions).
	A safe community	A place where there is a perception of personal risk from other members of the community or outsiders	Physical design achieves passive surveillance of public spaces.	Landscape design to provide ability for passive surveillance. The landscape design to reflect bush fire abatement requirements. Landscape and recreational facilities to be designed to appropriate safety standards and be accessible to all (DCP and Development Conditions).
	Aboriginal culture is respected.	Developed without reference to and examination of the pre history of the site	Evidence of pre European occupation will be recorded and treated appropriately.	Artefacts and links with the past are to be incorporated within the landscape and infrastructure design as appropriate (DCP).
	A place where the value of the community is measured in social capital as well as financial capital terms	A concept that depends on a simplistic dollar budget surplus as a basis for a decision to proceed.	Will have been assessed on the basis of an economic analysis that places appropriate value on social capital.	- Community participation in infrastructure management (Lease). - Landscape maintenance by community and landscape design to encourage social interaction (Lease). - Economic analysis includes measures of social capital (Sustainability Study).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	A place that provides equity of opportunity, access and participation to all residents and delivers intergenerational equity.	A place where society is stratified or segregated. Built purely for short term gratification.	Includes a community management mechanism to oversee day to day (and long term) management matters that is democratic.	- Members of the community to be involved in the quality and management of the landscape (DCP and Lease). - Development will include public housing and accessible and affordable housing (Development Conditions).
Place	A settlement that has a historical context	A grouping of dwellings inserted in a landscape where none existed before	A documented and appreciated history and culture.	- Artefacts and links with the past are to be incorporated within the landscape and infrastructure design (DCP). - A site to be provided for a possible forestry museum (DCP).
	In the right place and there for a reason	Located without respect to local geographical features.	Set around historical roads and green space and taking advantage of local topography to create a village focus.	Heritage assessment recommendations including retention of remaining houses and road pattern to be incorporated in new design (DCP).
	Limited in size (i.e. limit on total number of dwellings)	Able to grow without boundaries in response only to market forces.	Strict land use planning controls.	- Maximum 40 dwellings (Lease). - No further subdivision of dual occupancy (Territory Plan)
	Compatible with its own history	A small piece of new suburbia	The ambience of a forestry settlement.	- Large block sizes (ranging between 1000-2500m²) (DCP) "Village" style street layout, most streets leading to open space or common land (DCP).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	Well designed	Form and layout are not the result of ad hoc individual decisions.	Aesthetically appealing with functional infrastructure	• Sound concept and structure planning and robust design controls providing a framework for individual expression (DCP). • An overall Landscape Masterplan and Management Plan for open space areas and streetscapes and design guidelines for private landscapes. Integrated design approach with all professionals (DCP).
	Set in the landscape, but enjoys the view.	Intrusive in the landscape or lit up obtrusively at night.	Layout that responds to landform and is harmoniously sited and appropriate.	• Rural lane road typology (Development Conditions). • Careful design attention to built form and scale, colour and materials, landscape plantings and public lighting (DCP). • No kerbs and gutters (Development Conditions). • An overall Landscape Masterplan that builds on and strengthens the landscape setting and integrate any development (DCP). • Siting and landscaping to achieve screening from national area (DCP).
	A place where road traffic generation is compatible with rural road design	Of a scale that would impose unacceptable traffic impacts on local rural roads	Local employment, communal facilities, walkability and cooperative transport arrangements	• New roads to fit in with the landform and the landscape, and to receive appropriate streetscape treatment (Development Conditions). • Appropriate treatment at entry intersections (Development Conditions).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	A community that minimises production of municipal waste	A place that has standard suburban style weekly garbage collection services	Communally managed recycling materials collection, composting and intractable waste disposal all with internalised costing.	• Site for communal recycling and composting (Development Conditions). • Landscape design to minimise waste generation and utilise stormwater and greywater where appropriate (Development Conditions).
	Distinctly separate from urban Canberra	Seen as part of or an extension of suburban Canberra.	Will be physically separated from suburban areas, separation may be minimal in distance (e.g. Hall) but must be clearly apparent.	• Landscape Masterplan and detail landscape design to provide for both a visual and physical separation from urban Canberra (DCP).
	Interconnected with its local area	An enclave or "gated" community	Connectivity with surrounding natural/farmland/forest areas with walking trails; use of adjacent land e.g. for horse agistment or horticulture, wildlife corridors into and through the village.	• Design to encourage visual and physical access to the surrounding area. Integration of landscape materials from the surrounding local area. Strengthen the local landscape character and identity (DCP).
	A place where the air is clean	A place where air pollution is an issue	A sense of fresh air and vitality.	• Controls will be imposed on odour, particulate and offensive fume producing activities. Wood fires not to be the sole source of heating in homes (Lease).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	A place where potable water supplies and natural water systems are clean	A place that accepts or outputs polluted water.	A positive and pro active approach to water and wastewater management.	- Innovative and sustainable grey water and sewerage systems, 100% reuse (Development Conditions). - Water output quality is equivalent to or better than receiving waters (Development Conditions). - Potable water systems to achieve appropriate standards (Development Conditions). - Water tanks to supply household needs (except fire fighting to be supplied from street hydrants at mains pressure) (Development Conditions). - Developed landscape plan to provide wetlands and bio-filter where appropriate (Development Conditions).
	A place with tolerance for some noisy activities such as home car maintenance.	A place where noisy activities are banned	Limited or no through traffic, defined village boundaries, controls on noise appropriate for the setting	Large blocks to allow good house to house separation (DCP).
	A place that does not increase total community contributions to greenhouse gas emissions.	Developed and managed independently of the need to minimise greenhouse gas emissions	Energy systems will optimise energy efficiency and where possible be supplied from renewable sources. Management and communal arrangements will minimise motor vehicle travel. Opportunity for small shop in village centre.	- Energy to be supplied from renewable sources where possible e.g. Solar hot water systems (Development Conditions). - Embedded energy costs will be considered in selection of construction materials (Development Conditions). - All houses to meet or exceed 5 star energy rating (Development Conditions). - Landscape design to minimise motorised maintenance activities. Provide adequate planting areas that act as "carbon-sinks" (Development Conditions).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	A place where local biodiversity is enhanced	A place that, through the introduction of plant or animal species, or the production of effluent or emissions, impacts adversely on local biodiversity	Village design will accord with requirements of endangered species and ecological communities action plans (prepared under the ACT Nature Conservation Act) and the Commonwealth Environment Protection and Biodiversity Conservation Act	• Landscape guidelines that encourage the use of local native plant species, and the development of wildlife habitats and corridors (Development Conditions). • No weed species permitted in private gardens or public open spaces (Development Conditions).
	A place where community infrastructure and individual houses are designed to minimise energy consumption	Designed only to meet current minimum energy conservation standards	Maximises opportunity for use of renewable energy sources (hydro and solar)	• Houses exceed 5 star energy ratings (Development Conditions). • Site appropriate plant material to maximise/minimise solar access. Landscape plan to minimise motorised maintenance activities. Landscape planning to integrate with energy planning to accommodate energy production (Development Conditions).
Prosperity	A community that sees itself as being self reliant in day to day matters.	A place where the suburban "norms" of retail and community services and facilities are considered to be necessary or desirable. Subsidised by the wider community for infrastructure and services.	Lower levels of expectation and access to services and facilities. Provision for local production of vegetables, fruit etc - either larger blocks or communal gardens or both.	• Design to provide for larger block sizes and allow potential for community gardens (DCP). • Landscape planning to reflect the need of community gardens or other community facilities on appropriate sites (DCP). • Permaculture principles to be incorporated into the Landscape Masterplanning (Development Conditions).

