DELIVERING AFFORDABLE LAND AND SOCIAL HOUSING FOR SUSTAINABLE COMMUNITIES

A Submission to the State Sustainability Strategy

April 2002

Government of Western Australia
Department of Housing and Works

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Introduction

The State Government through the Department of Housing and Works has significant land holdings and a large portfolio of public housing. It makes considerable annual investment in land development and social housing across Western Australia.

The Department has embraced a number of sustainability initiatives in its land development, housing procurement and asset management roles of its portfolio. DHW, through its various functions is the only agency in WA that manages the entire property life cycle from "cradle to grave".

However, the nature of the current housing stock, the geographical extent of the Department's operating area, including significant climatic diversity, declining real funding for public housing and major societal shifts, present a number of challenges to the delivery of affordable housing to meet a growing demand.

This submission outlines current initiatives within the functional areas supported by several case studies looking at the integration of technology into housing through land development, urban renewal, aged housing and improving health in indigenous communities.

OPPORTUNITIES AND CHALLENGES FOR SUSTAINABILITY

Opportunities

In addition to the initiatives already in place, there are further opportunities for the delivery and procurement of social housing to provide more sustainable outcomes for tenants, the community and environment.

- ***Surplus Government land to deliver affordable housing***

  Surplus government land provides scope to deliver affordable housing into areas of generally high locational advantage with access to services.

- ***Environmental Rating and Management System***

  Review and implement one of the current national environmental rating systems appropriate to WA's climatic diverstiy. Audit current designs and existing asset portfolio against rating system

- ***PATHE (Partnership Advancing the Housing Environment)***

  Advancing more sustainable construction practices through tender specifications

- ***Whole of Life Housing – Universal Design Principles***

  Making universal design mandatory for all new construction would deliver whole of life housing benefits to tenants but it does so at a cost. In the majority of cases it would provide tenants without special needs little or no benefit.

- ***Better Matching Supply and Demand – Management of the Existing Portfolio***

  A mix of housing stock within major demand areas provides scope to manage the portfolio to better meet clients' needs as they move through their housing careers, and minimise social dislocation when matching supply and demand.

Challenges

Equally there are many challenges to the delivery of more sustainable outcomes, not the least of which is the cost, particularly where the pay back cannot be achieved over the economic life of assets.

- ***Community acceptance of affordable housing***

  Negative reaction from a section of the community in 2001 to a proposal for social housing units in the Subiaco Redevelopment Area on public owned land highlighted perceptions that social housing and its tenants have a negative impact on the community and property values.

- ***Cost of retro-fitting sustainability initiatives - insulation***

  Insulation has been integral to all new housing since the early 1980s. Retrofitting insulation to the current portfolio constructed before the 1980s (approximately 17,000 dwellings) potentially has a significant cost ($8.5 million @$5,000 / dwelling) and will need to consider the remaining economic life of the asset.

- ***Universal Design***

  Dwellings built to universal design principles require more space estimated at an average of 14m^2, adding up to $11,575 per dwelling in construction costs.

- ***Alternate Construction Technologies***

  Consideration of whole of life costs through future maintenance plus imperatives of achieving value for money for diversity of location and climate across the State are major considerations and need to be balanced against the benefits flowing to tenants.

CONCLUDING COMMENTARY

The Department of Housing and Works has embraced a number of sustainability initiatives in its delivery of affordable land and social housing and will continue to explore opportunities, particularly in the context of Government showing leadership in new initiatives.

However this approach needs to be balanced with its role as the provider of much of the housing for those in the community in greatest need, the need to deliver socially sustainable communities and to maximise the number of dwelling units within its funding constraints.

1 INTRODUCTION

The State Government through the Department of Housing and Works has significant land holdings and a large portfolio of public housing. It makes considerable annual investment in land development and social housing across Western Australia.

This investment extends across all regions of the State and includes:

- major land development including joint ventures that provide serviced lots for the Department's housing program with the balance marketed to low and middle income households for owner occupation
- the production and procurement of new housing under public, community and indigenous housing programs
- refurbishment and disposal of existing housing stock under the urban renewal New Living program
- upgrading and maintenance of existing housing stock.

The Department has embraced a number of sustainability initiatives in its land development, housing procurement and asset management roles of its portfolio. DHW, through its various functions is the only agency in WA that manages the entire property life cycle from "cradle to grave".

However, the nature of the current housing stock, the geographical extent of the Department's operating area, including significant climatic diversity, declining real funding for public housing and major societal shifts, present a number of challenges to the delivery of affordable housing to meet a growing demand.

This submission is presented under discrete headings reflecting agency programs and the is supported by several appendices and case studies that detail a number of the current sustainability initiatives:

- ***Affordable Land Development and Urban Renewal***

- ***Delivery of Social Housing*** – provides a context to understand the social and economic environment in which the public housing sector presently operates and a number of the challenges confronting it

- ***The Existing Housing Portfolio*** – provides an appreciation of the diverse nature of the existing social housing portfolio and a number of sustainability initiatives in place

- ***Housing Procurement*** – an overview of recent investment and sustainability initiatives that are integral to the procurement program

- ***Indigenous Community*** – outlines current programs in place to achieve sustainable communities by enhancing the physical environment to improve living conditions, health outcomes and provide training and employment opportunities

- ***Opportunities and Challenges for Sustainability Initiatives in Social Housing***

2 AFFORDABLE LAND DEVELOPMENT and URBAN RENEWAL

2.1 Overview

Landstart, the Department of Housing and Works fulfills a major role in the development and redevelopment of land for housing across the State. Landstart's overall objective is to create safe, attractive communities that are affordable. Landstart has been at the forefront of the housing industry through broadhectare developments such as Ellenbrook and its 'New Living' initiatives in established suburbs.

Landstart has increasingly embraced the principles of 'sustainability' in its approach to land development. The following outlines examples of this and points to elements that could be incorporated into the State Sustainability Strategy.

