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**Sustainable
Futures**

IMPLICATIONS OF POPULATION GROWTH IN AUSTRALIAN CITIES: CASE STUDY – PALMERSTON, NT

2013

ABOUT THE AUTHORS

The Institute for Sustainable Futures (ISF) was established by the University of Technology, Sydney in 1996 to work with industry, government and the community to develop sustainable futures through research and consultancy. Our mission is to create change toward sustainable futures that protect and enhance the environment, human well-being and social equity. We seek to adopt an inter-disciplinary approach to our work and engage our partner organisations in a collaborative process that emphasises strategic decision-making.

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Case study summary

Palmerston is the fastest growing local government area (LGA) in the Northern Territory (NT). Located 21 kilometres or a 25 minute drive south-east of Darwin, it operates in many respects as a satellite city of Darwin. Many Palmerston residents are employed in and commute to Darwin. Palmerston developed from the 1980s onwards as a government-planned development intended to address the undersupply of residential land in Darwin. It became a significant site for public housing and defence housing, and later for substantial new areas of private residential development as new parcels of land were released in stages and developed into new suburbs.

The population of Palmerston grew by 2.9% in the decade to 2011, a much faster rate of growth than either Greater Darwin or the NT. This growth rate is expected to slow, however with future growth forecast at between 1.2 and 2.2% per annum in the decade to 2021, it will nonetheless be one of the fastest growing cities in Australia. This will bring the population of Palmerston to between 36,600 and 42,000 by 2021. The new housing that has been built in Palmerston in the past two decades has attracted an influx of new residents, mostly owner-occupiers, seeking more affordable housing than that available in Darwin. Palmerston has a relatively young population, with a median age of just 28 years, compared to 31 years in the Northern Territory and 37 years in Australia as a whole. One contributor to this age profile is the expanding employment opportunities available in the area, including defence and mining, which tend to attract a younger workforce. Another feature of the local employment market is that many workers are relatively transient, arriving in the area to take up employment opportunities, but remaining only for a short time.

The data analysis conducted here suggests a number of implications of population growth in Palmerston. Quantitative environmental data appears to be scarce; however anecdotal evidence does indicate that the population increase has and will continue to put pressure on the natural environment, due to increased gross potable water usage and further threats to vegetation communities, both through the encroachment of residential development, and practices such as garden waste dumping.

A number of stakeholders raised environmental concerns associated with the development of Palmerston. These included the perception that the framework of environmental legislation and regulation was weaker in the NT than elsewhere in Australia. Particular environmental impacts of concern included catchment impacts, such as increased runoff and erosion, and the biodiversity impacts associated with the development of the large new areas of land that are needed for low density suburban development. Stakeholders also pointed to a need to improve the environmental performance of new housing in Palmerston, much of which is heavily reliant on air conditioning rather than being designed for the tropical climate.

In social terms, Palmerston is more disadvantaged than Darwin (Index of Relative Socio-Economic Disadvantage (IRSD) scores of 30 and 32 respectively). The proportion of the population with university qualifications is lower in Palmerston than in Darwin, although Palmerston has a higher proportion of residents holding certificate and diploma qualifications. There is a shortage of housing in Palmerston, with a particular demand for more affordable housing. The NT Government adopted a policy of selling public housing during the 1980s and 1990s as a means of diversifying the social mix in the area. However, because little new public housing stock was added during this time, the policy led to a significant increase in the waiting list for public housing. The expansion of employment opportunities in the Greater Darwin area in the past decade has also attracted an influx of employees from interstate, increasing pressure on the local housing supply. The ongoing housing supply shortage is a challenge recently acknowledged by the NT Government with a capital works program to further drive residential development, and funding for new public housing and for development under the National Rental Affordability Scheme.

While much of the available economic data relates to the larger Darwin region, the economic indicators and stakeholder interviews suggest that Palmerston contains pockets of both economic advantage and disadvantage. Particularly, the well-off defence force personnel housing estates were contrasted by many stakeholders with the large numbers of poorer quality government houses. However, beyond the pockets of economic advantage and disadvantage, Palmerston residents have relatively high levels of internet connection, with around 70% of private households having a broadband connection.