A Sustainable Rural Village at Stromlo				
	An integrated element in the landscape buffer. A forestry settlement linked to nearby suburbs but distinct from them. A balance between urban development, landscape values and respect for the cultural history of the forestry industry...			
	Is....	Is not....	And will therefore have these characteristics....	And these design and development controls... (implementation mechanism in brackets)
	A place that provides a clearly different choice in residential accommodation, not available elsewhere in the ACT.	"More of the same", an extension of suburbia or a mini suburb in the bush.	Site specific design and development controls and an appropriate ongoing management regime.	- Design controls as per this table (Sustainability Study). - Treatment of public and private spaces to reflect the alternative housing and lifestyle (DCP).
	A place equipped and protected from natural disaster, particularly fire and drought	At high risk of destruction by bushfire or other phenomenon	The village will be in a state of readiness to deal with emergencies with clear management arrangements.	- Reliable mains pressure water supply available (Development Conditions). - Volunteer fire service to be integrated with village management, appropriately equipped, established relationships with other emergency services (Lease). - Disaster response plans to be prepared with community involvement and regularly updated (Lease). - Masterplan and landscape design to reflect bush fire planning requirements. Plant material to be drought tolerant. Landscape materials to be selected for low-combustible properties. Landscape planning to incorporate wind breaks (Development Conditions).
	A place that does not encourage non home based economic activity.	A place where business enterprises operate separately from residential houses	Minimal economic activity and only at residential scale.	- Planning precludes commercial development (Lease). - Provide for "home business" uses (Lease). - No vacant sites (Development Conditions).

18 Statutory Planning Regime

18.1 Introduction

This chapter examines the statutory planning framework that currently exists at the Stromlo Settlement site, the compatibility of current statutory controls with a proposed village, and explores any necessary changes that may be required to either the National Capital Plan or the Territory Plan or both if a decision is made to proceed with the reconstruction of the settlement.

The National Capital Plan is established under the ACT (Planning and Land Management) Act 1998 and it is administered, on behalf of the Commonwealth, by the National Capital Authority (NCA). An extract from the NCA web site that describes the function of the National Capital plan as follows:

“The National Capital Plan:

- *must continue to preserve and enhance the special characteristics and those qualities of the National Capital which are of national significance*
- *must be flexible enough to meet changing environmental, economic, cultural and social needs and influences.*

The Plan describes the broad pattern of land use to be adopted in the development of Canberra and the Territory. General policies of the Plan also cover National and Arterial Roads, location of Commonwealth employment, heritage issues and other relevant matters of broad policy.

At a more detailed level, the Plan identifies areas which have the special characteristics of the National Capital. These are called Designated Areas. The Plan sets out detailed conditions for their planning, design and development. The Plan also sets out Special Requirements for the development of selected areas, not being Designated Areas.”

The Territory Plan, prepared under the Land (Planning and Environment) Act 1991 is administered by the ACT Planning and Land Authority (ACTPLA). The territory Plan is required to be consistent with the National Capital Plan; it provides a more detailed level of administrative and land use control. The object of the plan is specified in the legislation as follows:

“The Object of the Territory Plan is to ensure, in a manner not inconsistent with the National Capital Plan, that the planning and development of the Territory provides the people of the Territory with an ecologically sustainable, healthy, attractive, safe and efficient environment in which to live, work and have their recreation.”

The Written Statement of the Plan sets out detailed objectives and policies for regulating land use and development in different areas of the Territory. These are designed to give effect to the object of the Plan and the planning principles set out in the Plan.

The two statutory plans provide a framework for land use change and development in the Territory.

18.2 Background

Prior to the January 2003 bushfires the Stromlo village consisted of 20 houses and other facilities. Seventeen of the houses and a forestry depot and office facilities were destroyed in the fires. There is a possible statutory impediment under the Territory Plan to the replacement of the structures that were destroyed. In January 2003 the houses were under the control of Housing ACT and were not tied to forestry activity and consequently were not a permitted use under the provisions of the Plantation Forestry land use policy in the Territory Plan.

To ensure the long term sustainability of the village, the Shaping Our Territory Final Report recommended that Stromlo should be rebuilt and possibly at a larger scale. The reasons for this are discussed elsewhere in this report, in summary they are:

- The need for a minimum critical mass of housing to provide for a social mix and choice within the new community, noting that the original stock of 20 public housing dwellings will be replaced.
- The need for a financial injection (from land sales) to fund new and enhanced infrastructure works
- The opportunity to broaden the range of housing choices available in the Territory, recognising the high demand for village style living at Hall and Tharwa and for rural living options in NSW.