2.2 Sustainable Development

In the context of its land development and redevelopment operations, Landstart views 'sustainability' as including a range of land use planning and development considerations, which in collaboration with key stakeholder interests produce an integrated environmental, social and economic outcome for the proponent and the community.

Typically 'sustainable development' may give consideration to the following :

- Walkable mixed use/mixed density neighbourhoods;
- Transit orientated development, particularly around public transport nodes;
- Small lots;
- Solar orientated design;
- Multi-functional open space planning and design;
- Selective retention of native bushland;
- Water sensitive urban design;
- Traffic calming;
- Streetscape landscaping promoting water conservation treatments;
- Use of recycled materials in civil works;
- Soil conservation measures and vegetation mulching in construction phase;
- Communications technology incorporated in design;
- Community infrastructure provided early ;
- Infill housing to achieve efficiency of land use and community infrastructure.

Landstart recognises that the application of these elements begins at the structure planning stage or when setting the development objectives for a project. In this respect Landstart seeks to have suitable regard for the principles contained in the Liveable Neighbourhoods Design Code prepared by the Western Australian Planning Commission. Application of these elements is typically considered on project specific basis and with a view to promoting housing affordability.

2.3 Stakeholder Collaboration

Landstart has increasingly recognised the importance of forming partnerships with the private sector and working collaboratively with other state agencies, local government agencies and local

communities in its development operations. Landstart has typically engaged with such interests at the outset of the planning process and maintained an ongoing dialogue with the changing or emerging community.

Typical of this is its participation in Enquiry-by-Design Workshops such as for projects at Butler, Clarkson and the Mirrabooka Regional Centre. In the case of various 'New Living' projects such as at Lockridge, Coolbellup and more recently Queens Park, Landstart has convened a series of public discussion forums. At Ellenbrook a Community Plan was formulated as the basis for the progressive implementation of community infrastructure. Landstart can claim to be at the forefront of community development in its current operations with the early establishment of facilities such as shopping, public transport, schools, developed open space and the facilitation of social interaction and events.

Landstart has links with the Housing Industry Association and is supportive of its Partnership Advancing The Housing Environment (PATHE) strategy. The strategy is concerned with improving the environmental performance of housing and land development with particular attention to waste management, drainage management and energy efficiency. Landstart proposes to apply the PATHE principles to the development of its Albion Town (Henley Brook) project given that the site is conducive to the undertaking innovative techniques in stormwater / groundwater management.

Collaboration with local aboriginal groups to produce a culturally responsive design which also applies 'Liveable Neighbourhood' principles and water sensitive design techniques has been undertaken by Landstart at Broome.

Clearly a collaborative approach underpins the ability to implement housing initiatives including social change, as well as enhancements or modifications to the physical environment.

2.4 Application of Sustainability Principles

2.4.1 Large Scale Development Projects

Ellenbrook has incorporated many elements of the 'Liveable Neighbourhoods' design code with the more recent stage known as Coolamon being developed as an environmentally friendly village. This is already featured as case study on the www.sustainability.dpc.wa.gov.au website. Elements of the village theme include emphasis on solar design technology, retention of natural vegetation in public open space, hydrozoning of plantings for water efficiency, lightweight construction materials, iron roofs, use of native species in front yard landscaping and a fibre optic cabling system. An Energy Reward System is available to home buyers who adopt a specified number of design and building components. The project also seeks to promote local employment generating activities.

New projects at Butler and Clarkson in partnership with the private sector have served to advance the application of sustainability principles given the association of the land with the future Northern rail link. These projects are planned to incorporate main street shopping / commercial, mixed land use and higher housing densities within walking distance of rail stations. Planning will also provide for the installation of communication technology such as high speed internet services. For Clarkson an employment strategy is to be applied with the aim of fostering a higher level of local employment.

Similarly Landstart will be aiming to optimise the form of development around future rail stations at Leda and Bertram on the proposed South West Metro rail line. Expressions of interest have recently

been sought from the private sector in respect to the development of Leda with the tenderers being requested to address planning for sustainable development.

Landstart, in conjunction with its joint venture partners is also implementing various sustainability measures and initiatives in regional WA. These include:

- Dalyellup estate south of Bunbury, which integrates water sensitive urban design and the preservation of native vegetation of the coastal dune environment into a new urban village. The estate also includes the early provision of community infrastructure such as 'school in shop' pioneered elsewhere at Secret Harbour and more recently at Ellenbrook

- installation of optic fibre communications technology in subdivisions at Dalyellup and Wandina in Geraldton. See ***Case Study One***.

2.4.2 Development Works

Landstart typically requires its contractors to implement a range of measures aimed at lessening the impact of development works on the physical and social environment. These include the stockpiling of topsoil, mulching of vegetation, dust and noise mitigation and the planting of native plant species. Increasingly as Landstart develops on land which is constrained by drainage characteristics, water sensitive design techniques are applied.

It is acknowledged that there is scope to pursue other measures such as recycling of construction materials for use in road pavements as well as water harvesting techniques including grey-water recycling and roof water collection. These will require further investigation to determine their cost effectiveness, particularly in the context of maintaining housing affordability.

2.4.3 Urban Renewal and Redevelopment

Since 1995, Landstart's 'New Living' program has provided a significant impetus to the redevelopment of many inner and middle suburbs resulting in more efficient use of land and community infrastructure while dispersing concentrations of public housing. New Living is targeted at larger public housing estates, at times covering several suburbs such as New Kwinana (Calista, Medina, Parmelia and Orelia) and the New North (Balga, Koondoola, Girrawheen and Westminster). The program has also been extended to regional WA with the Carey Park-Withers renewal underway in Bunbury. Various aspects of New Living are presented as ***Case Study Two.***

The Redevelopment Program has similar objectives to the New Living program but operates on a smaller scale and without the same level of social dislocation for tenants. The program is also targeted at a greater number of areas in regional WA which include: Albany (Lockyer & Spencer Park), Esperance, Geraldton (Beachlands & Rangeway), Carnarvon, Kalgoorlie and South Hedland.