Stakeholders discussed a number of challenges facing Palmerston that were seen by many to be a legacy of past planning practices. Many pointed to what they saw as a poorly regulated planning process in which developers had exercised excessive influence. The kind of development delivered as a legacy of these processes was seen to be less than ideal, particularly in terms of social and environmental sustainability. In particular there were many negative comments about the way the Palmerston CBD had been developed, with stakeholders pointing to the dominance of surface car parking, the lack of an accessible, coherent layout with a lively 'main street' feel, and the lack of activity in the CBD after business hours. A number of stakeholders felt that future planning strategies should attempt to address these issues by encouraging higher density, mixed use development, including residential development in the CBD.

Many stakeholders also pointed to the inadequacy of public transport, which did little to counteract the high car dependency that many saw as having been 'built in' to Palmerston. Stakeholders suggested this car dependency was a result of the location of Palmerston relatively far from Darwin, as well as its low density, suburban design, characterised by winding streets and cul-de-sacs (which are not ideal from a public transport planning perspective) and the relative lack of local employment opportunities and services which means many residents need to travel to Darwin regularly. A number of stakeholders also felt that new residential areas in Palmerston had been developed without simultaneously developing the range of services and infrastructure, including social services and public transport, that would be needed by the residents who moved there. This has led to what many saw as a shortage of services in Palmerston, creating challenges for lower income residents who may find it difficult to travel to Darwin to access services.

The NT Government is responsible for the administration of the planning system, and unlike the situation in other Australian jurisdictions, local governments in the NT do not have planning powers. Stakeholders pointed to this situation as a point of tension, as the council is keen to influence the future direction of planning and development in the area with more power. However, Palmerston City Council is council actively engaged with issues of planning and development, and in particular it is currently seeking to influence the NT Government with regard to the potential redevelopment of Palmerston CBD. There were a number of comments about planning and governance arrangements for Palmerston, and some stakeholders suggested that many of the current challenges may be partly the result of the unique planning environment of the NT, in which the NT Government is small and relatively lacking in resources and capacity.

Glossary

AAQ NEPM	National Environment Protection Measure on Ambient Air Quality
ABS	Australian Bureau of Statistics
b	billion
CBD	Central Business District
CD	Census Collection District
CDU	Charles Darwin University
CR	councillor
cvm	Chain Volume measures
DLPE	Department of Land, Planning and Environment (NT)
DSEWPaC	Federal Department of Sustainability, Environment, Water, Population and Communities
EPBC Act	Environmental Protection and Biodiversity Conservation Act
GP	General Practitioner
IRSD	Index of Relative Socio-economic Disadvantage
ISF	Institute for Sustainable Futures
kg	kilogram
km	kilometre
km ²	square kilometre
LGA	local government area
NABERS	National Australian Built Environment Rating System
pa	per annum
PHIDU	Public Health Information Development Unit
PM	particulate matter
m	million
NES	non-English speaking country
NIEIR	National Institute of Economic and Industry Research
RDA	Regional Development Australia
SALMS	small area labour markets survey
SEIFA	Socio-Economic Indexes for Areas
SoR	State of the Regions report

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Background and context

Geography and features

Palmerston is located 21 kilometres south-east of the Darwin CBD, between Darwin and the rural area of Howard Springs. Palmerston is close to two main industrial areas of Darwin, the Pinelands and Yarrowonga industrial estates. Palmerston CBD is a 25-minute drive from Darwin on the Stuart Highway, and as such is part of the Greater Darwin area, and in many respects operates as a satellite city of Darwin. Many Palmerston residents are employed in and commute to Darwin.



Figure 1: Geographical context map of Palmerston

Population summary

According to Australian Bureau of Statistics Census data, the 2011 Census population of Palmerston was 27,703 persons, which represents 12.9% of the Northern Territory’s total population. Palmerston is the Northern Territory’s fastest growing LGA. Over the decade from 2001 to 2011, Palmerston’s population grew from 22,120 to 29,301, representing a 32.5% increase, or an average annual growth rate of 2.9%. This compares to a 17.0% increase for the Northern Territory as a whole during the same time period, or a 1.6% average annual growth rate.