The increase in scale is a departure from the pre existing use and this would be incompatible with the provisions of the Territory Plan.

It is also desirable that the residents have secure tenure as is generally available elsewhere in the ACT. For this to occur it will be necessary for some form of lease to be granted either over the whole site (e.g. as a community title) or for individual dwelling blocks. The granting of leases for residential purposes may not be possible under the Territory Plan policies that currently apply to the site. Given this, even if the minimal option of rebuilding only the pre-existing dwellings were pursued, there would be difficulties in offering residents security of tenure.

18.3 National Capital Plan

Stromlo Village is in an "Urban" land use policy under the National Capital Plan (NCP). The objective of this policy is to provide for the development of metropolitan Canberra. Implementation of the village proposal at Stromlo will not require an amendment to this policy.

The NCP sets out a number of policies for urban areas. Of particular relevance to the Stromlo settlement proposal is a requirement (clause 4.4(g)) that all development proposals within 5km of Mount Stromlo observatory be referred to the Australian National University for examination and comment and that reasonable steps be taken to mitigate adverse impacts. It will therefore be a requirement that the Territory Plan Variation proposed below be referred to the ANU.

18.4 The Territory Plan

Prior to the introduction of the Land (Planning and Environment) Act in 1991 (the Land Act) the Stromlo Village was an established land use and there was no statutory impediment to its continuance or, subject to approval, expansion. Following the introduction of the Land Act and consequently the Territory Plan, a statutory land use control regime was imposed. This is in the form of goals and objectives and policies and controls set out in the Plan. The policies and controls relevant to the village site now limit the range of uses and, importantly, residential dwellings are not included in the schedule of uses that may be approved. The Land Act made provision for the continuance of pre existing uses at Clause 12:

“12 Plan not to have retrospective effect

If, immediately before the plan comes into effect under this Act, it would be lawful to use any land in a particular way in the exercise of a right derived from an estate in that land, the plan does not prevent the use of that land in that way during the term of the estate.”

The effect of this clause is that the settlement could continue indefinitely as it was on the day that the plan came into effect, but new villages or an expansion of the existing village involving new dwellings could not be approved.

18.5 Principles and Policies - Territory Plan

The overall objective of the Territory Plan is as follows:

“The fundamental purpose of the Territory Plan is to manage land use change and development within the ACT in a manner consistent with strategic directions set from time to time by the ACT Government, Legislative Assembly and community. Together with the Land Act and National Capital Plan it provides a comprehensive and transparent framework for consideration of development proposals”²⁵

The Territory Plan provides a more detailed statutory framework, within the context set by the National Capital Plan, against which specific development proposals (e.g. for settlement development) can be assessed. The ACT (Planning and Land Management) Act 1998 requires that the Territory Plan be consistent with the National Capital Plan.

18.6 Current Territory Plan Land Use Policy

The Land use Policy for the Stromlo site is “Plantation Forestry”.

This policy position is a consequence of the previous use of the site for forestry management and staff accommodation uses. The settlement area was an integral part of ACT Forest’s operations. The management and staffing structure for ACT Forest’s operations has been reconfigured and for some time there has been no need for residential staff accommodation at the forestry villages and settlements. Management of the housing and settlement infrastructure has been taken over by Housing ACT. The administrative link between the village and the forestry industry is broken. Strong functional linkages are still in place with some residents continuing to work in forestry and related industries and several being retired forestry workers or descendants of forestry workers.

The current policy of ACT Forests does not require accommodation at forestry settlements.

²⁵ Territory Plan, 2002, p i

The plantation forestry classification for the village site is therefore now anachronistic and an amendment to the Territory Plan to regularise the situation is appropriate. A variation will also provide for the expansion of the village.

18.7 Proposed Territory Plan land use policy

There are three land use policy options available to accommodate rural villages:

1. The creation of a new land use policy definition in the Plan – “rural settlements” or similar which clearly defines the nature of landuses and other characteristics.
2. The amendment of the policy for each site to “residential” with either “overlay” or “defined land” provisions which clearly specify the nature of development that will be permitted, or
3. The amendment of the policy for each site to “rural” with an “overlay” provision that clearly specifies the nature of development that will be permitted, including provision for residential development.

Option 1 has been considered and rejected for practical administrative reasons. The introduction of a new land use policy into the Plan will require major amendments to documentation throughout the plan written text and map. Given that other options are available then this level of complexity is not warranted.

Option 2 is a viable proposal and is recommended. This would also align with the National Capital Plan Land Use Policy for this area which is “Urban”. The nature of this village will be similar to Wybalena Grove in Cook or Urambi in Kambah, both of which are under residential land use policies. The site should also have ‘defined land’ status, the policies and principles for which are drawn from in this report.

Option 3, implementation of a rural land use policy, would be incongruous in the location that is immediately adjacent to the urban area. It would also be incompatible with the “urban” designation of this area in the national Capital Plan.

The area surrounding the village site (bounded by The Cotter Road, Eucumbene Drive, Warragamba Avenue, Dixon Drive and Streeton Drive) is also currently subject to the “Plantation Forests” land use policy, which is no longer appropriate. It is recommended that, in recognition of the future status of this land as a landscape buffer between the exiting Weston Creek suburbs and the proposed Molonglo urban area, it be varied to come under the “Urban Open Space” land use policy. This plan variation should be incorporated with the village plan variation discussed above.

Implementation of a Territory Plan variation, in the context of implementation of the total project is discussed at Chapter 19.

19 Implementation

Implementation of the proposal for the rebuilding of Stromlo Settlement will require several steps, and involve both the ACT Government and Legislative Assembly. Two statutory processes will be undertaken (refer to Chapter 3: Statutory Planning Regime for a discussion of the current position of the village). The two processes are:

1. A Variation to the Territory Plan, and
2. A Preliminary Assessment under Part IV of the Land (Planning and Environment) Act 1991.