2.4.4 Infill Housing

In a complementary manner, Landstart seeks to acquire properties for infill housing with opportunities typically arising on surplus Government land or land which has higher density codings given its locational advantages relative to public transport and community facilities.

The ability to provide affordable housing through infill development is significantly constrained by the attitudes of local government. This demonstrated in the down coding of localities and the

interpretation of development standards through additional policies such as to restrict or deny redevelopment. It is also apparent in terms of onerous requirements in respect to the retention and reuse of buildings with perceived heritage values.

3 DELIVERY OF SOCIAL HOUSING

The social and economic environment in which social housing operates in the early years of the 21st century is dramatically different from the post World War II period when the sector was established and primarily provided workers' rental accommodation. The community and the social housing sector are still coming to terms with the pressures and societal shifts that have occurred since the 1980s as a result of globalisation and government fiscal and economic rationalist policies. These have resulted in:

- the collapse of work and employment security due to workplace reform, productivity gains and the shift to a service-based economy, resulting in the casualisation of employment
- changing socio-economics, resulting in a shift from an "egg-shaped" society with a large middle class to a polarised "peanut-shaped" society with a larger lower income strata that has limited wealth accumulation capacity

3.1 Changing Role of Public Housing

The role and emphasis of social housing, which comprises the public and community housing sectors, have undergone a number of transitions over the past 50 years with each subsequent re-negotiation of the Commonwealth State Housing Agreement (CSHA).

In 1989, reduced State debt raising capacity, due to high interest rates and financial deregulation, restricted the growth of public housing and saw the emergence of alternative community housing providers (1989 CSHA). COAG reforms, in response to the 1993 Industry Commission Inquiry into Public Housing, re-targeted assistance to those in greatest need, including the disabled and de-institutionalised. However this was combined with a reduction in public housing funds (1996 and1999 CSHAs)

3.2 Declining Real Funding

Since 1954, the CSHA has required States to match Commonwealth funding. However a lack of indexation, annual efficiency dividends and inadequate GST compensation has severely curtailed CSHA funds available for new housing procurement since 1989. WA's loss of funding, estimated at $89 million would provide a least 900 additional dwellings.

Federal Governments since the 1980s, have increased funding for rent assistance in place of public housing funds to allow eligible recipients to access the private rental market. However research has indicated that a loss of low cost rental housing stock between 1986 and 1996 is placing further pressure on social housing providers. The decline in funds has constrained capacity to deliver additional housing and further reduced the funds available to support the maintenance of the existing housing stock.

The emergence of the working poor as a result of economic reform, the loss of low cost rental housing, reduced public housing funds and the changing role on the social housing sector to support those in greatest need calls into question the long term sustainability of current social housing settings.

4 THE EXISTING HOUSING PORTFOLIO

4.1 Overview

The social housing sector's portfolio of dwellings (38,700 at June 2001) represents approximately ***5 percent*** of the total housing stock in WA:

- Public housing 35,100 dwellings
- Indigenous communities 1,000
- Community housing 2,600

Of the public housing component, 71% is located in the Perth and Peel Regions which is broadly in line with the State's population and housing distribution. The balance is distributed according to Table 1. In the Mid-West, Pilbara and Kimberley, public housing represents approximately 10 to 15% of the total housing stock, well above their respective proportions (1.5-3.0%) of the State's housing stock.

Parts of regional WA have a greater reliance on public housing to meet the community's needs due to lower levels of home ownership, private rental investment and higher housing costs. The December 2000 Regional Price Index indicates housing costs significantly higher than Perth in the Goldfields (11%), Pilbara (29%) & Kimberley (35%).

Table 1: Rental Stock x Region (30/6/01)

	No.	%
North Metro	11,052	31.5%
SE Metro	7,022	20.0%
South Metro	6,771	19.3%
South West	2,280	6.5%
Southern	1,338	3.8%
Central	1,788	5.1%
Mid West	1,812	5.2%
Pilbara	1,519	4.3%
Kimberley	1,529	4.4%
Total	= 35.111	

Table 2 : Rental Stock x Bedrooms (30/6/01)

	No.	%
Bedsitters	486	1.4%
1 bedroom	7,163	20.4%
2 bedroom	9,635	27.4%
3 bedroom	15,018	42.8%
4 bedroom	2,459	7.0%
5 or > brms	350	1.0%
Total units	= 35,111	

Table 2 summarises the public housing stock by bedroom numbers and indicates the diversity of the stock available to meet the needs of a broad client base comprising of singles, single parents, families and the aged.

Social transfer payments represent the major tenant income and highlight the role of public housing to support those in need in the community with only 17% paying full rent under current rent criteria:

- Aged pension 23%
- Disability Support Pension 18%
- Single Parent Payment 18%
- Other incl. veterans & low waged 25%

Public housing supports a diverse and shifting client base spread across the entire life cycle; i.e. singles, single parents, families and the aged. Maintaining and adjusting the portfolio to meet locational demands and demographic shifts is both time-consuming and costly. This impacts on the capacity of the portfolio to deliver social, economic and environmental objectives.

The make-up of the public housing stock by dwelling type is significantly different from the State's overall housing stock as follows:

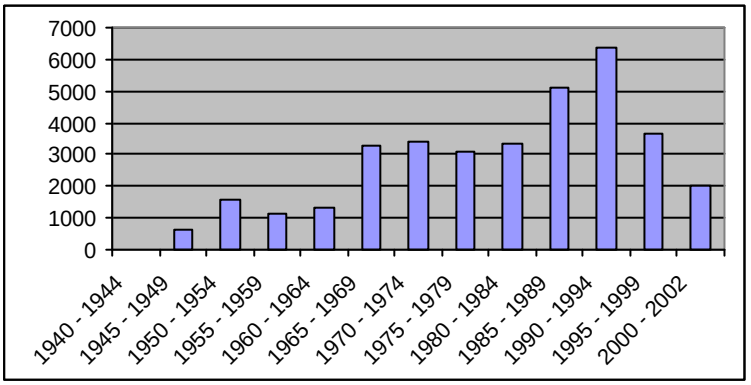
- Single detached houses 38.3% (76.5% State)
- Semi-detached duplexes 13.1% (11.9%)
- Medium & high density 47.3% (7.2%)

The public housing stock is dominated by the type of dwelling which is being actively pursued by State and local government through various town planning instruments such as Liveable Neighbourhoods and local housing strategies.