It is anticipated that the LGA will continue to experience strong population growth of 1.2%– 2.2% pa between 2011 and 2021 (ABS, 2012a). Forecasts estimate that the Palmerston population will reach between 36,600 and 42,000 by 2021, making it one of the fastest growing cities in Australia. The recently released Greater Darwin Region Land Use Plan – Towards 2030 Consultation Paper, indicated that with the continuing development of the eastern suburbs of Palmerston (namely Bellamack, Johnston, Zuccoli and Mitchell), the Palmerston population is expected to increase by a further 6,000 in the next four years. Once completed, the Charles Darwin University (CDU) residential development is

expected to provide further dwellings in close proximity to the city centre. Hence the City of Palmerston Council (City of Palmerston, 2012a) anticipates that the area could ultimately house up to 50,000 residents.

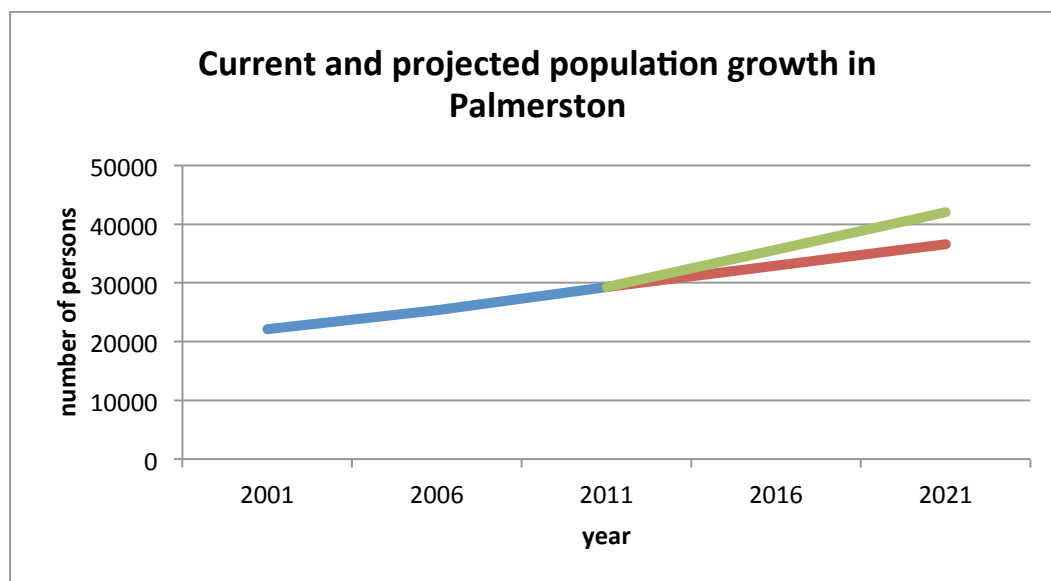


Figure 2: Current and projected population growth in Palmerston (Source: ABS, 2012a) (Note: population projections are shown in red (low estimate) and green (high estimate))

Table 1: Context indicator – population (Source: ABS, 2012b)

	Palmerston 2001	Palmerston 2011	Greater Darwin 2011	Northern Territory 2011
Population (persons)	22,120	29,301	129,062	231,331
Rate of growth 2001-2011 pa		2.9%	1.9%	0.4%
Population density (people/km ²)	419.7	556.0	40.8	0.2

Characteristics of population growth in Palmerston

Palmerston is a planned satellite city of Darwin. Since July 2008 (when many of the previously unincorporated areas in the NT were classified as LGAs), Palmerston has been classified as one of the five municipalities that make up the NT.¹

Planning for the city began in 1973, when the Australian Government² acquired land in the area in order to address an undersupply of residential land in Darwin. The land for Palmerston was specifically selected as it was adjacent to existing transportation corridors. The decision to proceed with the development of Palmerston was made in 1980 and a program of government backed planning and staged land development was managed by the Palmerston Development Authority.³

¹ Since 2008 the NT has had 17 LGAs, five of which are municipalities (inner-city suburban areas and smaller rural towns) and 11 are shire councils (rural or outer suburban areas).