The Territory Plan and Preliminary Assessment process are administered by the ACT Planning and Land Authority

With the appropriate statutory planning provisions and approvals in place the Territory will be able to proceed with detailed design, development approval and construction as discussed in Chapter 21 Land Development Options.

The various steps, and recommendations for action, for each of the two processes are set out in the Tables below:

Table 12 – Variation to the Territory Plan

Step 1	The ACT Planning and Land Authority (ACTPLA) decides that a variation to the Territory Plan is warranted and prepares a Draft Variation and background paper normally involving consultation with the ACT Minister for Planning.	This process has no legislative time frame and relies on the desire of Government to expedite the process. This could take between one week and several years depending on the complexity of the variation. This sustainability report will serve as the 'background paper' in support of the proposed variation.
Step 2	The Draft Variation is referred to the Planning and Land Council for comment.	Again there is no legislative time frame; however, the Council only meets monthly.
Step 3	ACTPLA advertises for public comment.	Three to six weeks, this should be concurrent with the advertising of the Draft Amendment to the National Capital Plan
Step 4	ACTPLA receives public comment and modifies the draft variation if required. ACTPLA prepares a report on public consultation.	Again there is no legislative time frame for this process.
Step 5	The draft variation is forwarded to the ACT Minister for Planning together with a report on public comments received.	

Step 6	The Minister adopts the final variation and refers it to the Planning and Environment Committee (a multi party committee within the Legislative Assembly).	This Committee usually meets weekly (on Fridays) and can call for public hearings if warranted. The process of setting a hearing date or dates, advertising and conducting hearings will take a minimum of 3 months. Given the urgent need for resolution of the decision on re-building the village and the substantial public scrutiny that the proposal has already been subject to (during the preparation of the Shaping Our Territory Report) it is hoped that this step may be expedited.
Step 7	The Committee prepares a report to the Legislative Assembly and the Minister for Planning.	
Step 8	The ACT Minister for Planning prepares the Final Variation, which is tabled in the Legislative Assembly.	
Step 9	Tabled in the Legislative Assembly as a disallowable instrument.	The tabling period is five sitting days. If it is not disallowed within this time, the Variation will be gazetted as soon as practicable (within a week) following the end of the fifth day and becomes part of the Territory Plan..

It is recommended that a draft variation to the Territory Plan be initiated as soon as practicable.

The proposal for settlement development contained in this report falls within the class of development that would trigger a mandatory Preliminary Assessment under Part IV of the Land (Planning and Environment) Act 1991 (the Act). In particular the proposal, to proceed, requires that the Territory Plan be amended such that the land use policy applying to the site is amended from "Plantation Forestry" to "Rural". This amendment is one of the items listed in Schedule II.1 of Appendix II of the Territory Plan and is a prescribed class of defined decision for the purposes of Section 114 of the Land Act. In these circumstances it is usual for a preliminary assessment to be prepared, publicly advertised and processed in accordance with the requirements of the Act.

The PA process will be undertaken concurrently with the Territory Plan variation. The process is described in Table 13.

Table 13 – Mandatory Preliminary Assessment

Step 1	The proponent of the development prepares a Preliminary Assessment (PA – a form of scoping study that addresses a range of land planning and environmental management issues) and submits to ACTPLA for consideration. It would be appropriate that this submission be incorporated into Step 1 of the Territory Plan Variation	This sustainability study report has provided the basis of a document that will meet the requirements of the Preliminary Assessment legislation
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Step 2	ACTPLA decides that the information provided meets with set criteria and deems it suitable for publication.	Consultations that have been conducted with relevant agencies during the course of the sustainability study should expedite this process.
Step 3	ACTPLA advertises for public comment. Again, it would be appropriate to coordinate this activity with the public consultation process in Step 3 of the Territory Plan Variation.	Three weeks.
Step 4	ACTPLA takes into account public comments received and determines whether further assessment is necessary. If no further assessment is required the proposal can proceed through other planning approval processes.	Two weeks.
Step 5	If further assessment is determined to be required then the proposal is subject to either a Public Environmental Review or an Environmental Impact Assessment process	Possibly an additional six months.

It is sensible that the Preliminary Assessment be undertaken in parallel with the variation to the Territory Plan. It is most convenient for the community if the PA is advertised concurrently with the Draft Variation.

20 Land Tenure Options

The type of land ownership that will be applied to the settlement is an important consideration. It will affect the value of the residential properties and the relationships between residents. It also has implications for the level of ongoing involvement by Government agencies related to services and maintenance of community assets.

There are three options for the ownership of land in the ACT. All are forms of leasehold as the Territory is vested in the Commonwealth in perpetuity. The three options are:

1. Standard leasehold;
2. A unit title scheme;
3. A community title scheme.

These are discussed below.

20.1 Standard Leasehold

The majority of private land in the ACT is held under Crown Leases. Leases are granted under the Land (Planning and Environment) Act 1991, usually for a term of 99 years. The Act also provides for the renewal of residential leases for further terms by an administrative process at nominal cost. The lease specifies the purpose for which land may be used and usually also the extent of development that is permitted. For example, “one only residential dwelling”, or “shop, maximum 100m²”. This system is very akin to a freehold tenure system.

If the standard leasehold system were to be applied to the village then the process would involve firstly, the design and approval of a subdivision and infrastructure plan for the site and following construction of roads and services infrastructure, the creation and sale of Crown Leases over individual blocks.

The advantages of the standard leasehold system are that:

- It is well understood and widely accepted in the community and therefore will experience no market resistance;
- Residents will not be constrained by body corporate rules;
- Quality and sustainability design outcomes can be achieved with the imposition of lease and development conditions. This system is “tried and true” and has worked well elsewhere in Canberra;
- There are no fees other than the usual Government rates and charges;
- Land sales can proceed over an extended time period if necessary. Infrastructure can be installed to match a sales program.

The disadvantages are:

- Care needs to be taken with lease and development conditions to ensure that desired outcomes are achieved. The sensitivity of the village proposal may warrant the inclusion of a mandatory suite of house designs in lease and development conditions (see Chapter 21 – Land Development Options);
- There is no obligation on residents to participate in or contribute to community activities such as the volunteer fire service;
- Public infrastructure must be owned and maintained by Government.