The type of construction of the existing portfolio varies from the State figures recorded in the 1999 Australian Housing Survey. Much of the variance can be attributed to the age and location of the stock:

- Double Brick 67 % (76 % State)
- Brick Veneer 19 % (7 %)
- Fibro/Asbestos Cement 11 % (10 %)
- Weatherboard & Other 3 % (7%)

The average age of the current housing stock is around 20 years old as indicated on the accompanying year of construction profile.



The age, condition and type of construction of the existing portfolio present a number of challenges to keeping the stock relevant in the face of rising expectations of tenants.

4.2 Current Sustainability Initiatives

Despite the dispersal and physical profile of the existing portfolio presenting a number of challenges, it also provides the opportunities to implement sustainability initiatives that are being delivered through a number of programs, broadly grouped as follows:

4.2.1 Refurbishment – Improving assets and the quality of life

Refurbishment - An ongoing major refurbishment program targets approximately 200 properties p.a. at a cost of $4.5 million. The program aims to modernise the older stock through major internal refits and external makeovers that include re-cladding and wet area upgrades. Benefits of the program flow to:

- the tenant through improved amenity
- the agency by extending the life of the asset
- the community through aesthetic benefits of improved housing stock

Gas conversions – In the past three years, 1500 properties in Kalgoorlie, Albany and Busselton have been converted from bottled gas to cheaper LPG at a cost of $700 per property

Lever Action Taps - retrofit for the aged and arthritis sufferers

4.2.2 Conservation and Environment – Reducing costs & enhancing the environment

Solar Hot Water Replacement Program – a proposal to install solar hot water heating for all new and replacement units for public housing in the Gascoyne, Pilbara and Kimberley is being implemented. It will incur substantial more up-front unit costs with the trade-off being lower recurrent household expenditure through lower energy use. Hard water quality may limit the life of the units and therefore may require ongoing assessment of the program

Smartpower metering – is saving $75,000 p.a. for security lighting in larger multi-residential complexes

Water Conservation Program – Individual property metering in multi-residential complexes has seen a reduction in use as tenants are now accountable for use. Installation of automatic reticulation in multi-residential complexes underway.

Sewer Connection Program – on-going program of connecting all properties where sewerage services are provided as part of Infill Sewerage Program. The current $2.8 million investment will provide environmental benefits and eliminate septic pump out and replacements.

4.2.3 Safety and Security – Protecting people and property

Smoke Detectors – a five-year program commenced in 1997 to retrofit at least one detector to all properties at a cost of $5.5 million

Gas Room Heaters – replacement of radiant heaters with more expensive but safer, more efficient and cheaper operating convection heaters

Anti Tilt Devices – fitting of devices to gas and electric ranges

Installation of Residual Current Devices (RCD) – although compulsory in all new dwellings, retrofitting reduces risks of electrocution

Safety taps over baths – standard in new construction with retrofitting as required to reduce the incidence of infant scolds and drownings

Barrier Screen Doors and Windows – an ongoing program initially targeted at seniors and those considered vulnerable such as single parent families.

5 HOUSING PROCUREMENT

5.1 New Housing Investment and Spot Purchase

Despite the decline in real funding, prudent management has allowed WA to consistently outperform most other States in the production of new public housing over the past five years. WA has provided 24% of the new stock nationally through the construction of an average 1,100 dwellings at a cost $95 million p.a. Note these figures exclude Indigenous and Community Housing programs that account for a further 150 -250 dwelling units p.a. to meet the needs of specific groups.

New dwelling investment in social housing, despite the small size of the sector provides important economic stimulus, particularly in regional and remote centres.

5.2 Climatic Diversity and Construction Practices

A number of sustainable design and construction practices that have a range of environmental and economic benefits have been incorporated into housing procurement. The Department addresses local climatic conditions through appropriate construction methods such as those required for cyclone areas.

Consideration is given to whole of life cost in the choice of materials thereby reducing maintenance requirements, given the remoteness of some of the housing stock.

5.3 Supporting those most in need; the aged, disabled and de-institutionalised - Universal Design and Carer Accommodation

A number of universal design features have been made mainstream in the production of purpose built dwelling units for the aged and disabled. ***Case study three*** outlines a number of these features.

Approximately 30% of recent procurement programs have been dedicated to aged persons units (APUs) and constructed on a 40/60 split as one and two bedroom units. Additional bedroom allows for carer accommodation to allow “ageing in place”, thus reducing demand for institutional care.

5.4 Locational Aspects of Procurement – Fringe vs Redevelopment

Some trade-offs are necessary in public housing procurement to achieve the best outcome. Near-city land with good access to transport and services is a desirable outcome for sustainable communities. However high prices for near-city land, which now exceed average housing construction costs, restrict the capacity to construct affordable, family dwellings. These sites, many in ex-public housing estates are preferred as group housing sites for singles or APUs to yield the greatest benefit.

Therefore construction of larger accommodation units is undertaken on the urban fringe which tends to suffer from a short-term lack of adequate service provision. Although a large proportion of tenants are beyond working age, access to employment, training and services remains an issue, especially in terms of the welfare reform agenda of the Commonwealth. Current initiatives include programs to employ tenants in construction and landscaping of estates in order to address these issues.