² The Australian Government was responsible for state-type functions in the Northern Territory prior to the introduction of self-government in 1978.

³ Summary from ‘A history of Palmerston’, City of Palmerston website (no date) <http://www.palmerston.nt.gov.au/city/about-palmerston/history> accessed 11 December 2012

Significant development occurred during the 1980s with the development of the new suburbs of Gray, Driver, Moulden, Woodroffe and Marlow Lagoon. The urban area of Palmerston continued to grow throughout the 1990s, with the new suburbs of Bakewell, Rosebery and Durack added, and throughout the 2000s with the development of Bellamack, Zuccoli and Johnston, and planning for the new Charles Darwin University (CDU) residential village. The new housing that was built in Palmerston attracted an influx of new residents, mostly owner-occupiers, seeking more affordable housing than that available in Darwin.

In addition to private residential development, Palmerston became a significant site for public housing, as well as for defence houses provided for employees of the nearby Robertson Barracks. Defence housing has expanded over time, while public housing in the area has contracted as the government has sold a proportion of dwellings to former tenants.

The total number of dwellings in Palmerston has increased from 7,397 in 2006 to 8,806 in 2011, an increase of 19.1% over this five-year period (PHIDU, 2010 & 2012). This compares to an increase in dwellings in Greater Darwin and the Northern Territory of 10.1% and 8.9% respectively.

The NT Government acknowledges an ongoing housing supply shortage in Palmerston, and in late 2012 announced a capital works program designed to further drive both residential development and economic growth in Palmerston. The program includes infrastructure for private residential development, funding for new public housing to be built at Zuccoli and Bellamack, and residential development under the National Rental Affordability Scheme at Johnston and Maluka Drive (Mills, 2012).

Social characteristics

Population profile

Palmerston has a relatively young population, with a median age of 28 years compared to a median age of 31 years in the Northern Territory and 37 years in Australia as a whole (see Figure 3).

One major contributor to the young population is the employment opportunities available in the area, including defence and mining which generally attract a younger working population. The proportion of people in Palmerston under the age of 34 is more than 60%, with this figure expected to decrease only slightly to approximately 55% by 2025 (City of Palmerston, 2012a).

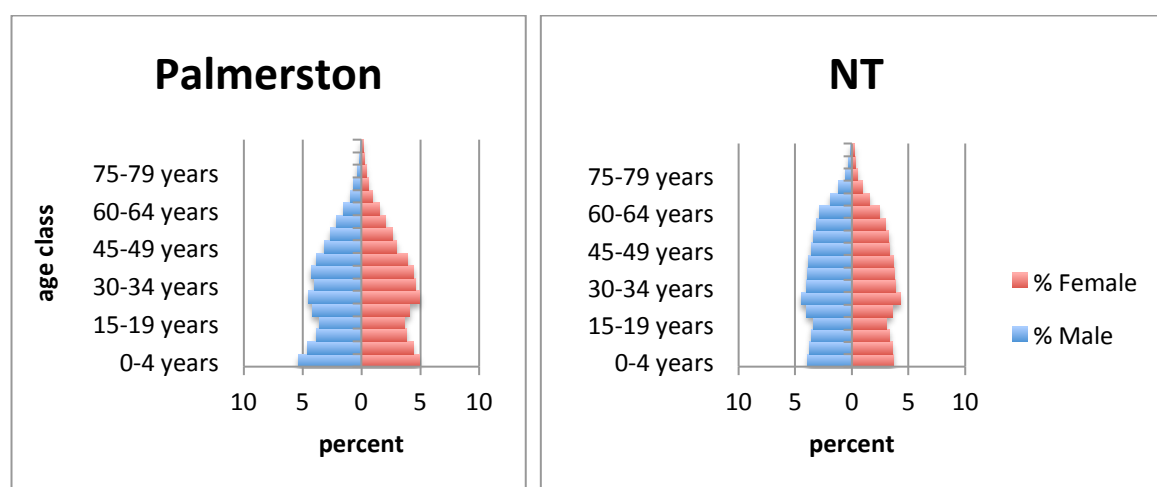


Figure 3: Age profile of Palmerston and Northern Territory (2011) (Source: ABS, 2012a)

As shown in Table 2, according to the 2011 Census, 11.2% of Palmerston's population identified as Indigenous. This proportion has decreased slightly since 2006, and remains above the average for Greater Darwin (9.0%), but significantly below the average for Northern Territory as a whole (24.8%).