20.2 A Unit Title Scheme

Land may be held as units in a unit title scheme under the provisions of the Unit Titles Act 2001. The Act was substantially revised in 2001, it replaced the Unit Titles Act 1970. The new Act has benefited from thirty years of experience under the earlier legislation and has resolved many of the difficulties that were being experienced under the earlier legislation.

The Unit Titles Act allows for a style of development where individuals can own their own dwelling as well as have a shared ownership (shared with other unit holders in the scheme) of community or “common” facilities on the land. There is also usually an obligation to contribute fees to a communal fund for management and upkeep of facilities. A “body corporate” group which is drawn from and representative of all unit holders administers the scheme.

The advantages of a unit title scheme are:

- Infrastructure such as roads can often be provided at less cost as it need not be constructed to the high standards required for publicly owned works;
- The quality of public areas, for example the amount of landscape maintenance, can be determined by the residents and need not be reliant on Government agencies;
- An obligation is imposed (and legally enforceable) on all residents to contribute financially to community needs. The amount contributed is pre determined and equitable;
- Community decision making is democratic and accessible;
- Property values can be maintained by a strong community role in maintenance and management;
- Unit title schemes are legally robust and well accepted by the market;
- The opportunity exists for community ownership of on-site infrastructure such as sewerage and water systems. These systems may be better managed in this way in a village context as they are separated from the main metropolitan systems;
- Future certainty as changes to a unit scheme require unanimous cooperation of all unit owners;
- A community with a shared purpose and a mechanism whereby the philosophy behind the community can be clearly articulated.

The disadvantages of a unit title scheme are:

- Some market resistance to a product that involves some costs and limitations compared to standard leasehold;
- Extra costs to unit holders payable as body corporate fees to cover day to day costs and a sinking fund for long-term maintenance;
- Less personal freedom for individual unit holders;
- Very little flexibility for future changes to accommodate evolving circumstances.

20.3 A Community Title Scheme

Community title schemes are able to be created under the Community Title Act 2001. This relatively new legislation has not yet been tested. As yet there are no community title schemes established in the ACT, although some proposals are under investigation. The legislation is based on similar models in NSW and other states where schemes have been in operation for many years.

A community title scheme is very similar to a unit title scheme except that owners of lots within the scheme may be body corporates in their own right, separately established under the Unit Titles Act. This allows for greater flexibility in the ownership and management of community resources. For example, some of the residential units in a village may have shared ownership of a horse paddock under a unit title scheme, that scheme could be one “unit” within a larger scheme including all other residential units in the village. The larger scheme would be a community title scheme with common ownership of village roads and open space and, say, the sewerage system.

The advantages of a community title scheme are similar to those of a unit title scheme with the additional benefit of greater flexibility of management and use of shared resources. This has the flow on benefit of allowing resources to be utilised more equitably. In the above example for instance, residents who did not use the horse paddock would not need to contribute to its upkeep.

The disadvantages of a community title scheme relate to the increased complexity of administration as a community scheme is effectively a “nested” hierarchy of unit title schemes. It is also of note that the legislation is so far untried, although there is no obvious reason why it should not be regarded as workable.

20.4 Recommended Land Tenure System

The style of living that has evolved at Stromlo Village over time and which should be maintained into the future, is characterised by a strong focus of the village as a local community, managing its own affairs on a “can do” self help basis. Communal ownership and management of shared resources such as the horse paddock areas has been accepted as the norm.

This background, taken together with a positive need for pro active local management of infrastructure and land, leads to a conclusion that a community title scheme would be most appropriate.

Common interests that can be accommodated with such a scheme include management of:

- A bush fire fighting/community use facility;
- Open space areas;
- Bushfire education, volunteer training and hazard reduction;
- On-site sewer and water supply infrastructure;
- Possibly horse paddocks as a community resource
- Possibly a site for a forestry museum

A community title scheme is therefore recommended for implementation at Stromlo.

It is further recommended that all existing on-site infrastructure and open space areas be vested in the body corporate.

21 Land Development Options

If a decision is taken to implement the proposed settlement the responsibility for the task will rest primarily with the ACT Government's Land Development Agency.

In 2003 the Government put in place new arrangements for the governance of planning and land management. A key element of this structure was the creation of the Land Development Agency (LDA) which undertakes the public land development, land sales and major development projects functions of the ACT Government. The LDA is established under the Planning and Land Act 2002.

The LDA is a statutory corporation with a strong commercial focus. It must also take account of the Government's social policy objectives, including delivering high quality developments and assisting in delivering housing policies. The LDA performs many of its functions in cooperation with ACT Planning & Land Authority, although the organisations have quite separate responsibilities. The Planning Authority has responsibility for planning and design policy. All land sold or developed by the LDA is subject to lease and development conditions that are prepared by the LDA and approved by the Planning Authority.

The LDA is responsible for land development and land sales, as well as major land development works on behalf of the Government. The goal of the LDA is to create economic, environmental and social benefits through the development and disposal of Government land assets – including both undeveloped ('greenfields') land and previously developed ('brownfields') land.

The redevelopment of the villages is subject firstly to a number of statutory planning approvals discussed in Chapter 18. In particular this sustainability report and the associated concept plan will be submitted to the NCA for approval as a Development Control plan. When these processes are concluded the implementation will take the following steps as illustrated on Figure 13:

1. Sale or handover of site
2. Detail design (subdivision, lease and development conditions and infrastructure)
3. Infrastructure construction
4. Sale of House and land packages by developer or sale of vacant blocks
5. House construction

There are opportunities for overlapping these stages to improve the speed and efficiency of delivery.

Options are available for the LDA to manage all steps of the process or for various levels of private sector involvement. These are summarised on Figure 13 below. Planning approval from one or both of the planning agencies is required at several points.

The options and opportunities that are available are as follows:

It is presumed that in accordance with current Government policies relating to land development the proposal will be managed as a public sector land development project.