5.5 Current Sustainability Initiatives

A number of sustainability initiatives with benefits across the entire triple bottom line have been integrated into the Department of Housing and Works Capital Works Program for housing procurement. Design briefs for new housing contain the following requirements that are detailed in full at Appendix A. Some experimental housing initiatives have also been undertaken and are listed at Appendix B.

5.5.1 Solar Passive Design

- Building orientation and sun control
- Protection of windows
- Internal zoning
- Appropriate use of building materials
- Insulation
- Ventilation
- Landscaping

5.5.2 Water Sensitive Design

- Dual flush toilets.
- Spring loaded taps to baths
- External tap at 1500mm above ground level for selected accommodation
- Appropriate plant selection and reticulation installation and control

5.5.3 Energy

- Smart Power meters for common services in group-sites.
- Fluorescent light fittings to kitchens and laundry.

5.5.4 Standardised Designs

- Cost and material efficiencies by using mass production to achieve economies of scale.

5.5.5 Universal Design

- Integral to aged persons and disabled accommodation

5.6 Benefits of Current Sustainability Initiatives

- Increased level of personal comfort and wellbeing with reduced living costs allowing for increased disposable income
- Improved community standards including access to and equitable allocation of appropriate housing for those with greatest needs, including the disabled and de-institutionalised
- Improved environmental outcomes through reduced energy and water consumption and material use
- Lower construction costs through efficiency of standard designs with minimal material waste reducing landfill disposal

6 INDIGENOUS COMMUNITIES

6.1 Overview

The Department of Housing and Works runs a number of programs through its Aboriginal Housing and Infrastructure Unit to support both indigenous urban housing and remote community development. These programs aim to achieve sustainable communities by enhancing the physical environment to improve living conditions, health outcomes and provide training and employment opportunities.

The urban housing program is an integral part of the existing portfolio and procurement program and seeks to meet the specific needs of the indigenous community particularly where there is limited access to private rental accommodation.

The remote community programs have been developed in response to various strategic assessments of the needs to improve outcomes for indigenous communities which include: *The Environmental Health Needs of Aboriginal Communities in Western Australia* (The 1997 Survey and its findings) and *Report of the Chief Executive Working Party on Essential Services to Aboriginal Communities* (Hames Report)

The 1997 Environmental Health Needs Survey found deficiencies in essential services (power, water, sanitation, solid waste disposal), housing, dust and dog control across 213 of 259 respondent aboriginal communities surveyed that support some 16,000 people.

Remote community programs are undertaken in consultation with the Aboriginal and Torres Strait Islander Commission (ATSIC) on jointly funded projects and the Department of Indigenous Affairs where cross government coordination is required.

6.2 Current Programs

The balance of this section of the submission will focus on the relevant programs and major sustainability initiatives

6.2.1 Community Construction Program

Provides for the design and construction of new housing and selective maintenance. The program encourages community input into the design and siting of housing and provides training and employment opportunities in building construction and maintenance.

The program has a number of eligibility criteria including secure land tenure, a town plan and adequate essential service infrastructure capacity to support new development.

6.2.2 Remote Area Essential Services Program

Provides a 6-8 week cyclical and emergency breakdown maintenance service for essential service systems (power, water and wastewater). In 2001 the program supported 67 communities at a cost of $6.5 million p.a.. The program also seeks to increase community participation and provide training opportunities in the ongoing maintenance and responsibility for essential services.

6.2.3 Management Support Program

Focuses on the management, repair and maintenance of community housing. The program aims to achieve community self management of its housing stock through the development of housing management plans and training of community members in building maintenance.

Similar to the Community Construction Program, there are a number of eligibility criteria including demonstration of financial and tenure management.

6.2.4 Aboriginal Communities Strategic Investment Program (ACSIP)

This aim of this program is to ensure that larger remote Aboriginal communities (greater than 200) have access to essential, municipal and administrative services of a standard comparable to that of other similarly sized mainstream towns in WA. This also includes the normalisation of services for delivery by local government.

The program provides for both infrastructure and administrative services to compliment the work of other agencies and contribute to an improvement in health and living standards.

6.3 Current and Recent Sustainability Measures

6.3.1 Preparation of Town Plans

The gazettal of the WA Planning Commission's Statement of Planning Policy No.13 – Planning for Aboriginal Communities in August 2000 provided an important step for the sustainable development of larger communities. Preparation of development plans and inclusion of settlement zones in town planning schemes provides a coordinating mechanism for infrastructure development and housing construction. The also ensure adequate buffers are provided to noxious services such as wastewater and solid waste facilities.

6.3.2 Improved access, management and living conditions

The ASCIP provides the catalyst to leverage funding and improve access and overall health and living conditions for communities through investment in a broad array of infrastructure projects that include airstrips and roads, waste management including tip fencing and dust management to community infrastructure such as swimming pools. ***See Case Study Four***

6.3.3 Training and employment opportunities

The various programs provide vital training and employment opportunities for community members with skills development contributing to the capacity of the community to achieve self management

7 OPPORTUNITIES AND CHALLENGES FOR SUSTAINABLE LAND DEVELOPMENT AND SOCIAL HOUSING

7.1 Opportunities

In addition to the initiatives already in place or under review, there are further opportunities for the delivery and procurement of social housing to provide more sustainable outcomes for tenants, the community and environment.

7.1.1 Surplus Government land to deliver affordable housing

Surplus government land such as rail reserves and institutional sites that are being rationalised as part of broader government service delivery strategies provide opportunities to deliver affordable housing into areas of high locational advantage with access to services.

7.1.2 Environmental Rating and Management System

- Review and implement one of the current national environmental rating systems appropriate to WA's climatic diverstiy
- Audit and assess current designs and existing asset portfolio against rating system

7.1.3 PATHE (Partnership Advancing the Housing Environment)

Advancing more sustainable construction practices through tender specifications

7.1.4 Whole of Life Housing – Universal Design Principles

Making universal design mandatory for all new construction would deliver whole of life housing benefits to tenants. However it would do so at a cost, particularly for larger family homes that in the majority of cases would provide tenants without special needs little or no benefit.

Retrofitting and purpose built dwellings to meet specific needs, whilst incurring possible minor time delays may provide a more cost effective outcome.

7.1.5 Better Matching Supply and Demand – Management of the Existing Portfolio

Construction of a mix of housing stock within major demand areas provides scope to manage the portfolio to better meet clients' needs as they move through their housing careers, and to minimise social dislocation when matching supply and demand.

7.2 Challenges

Equally there are many challenges to the delivery of more sustainable outcomes, not the least of which is the cost, particularly where the pay back cannot be achieved over the economic life of assets.

7.2.1 Community acceptance of affordable housing

The NIMBY (not in my backyard) syndrome to public housing surfaced in 2001 as a negative reaction from a section of the community to a proposal for social housing units in the Subiaco Redevelopment Area on public owned land. The incident highlighted perceptions that social housing and its tenants have a negative impact on the community and property

values. With an increasing demand for appropriately located low cost rental accommodation due to socio-economic shifts in society, there is a need to educate the community about the role and delivery of affordable housing.

7.2.2 Cost of retro-fitting sustainability initiatives - insulation

Energy efficiency initiatives such as those proposed in a current Building Code of Australia amendment have not been assessed and will not come into force until January 2003.

The Office of Housing in Victoria has costed retrofitting wall and ceiling insulation to a 3 bedroom dwelling to meet a minimum 2 star rating under the First Rate energy assessment software. While the Victorian climate and housing construction is different to WA, indicative costs of retrofitting were:

- Cavity Construction (double brick) $7,000
- Veneer (brick or clad) $4,000

Annual energy savings for a family of four were costed at $200-$400 with 16-35 percent reduction in greenhouse emissions depending upon the insulation.

In relation to DHW's portfolio, insulation has been integral to all new housing procurement since the early 1980s; ie ceiling insulation to double brick construction and wall and ceiling insulation to brick veneer and framed construction. Retrofitting insulation to the current portfolio constructed before the 1980s (17,000 dwellings) potentially has a significant cost ($8.5 million @$5,000 / dwelling) and will need to consider the remaining economic life of the asset.

7.2.3 Universal Design

Dwellings built to universal design principles require more space than ordinary dwellings particularly in the bathrooms and bedrooms. It has been estimated that this can increase the floor space of a standard design by an average of 14m^2, adding up to $11,575 per dwelling in construction costs.

In WA, additional budget for the construction of dwelling units to support those with special needs have been costed as follows for various dwelling types and locations:

Units	$15K (metro)	$20K (country)	$22-29K (North West)
Houses	$30K	$40K	$44-58K

7.2.4 Alternate Construction Technologies

The emergence of new construction materials and techniques may provide sustainability opportunities. However the cost imperative of achieving value for money and the diversity of location and climate across the State where the agency operates are major considerations.

Consideration of whole of life costs to the agency through future maintenance need to be balanced against the benefits flowing to tenants.

APPENDIX A - ENVIRONMENTAL INITIATIVES IN MAINSTREAM PUBLIC HOUSING CONSTRUCTION

1. Building Orientation and Sun Control

- Direct sun control – Glazing to habitable rooms to take advantage of northern orientation.
- Optimum building proportion where ever possible – the north and south facing walls 1.5 to 2.0 times the length of east and west facing walls.
- Non habitable rooms should be used as thermal buffer, where possible, to the east and west facing walls.

2. Protection of Windows

South West Region

- Windows and openings facing west or east are to be protected by a verandah, or hood in conjunction with aesthetics of the street elevation.

North West Region

- Provide year round shading of at least 3 sides of external walls to minimise solar heat gain. This is a minimum of 1.5m wide verandah, or a pergola, carport or storage room.
- External living spaces shall be shaded and protected from solar radiation and hot dusty winds by the use of verandah and pergolas.

3. Internal Zoning

- The north face of the house is the warmest all year round and the south face the coolest. Provide daytime living areas to the north side, utility areas to the west or south and bedrooms to the south or east where possible.
- Daytime living zones should be able to be shut off from sleeping zones. Zones that require heating or cooling should be able to be shut off from utility areas to conserve the desired temperature.

4. Appropriate Use of Building Materials

South West Region

- Use high thermal mass building materials such as bricks, concrete blocks and concrete. These materials are effective at storing heat in winter and are cool in summer.
- Cavity brick and brick veneer construction provide good thermal mass for solar gain in winter and remain cool in summer if protected from direct sunlight.
- Windows that allow the winter sun onto concrete floors will assist in absorption of heat for re-radiation throughout the evening

North East Region

- Low thermal mass lightweight building materials such as fiber cement, weatherboard or metal cladding on a timber or steel stud frame. These materials absorb heat quickly in the sun, but cool quickly after sunset.
- Framed construction, brick veneer and reverse brick veneer constructions are commonly used in this region. This is dependent on the location.
- Use light colour (off white) colorbond roofing.
- High ceiling or roof space is desirable for ventilation, fan extractions, etc.

5. Insulation

There are two main types of insulating materials:

- Bulk insulation such as fibreglass batts, treated paper fibre and mineral wool, all of which rely on the poor conductivity of air trapped in the insides to reduce the rate of heat transfer.
- Reflective surface (sisalation) under steel roof sheeting and R2.0 insulation at ceiling level for metal roof cover. R2.0 insulation at ceiling only for tile roofing.
- Wall insulation for frame construction.

6. Ventilation

Generally:

- Housing planned to allow the penetration of cooling breezes.
- Locate openings to maximise the through ventilation from prevailing breezes summer or winter.
- Maximise exposure of internal spaces to cooling breezes by placement of doors.
- Ventilate the roof spaces to reduce heat radiating below the ceiling.

***North East and North West Region*:**

- Breezeway steel fencing allows prevailing breezes to the building.
- Provide ceiling fans to improve air movement.
- Cross ventilation within the building, ie. extra high windows within the room.