(The alternative option would be to sell the land in total to a private developer, or develop in joint venture with a private developer. Under this scenario the land would be sold with the design controls in place and development would be subject to the same approval steps as shown in Figure 13.)

Immediately on finalisation of the Territory Plan and National Capital Plan statutory processes and approval of the development Control Plan the land will be “handed over” to the Land Development Agency. The range of design controls set out in this report will be confirmed as mandatory by the statutory process.

The LDA may seek to involve a joint venture partner at this stage. Past joint ventures have been on the basis of the Government contributing the land and the developer contributing the capital for development.

The LDA (or joint venture) will then embark on a detail design process that will include finalisation of the subdivision design based on the concept plan in this report, engineering design of infrastructure works and the preparation of lease and development conditions for residential and other development blocks. This design package will be submitted to the NCA and ACTPLA for approval. The principal approval will be from ACTPLA who will assess the proposal against the requirements of the Development Control plan.

On approval of the detail design, construction of the public infrastructure at the village including roads, engineering services, public area landscaping and the like, can commence.

A choice will be available with respect to the construction of houses. The “traditional” Canberra model is for the developer to develop the site and then offer vacant residential blocks for sale to owner occupiers or speculative builders. Under this system the ordinary Territory Plan controls on housing design (At Appendix III.I of the Plan) will apply in addition to any site specific controls that may be imposed in lease and development conditions, and any additional controls that might be written directly into the Territory Plan specifically for the village. By these mechanisms a high level of design control can be exercised.

Experience has shown that, in spite of this, design outcomes under this system are often not optimal. This type of design control approach inevitably results in a list of “don’ts” or design limitations and a tendency for designs to achieve the lowest common denominator that meets the minimum requirements. It does not encourage innovation or design excellence.

An alternative and recommended approach (illustrated in Figure 13) is for the developer (LDA) to retain control of house design. This approach is very common in the USA and becoming increasingly so in Australia. A possible scenario would be as follows:

1. The developer advertises for architect/builder combinations to submit a suite of house designs (with construction prices) to meet pre determined criteria. The criteria will ensure that the requirements of the development control plan will be met and may also specify, for example, ranges of sizes and prices that must be accommodated.
2. The developer selects three or four of the architect/builder groups as the project builders. The selection is based on considerations of sustainability and design excellence as well as price. The selected designs are then submitted to ACTPLA to ensure that the designs meet planning requirements.
3. Blocks of land are advertised for sale as house and land packages. Purchasers are offered blocks with a choice of the selected house designs at pre set prices, for construction by the architect/builder group that owns the selected design.

Should a potential purchaser wish to develop an alternate design this could be individually approved through the developer and ACTPLA. This process may take longer and the land sale would be pending approval of the house design.

This approach would ensure that the establishment of the village proceeded with the best available house designs, selected for their sustainable and aesthetic design quality, as well as ensuring that a variety of socio economic market segments are catered for. It would also encourage the architect builder groups to achieve excellence in design, economy and innovation to ensure their packages are chosen above those of the competing groups.

The LDA can provide a range of delivery options from being the developer, or being in a joint venture to allocating the project to the private sector. Whatever mechanism is selected, there should be incentives for quality outcomes in both pricing and profit structures.

Control of environmental impacts during development would be managed by the developer under the existing regulatory regime. This will include consideration of hazardous waste management, recycling and sediment control along with other relevant aspects.

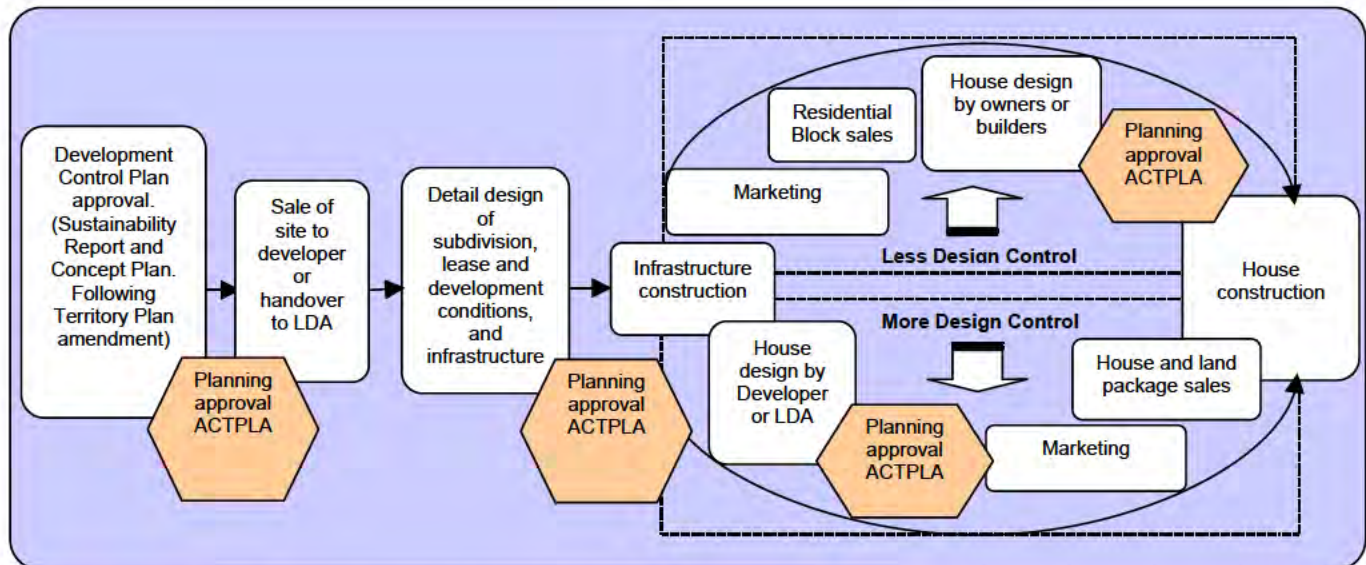


Figure 13 – Planning Approval & Development Process

22 Conclusions & Recommendations

Conclusions

Stromlo Settlement has a rich history based on the forestry industry.