7. Landscaping

- Provide appropriate trees on the north side of the house; evergreens on the east and west side of the house. Plant grass, groundcover and low shrubs to cover bare ground.

North West Region

- Use vegetation to assist in the reduction of airborne dust around building. Trees may be used to reduce dust infiltration into the building. Plant canopy trees for shade.

8. Rooflights

- Rooflights are used in internal non-habitable rooms or in areas where it is considered necessary to improve the level of natural light.

APPENDIX B - EXAMPLES OF SPECIAL INITIATIVES

1. Murdoch University Low Allergen Home Project - Ellenbrook

This project was initiated to design and construct a low-allergen home by incorporating materials into the home that reduce the level of allergen exposure or lessen the potential for allergens to develop. A four-bedroom 'select and construct' home was built in 1996 with a number of similar homes monitored as controls. The study was over a two-year period and looked at the following:

1. Design for efficient ventilation
2. A reduction of emissions by selecting materials and products with reduced volatile organic compounds.
3. Preventative measures to reduce dust and the growth of bio-allergens.

The overall performance of the low allergen home has fulfilled many of the objectives of the project. The primary conclusion was that effective ventilation is the key to lowering allergens within the home.

A detailed report was prepared in August 2001 for the Allergy Research Foundation by Kelvin Maybury and Associate Professor Frank Murray, School of Environmental Sciences, Murdoch University.

2. Grey Water Reuse Trial

In 1995 Homeswest obtained 'Better Cities' funding to investigate the recycling of 'grey water' for toilet flushing and garden watering. The benefits were to reduce the demand for scheme water and reduce the amount of household waste discharged into the sewer system. A project of six seniors units in Moody Glen, Palmyra was selected for the trial. After a four year trial the following conclusions were drawn:

Positive aspects:

- Experience was gained and documented in the collection, treatment and reuse of domestic grey water;
- Treatment unit effluent was satisfactory with regard to colour, turbidity and pH;
- Disinfected effluent sample results have consistently met Health Department requirements.
- Disinfection of effluent with chlorine tables has operated well and without maintenance problems.
- The project gained only positive media exposure.

Negative aspects:

- The treatment unit was found to be oversized for the grey water from around ten persons, resulting in difficulties in the operation of the biological unit of the plant;
- Overall, costs of operation exceeded savings in water purchased from the Water corporation;
- On occasions residents were unhappy with the maintenance service relating to their in-home use of grey water.

A detailed report on the trial and the results was prepared in August 2000 by CCD Australia, Consulting Engineers.

3. Energy Efficient House (Stratton)

In conjunction with the building industry, the Renewable Energy Advisory Council and numerous suppliers, Homeswest built an energy efficient display home in Wade Square, Stratton in 1991.

The home was built to demonstrate Homeswest's standard design features such as orientation, location of rooms, construction materials, insulation, landscaping and the like.

The main feature of the display home was an active solar energy system. This system used roof-mounted, photovoltaic cells to collect the sun's energy and store it in a series of batteries for the supply of electricity to the home. In addition to this, a gas boosted solar hot water system was used as well as a specifically designed solar pergola.

4. Curtin University Centre for Cleaner Production Waste Study

In 2001,the Centre of Excellence in Cleaner Production joined with the Department of Housing and Works, interested builders and the Waste Management and Recycling Fund to develop guidelines for reducing waste in the housing industry.

Eight projects were selected to document the waste generated from current construction practices and to determine the source, volume and the costs, if possible.

In summary the study found that waste was generated by complexity of designs, and not recognising standard product sizes, traditional on-site construction practices, labour only contracts that did not encourage material efficiency, product packaging and suppliers' packaging and delivery systems.

Based on the information obtained, guidelines have been prepared which may assist designers, builders and all trades involved in the building process with minimizing site waste.

The guidelines, as well as the 'waste notes' which formed the basis of the recommendations, will be available to the building industry on the Internet to encourage awareness of waste management issues.

5. Curtin University PhD research study of Energy Efficiency in Seniors Public Housing by Elizabeth Karol

In this study seven public housing developments were studied over a twelve month period to address the following six questions:

1. Is the indoor temperature in public housing for older people likely to provide comfortable thermal conditions?
2. How does the attitude towards energy consumption of older people affect the indoor temperature?
3. Are the general rules of thumb of energy efficient design appropriate in public housing designed for older people?
4. Are there design features that can be incorporated into public housing for the aged that may overcome some of the behavioural patterns that reduce the effectiveness of energy efficient design?
5. How would particular design features affect indoor temperature?

6. If public housing for the aged was designed to achieve improved energy effectiveness, what additional capital costs would be incurred; how much operating energy cost would be reduced and how much primary energy would be saved?

This thesis is due for completion in 2003.

CASE STUDY 1: URBAN DEVELOPMENT – INTEGRATING TECHNOLOGY FOR SMART HOUSING

Broadband Technology and New Development

The installation of broadband optic fibre communications technology has become a standard feature of the subdivision stage for major new land developments in the Perth Metropolitan Region. These include a number of DHW joint ventures including Ellenbrook and Brighton. More recently, DHW joint ventures at Dalyellup near Bunbury and Wandina in Geraldton has seen the initiative extend to regional WA.

Installation and access to the communication technology has allowed new homeowners the potential to access the information super highway and hardwire their properties during construction to take advantage of emerging Smart House technology. Currently most 'wired' developments offer high speed internet access and cable TV to connected home owners.

The Seacrest Estate joint venture in Geraldton has a mandatory requirement for the installation of a Communications Cabinet and Panel similar to the power and gas services during construction. This ensures properties are technology ready rather than incur the cost and inconvenience of retrofitting.

Existing Development

Unfortunately most existing homeowners across WA have limited capacity to access the new technology other than over their existing household telephone service, dedicated line or roof mounted communications facilities.

The retrofitting of broadband technology to existing suburbs by way of cable roll out has only extended to a limited number of areas within Perth. The State Government has not supported the installation of large unsightly overhead cabling on power poles that became a community battleground in the Eastern States. Technology providers have reviewed the market potential of Perth and have not proceeded.

Contribution to Sustainability

Installation of optic fibre cabling during subdivision and housing construction allows new communities to take advantage of existing communications technology and emerging Smart House technologies to enhance the quality of life.

Installation during subdivision and housing construction eliminates the need for costly and disruptive retrofitting

CASE STUDY 2: URBAN RENEWAL – REVITALISING COMMUNITIES THROUGH THE NEW LIVING PROGRAM

The New Living urban renewal program is a major initiative started in 1995 that is targeted at ageing public housing estates across the State. It aims to reduce the proportion of public housing down to 12 percent in project areas through the refurbishment, demolition and re-subdivision of existing public housing assets, some of which have reached the end of their economic life.

Refurbished properties are either sold to existing tenants under the Right to Buy scheme or on the open market. Past tenants as new owners take on maintenance responsibilities of refurbished properties whilst accumulating wealth through property investment and providing for their own long term housing needs.

New Living is also providing a valuable stock of affordable housing that is encouraging home ownership particularly to first home buyers at a time when there has been emerging evidence of a national decline in home ownership.

Many of the suburbs included in New Living are experiencing significant property sales and increasing values with five included in the top 10 growth suburbs during 2000/01.

Highlights of several projects underway or completed to date include:

- ***Lockridge*** undertaken between 1995 and 2000
    - 823 or 53 % DHW property ownership has reduced to 16 percent
    - property prices increased by 30% over the period
    - crime rates fell by 43 % and now considered a low crime area
    - 1999/2000 UDIA Award for Excellence in Urban Renewal

- ***New Kwinana*** ongoing since 1995 spread over four suburbs
    - 600 out of 1,300 dwellings have been refurbished and sold
    - Finalist in the International Real Estate Federation awards

- ***New North*** commenced in 1998 and expected to take 10 years
    - Involves 3,060 dwellings in four suburbs, with 1,550 refurbished and sold, 1,130 refurbished and retained for public housing & 380 demolished
    - Upgrading and beautification of major arterial roads

- ***Coolbellup*** commenced in 1999 and due for completion in 2004
    - Targeted reduction of 32 % of public housing stock including several larger (up to 48 units) apartment complexes down to 11 %
    - Works also include road network improvements and parkland enhancments
    - Awarded 2000 UDIA Award for Excellence & RAPI Urban Design Prize

New Living has also received the international World Habitat Award in 2000. Details of other New Living projects are available on www.dhw.wa.gov.au/landsales

There has been some criticism leveled at New Living, focussing only on asset management issues and with only limited regard for community building. The criticism primarily revolve around the loss of public housing stock and social dislocation that occurs for some public housing as they are relocated out of the suburb either temporarily or permanently as part of the program.

Community participation is an integral part of the New Living program with specialist consultants engaged as part of the project.

Contribution to Sustainability

New Living is seeking to enhance the social and economic of targeted areas through the selective removal or refurbishment and / or sale of existing public housing estates. In undertaking this activity it aims to achieve a greater social mix through a community less reliant on public housing and provide improved social and economic outcomes through redevelopment utilising existing infrastructure in areas with locational advantage.

CASE STUDY 3: HOUSING PROCUREMENT – SUPPORTING THE AGED

The Department of Housing and Works constructed three purpose built aged persons complexes in 1999 as part of its contribution to the International Year of the Older Person, the State's 1998-2003 five year plan on ageing "Time On Our Side" and the Health Department's "Stay On Your Feet" campaign.

Features of these projects which reflected best practice in affordable low income rental housing for over 55 year olds have become standard specifications for DHW's aged persons unit (APU) construction program. These included:

Trip Hazard Removal

Removal of "trip" hazards that cause falls and injury to people, especially those who are ageing, normally found in standard housing. Trip hazards included such items as the front door step, hob in the shower recess which have now been changed to a gradient floor slope and sliding door frames have been recessed to enable the floor frame to be flush with the floor.

Spacial Area

Open plan internal design with passage widths increased to 1 metre and internal door widths to 820mm instead of 720mm and external entry door widths to 870mm widths to allow room for a manual wheelchair mobility.

Other Features

Hazard removal in kitchens with rounded benchtops, higher cupboard kickboards for wheel chair access.

Security includes providing barrier screens to open windows, sliding doors and front and rear entries.

Weather protection to entries and wider carports to improve access

The Tuart Hill, Bentley and Mandurah complexes yielded 21 units and were constructed at a cost of $1.3 million on DHW land. The units were also open for display period and attracted strong public interest.

Contribution to Sustainability

The proportion of the population in Western Australia over 65 is anticipated to increase from 12% in 1996 to 25% by 2031. Therefore strategies to support ageing in place rather than costly institutional solutions will become paramount as demand for aged care increases.

CASE STUDY 4: ENHANCING THE HEALTH OF INDIGENOUS COMMUNITIES

As reported in both *The West Australian* and *The Australian* on 22nd February 2002, the construction of 25m half-size Olympic swimming pools at remote indigenous communities in the Pilbara and Gascoyne over the past two years has had a major health and education benefits for community members.

The pools have been constructed at Burringurrah, Jigalong and Mugarinya at a cost of $1.25 million each as part of the State's Aboriginal Communities Strategic Investment Program

Investigations by the Telethon Institute for Child Health Research has found that the facilities have provided the following health outcomes:

- Ear infections have decreased from 90 percent to 54 percent over 12 months with the incidence of perforated eardrums dropping from 32 to 12 percent

- Skin sores which can lead to heart and kidney problems now only affect 3 percent of the children , down from 28 percent.

In addition to teaching community members to swim, the no-school, no-pool policy has seen school truancy reduce markedly with attendance figures doubling.

Contribution to Sustainability

Improved health outcomes are expected to deliver increased life expectancy for indigenous communities over the longer term.