After consideration of the options of:

- do nothing;
- demolition;
- rebuild exactly as before, or
- revitalise;

it is concluded that to revitalise with a larger number of dwellings is the most viable option to achieve the goals of sustainability, namely:

- a revitalised and healthy social mix;
- minimal environmental impact and potential for improvements; and
- economic responsibility.

The redevelopment of Stromlo Settlement to 40 dwellings meets the ACT Government's criteria for sustainability.

It is feasible to develop a concept plan to accommodate the following:

- Conservation of remaining European cottages and infrastructure.
- Supporting and enhancing social capital.
- Preserving trees of medium, high and very high landscape value.
- Preserving remaining stands of woodland and remaining grassland.
- Promoting wildlife conservation.
- Providing north facing blocks to facilitate passive solar design having regard also to heritage requirements for village layout.
- Preserving a rural feel of open space.
- Providing viable, innovative and sustainable water management and energy management,

Revitalising Stromlo will give the former residents the opportunity to return, leading to an immediate gain in social capital and goodwill.

Key changes in the settlement resulting from the revitalisation will include:

- Market rents will increase and are likely to be in the order of \$300/wk for an average home
- Community title management

There are no significant ecological constraints to the proposed redevelopment.

The settlement can be set into the landscape consistent with the wider goals of the National Capital Plan to preserve the landscape setting of the National Capital.

The additional traffic generated from the settlement can be readily absorbed into the existing road network.

The recommended width of fire protection zone results in the level of bushfire attack to the future dwellings being low. The other bushfire management recommendations will help to mitigate the impact of future bushfires.

The market analysis shows that the average land sale value is likely to be \$365,000 (incl GST) and all blocks are likely to sell within a three year timeframe.

The economic analysis demonstrates that at 40 houses, 20 of which are Housing ACT houses, the total revenue generated will be \$14 million with a net benefit of \$9.3 million (including an increase in asset value to ACT housing of \$7.5 million).

Amendments and variations to the National Capital and Territory Plans are able to be made to support appropriate land tenure options for the development of the settlement.

The ACT Government's Sustainability Principles have proven to be a sound mechanism to develop the concepts for a sustainable settlement.

Primary Recommendations

1. The findings of this sustainability study should be accepted, the key finding of which is that the proposed redevelopment of Stromlo is sustainable.
2. Stromlo should be redeveloped with 40 dwellings. The redevelopment should be of world-class standard based on the principles of sustainability and the concept plan presented.
3. The former residents should be given the opportunity to return with the right to buy.
4. The relevant authorities should, immediately facilitate changes to the statutory plans that are necessary to allow the proposed redevelopment to occur.
5. Land tenure should be community title.

Additional Recommendations

The general subdivision layout in the concept plan should be adopted:

- The visual impacts for the middle and distant views should be minimised by landscape planting.
- Block sizes should range from 1000 to 2500 m²
- Sites should be provided for future uses including communal recycling and composting and small business.
- Residential leases should enable home business uses.

- To maintain the heritage values and social capital of the existing settlement further subdivision or dual occupancy development should not be allowed:
- The recommendations for the conservation of the existing road pattern, cottages and other items of European heritage should be forwarded to the Government for consideration.
- The public areas within the landscape should be preserved.
- Facilities and open space should be within walking distance.

To promote a sound settlement ecologically:

- Weed control should be a significant consideration in the detailed design, construction and management of the settlement
- Pet control measures should be written into the community title charter. A starting point should compliance with existing ACT animal control legislation.
- An important aspect of settlement life should be to take positive action to improve the support of wildlife in and around the settlement area, this should include appropriate planting of native vegetation to promote links and corridors.
- Trees rated high (H) or very high (H+) in terms of landscape value should be preserved. Trees rated as medium (M) should be conserved wherever possible.

House design should be based on the following principles:

- Preserve the rural character with:
 - Pitched metal roofs, small-scale, articulated and pavilion forms
 - Informal layouts and elevations
 - Additive forms and repetitive elements
 - A predominance of horizontal lines
 - Integration between indoor and outdoor living including verandas, pergolas, breezeways and gauzed areas
 - Garages set back behind the property line
- Increase sustainability through design with:
 - Orientation to north, with narrow north south plan to facilitate sun penetration and habitable rooms to face north
 - Double glazing, shading devices and verandas to east, south and west
 - Internal thermal mass
 - High levels of insulation
 - Cross ventilation capacity
 - Minimal wall heights to minimise heat loss and gain

- Include specific design parameters with:
 - Light roof colours
 - Wall colours from a neutral palette
 - Horizontal lines, especially for wall cladding
 - The appearance of single story
- Meet Bushfire Level 1 (Medium Risk) AS3959 1999 with the addition of:
 - Considerations of siting, landscaping and maintenance
 - Weather seals on all openings including garage doors and external doors
 - Enclosed gutters, considered roof shape and a preference for metal roofs
 - Stainless steel or bronze fly-screens
 - Non-combustible fencing material with strategically placed fire proof fences
 - Considered location of gas cylinders

Water management should be based upon the following principles to achieve Water Sensitive Urban Design:

- Rainwater tanks to supplement supply potable water
- Grey water will be recycled within the residential block
- Stormwater will be managed via swale drains directing runoff to passively irrigate public open space

Energy management should be based on the following principles:

- All homes will meet passive solar design outcomes
- Gas will be used for cooking and heating applications where possible
- All electrical appliances will be the highest possible efficiency

Bushfire Management should be based on the following principles:

- House Design should be as described above.
- Non-residential buildings should be constructed to Level 1 of AS 2419.1-1994
- The hydrant system should meet the necessary standards
- There should be a second means of egress from the settlement
- Internal roads should provide access for fire appliances
- Fire trails should provide access to fight fires.
- Fire fighting resources should meet the standard required by the Chief Fire Control Officer.
- There should be a graduated system of Bushfire Abatement Zones (or asset protection zones) for a minimum of 200m
- Landscaped gardens within dwelling curtilage should be limited to 20% of area with remainder maintained as mown lawn or other low fire hazard surface.
- Common areas should be regularly maintained to reduce the fire risk
- The Stromlo Settlement corporate body should develop a fire management plan including an evacuation plan.

The development of the community should be based on the following principles:

- Ownership of settlement infrastructure should be vested in the body corporate.
- The body corporate should have a decision making role in the future of the settlement.
- The rules of the body corporate should make provision for tenant participation in decision making.
- A community development officer should be appointed for up to 5 years to assist the re-establishment of the settlement and to build social capital.
- There should be a mechanism for ongoing communication with the adjacent landholders, ACT Forests and the wider community to facilitate positive outcomes and to cement the role of the settlement as a valuable part of the community.

Statutory Planning and implementation should include the following actions:

- The ACTPLA should complete a variation to the Territory Plan. This would mean provision for a “residential” policy with defined land status that allows the settlement to be developed.
- This document should be used as the policies and principles of the defined land status and as part of a Development Control Plan to facilitate the redevelopment of the settlement
- After the combination of the above statutory planning actions is completed leases should be established. The project should be handed to the Land Development Authority to proceed to final development.
- The recommended approach to development is a joint venture development scenario where the developer maintains control of house design as follows:
 - The developer calls for architect/builder combinations to submit costed house designs that meet the necessary criteria
 - The developer chooses the best designs and submits them to ACTPLA to ensure they meet planning requirements
 - Purchasers of land are offered a suite of pre priced and pre approved house packages

Social Capital should be supported as outlined in many of the recommendations and should include:

- 40 dwellings to enable a vibrant and viable social mix to develop whilst maintaining a small cohesive community.
- Responsibility for local initiatives such as participation in the bushfire brigade.
- The provision of baseline community services including a community meeting place, postal service and garbage collection.
- Fostering initiatives including recycling and the development of community gardens.
- Education of residents about the community and the rural nature to the location meaning:
 - There will be a community title management system which will require participation and financial input
 - There will be a school bus but no public bus service.
 - Response times for emergency services will be slightly longer than in urban areas
 - There will be a volunteer bushfire brigade that will require members and participation from the community.
 - Maintenance of the village open space and environment will be the responsibility of the community.

Appendix 1 – Contributors

This report is a compilation of expert analysis and advice on the broad range of subjects required for a sustainability study.

Contributors to this report include:

Working Group

Name	Position/Organisation
Sch 2.2(a)(ii)	Chair Shaping Our Territory Working Group
	Chief Executive Officer Communities@work
	Director Koundouris Group
	Chief Executive Officer ActewAGL Corporation
	Special Counsel Malleson Stephen Jacques
Shaping Our Territory Implementation Team	

Consulting Team

Company	Expertise / Input	Personnel
McCann Property & Planning	Project Management Property Valuation Town Planning	Sch 2.2(a)(ii)
ACIL Tasman	Economic Evaluation	
ACTEW AGL	Infrastructure Design, Service and Supply	
Conacher Travers	Bushfire Risk and Management	
David Hogg Pty Ltd	Ecological Assessment	
DSB Landscape Architects	Landscape Assessment and Design Tree Assessment	
Hughes Trueman	Traffic Engineering	
Navin Officer Heritage Consultants	Heritage Assessment	
Purdon Associates	Social Planning	
Strine Design	Architect Sustainable Housing	
Rodney Moss	Landscape Designs	

Appendix 2 – Consultation

Villages Consultation Summary

Comprehensive consultation in the development of the final report for *Shaping Our Territory – Opportunities for Non-Urban ACT* that was released in Nov 2003. This set the scene for the recommendations considered by Government.

8 December 2003 Government considered recommendations and accepted the redevelopment of the villages in-principle pending further consideration of the matter when sustainability reports for each site were prepared.

22 Dec	meeting with Housing
6 Jan	meeting with ATPLA
6 Jan	meeting with Uriarra residents
7 Jan	meeting with Office of Sustainability
8 Jan	meeting with NCA/their meeting with residents
8 Jan	meeting with Treasury
9 Jan	meeting with NCA
12 Jan	meeting with Uriarra residents
13 Jan	meeting with Stromlo residents
14 Jan	meeting with Pierces Creek residents
19 Jan	meeting with ACTPLA
23 Jan	meeting with Housing
23 Jan	briefing to CERG
29 Jan	meeting with Education
29 Jan	meeting with government network including Housing ACT, ACT Forests, Environment ACT, ACT Treasury, BushfireTaskForce, Heritage Unit, ACT NoWaste, Office of Sustainability, Emergency Services, ACTION, Dept of Urban Services, Depart of Education, Chief Minister's Dept.
29 Jan	meeting with rural lessees
2 Feb	letter inviting information from all residents, result was meeting with 10 people over the next two weeks for individual discussions
10 Feb	meeting with Pierces Creek residents to examine concept plan
11 Feb	meeting with Sustainability Expert Reference sub-group
11 Feb	meeting with rural lessees who are neighbours to Uriarra village
13 Feb	meeting with ACTPLA
16 Feb	workshop meeting with all stakeholders who had contributed to earlier consultation with representatives from, the villages, ACT heritage Council, Royal Inst. of Architects, Planning Inst. Of Australia, Inst. Of Engineers of Australia, Australian Forest Growers, the ACT Bushfire Council, ACT Equestrian Assoc, Conservation Council of South East Region, Canberra Deep Space Communication Facility, Weston Creek Community Council, Housing Industry Assoc,
20 Feb	briefing to CERG
20 Feb	meeting with Uriarra residents to discuss concept plan

24 Feb	meeting with Housing
25 Feb	presentation and discussion with Sustainability Expert Reference Group
26 Feb	meeting with ACTPLA
26 Feb	meeting with Stromlo residents to discuss concept plan
4 March	meeting with ACTPLA
5 March	briefing to CERG
5 March	meeting with Conservation Council, re endangered birds
11 March	presentation to the Heritage unit
Planned	
24 March	presentation and discussion with Weston Creek Community Council
April	presentation to the Heritage council