The proportion of the population born overseas increased to 15.3% in 2011, which is significantly lower than the average for Greater Darwin and slightly lower than the figure for the Northern Territory. The large majority of the Palmerston population was born in Australia (76.1%) or another English speaking country (6.3%), with just 8.9% of Palmerston residents born in a non-English speaking country.

Table 2: Context indicator – culture and migration (Source: ABS, 2007, 2012)

	Palmerston 2006	Palmerston 2011	Greater Darwin 2011	Northern Territory 2011
Population (persons)	25,363	29,301	129,062	231,331
Indigenous	11.9%	11.2%	9.0%	24.8%
Overseas born predominantly English speaking countries	6.1%	6.3%	7.2%	10.4%
Overseas born NES	6.6%	8.9%	14.5%	6.3%
Do not speak English well	6.2%	8.7%	2.1%	4.6%
Total overseas born	12.8%	15.3%	21.4%	16.5%

Economic characteristics

According to 2011 Census, the dominant industry employers in Palmerston are defence (10.1%), Territory Government administration (6.9%), school education (4.6%), and public order and safety services (4.4%) (ABS, 2012).

Palmerston house prices are lower than the Territory average, and lower than those in Darwin. Palmerston residents experience significantly lower levels of mortgage stress and higher rental stress compared to Darwin and Territory residents.

Unemployment in Palmerston is higher in Palmerston than in Greater Darwin, but lower than in the Northern Territory as a whole.

Planning and governance

The Northern Territory Government is responsible for the functions of land use planning and development assessment in the Territory. Unlike the situation in most Australian jurisdictions, local government is not responsible for planning. However, Palmerston City Council is actively interested in local planning and recently completed the *Palmerston City Centre Master Plan 2030* (City of Palmerston, 2012a), and is seeking approval of the Plan by Northern Territory Government, in order for the Plan to be incorporated into the Northern Territory Planning Scheme.

Influence of the Northern Territory Government

In 2009 the Territory Government produced *Territory 2030*, a strategic plan setting out the Territory Government's direction for the next 20 years. This is a long-term plan with clear targets that provide a framework for the government's strategic plans and policy initiatives. However, as there has been a change of government since the release of this plan, its status is now unclear.

In regards to land use planning, the principal legislation in the Northern Territory is the *Planning Act 1999* (NT) and the Department of Lands, Planning and the Environment is the main authority responsible for the administration of the planning system. A key objective of the Planning Act is to “plan for, and provide a framework of controls for, the orderly use and development of land”, with subsidiary goals relating to the sustainable use and protection of the natural environment and resources; protection of amenity; and community consultation (s2) (Gurran, 2007: 120).

The principal local land use planning instrument in the Northern Territory is the Northern Territory Planning Scheme, as called for by the Planning Act. The Northern Territory is divided into areas covered by the NT Planning Scheme, areas which are not zoned, and areas covered by another planning scheme (the Jabiru Town Plan). The NT Planning Scheme enables subsidiary planning on an area or regional basis. There are no formal regional or metropolitan planning arrangements in the Northern Territory, other than the NT Planning Scheme and the Jabiru Town Plan (Jabiru is located in Kakadu National Park). The Minister is responsible for the management of the planning schemes (DLPE, 2012b).

The NT Planning Scheme contains provisions related to the use or development of land. The scheme includes statements of policy; provisions for activities that are permitted, discretionary or prohibited; assessment criteria for development applications; and maps, plans and designs (Northern Territory Government, 2012a). The Department of Lands and Planning develops land use policies and strategic plans in consultation with the community (Northern Territory Government, 2012a).

The municipal area of Palmerston is subject to zoning within the NT Planning Scheme (Northern Territory Government, 2012a: Part 1-1). The NT Planning Scheme has a schedule of specific uses for Palmerston and three area plans for the three areas of Palmerston: Palmerston's eastern suburbs, Arche (via an amendment gazetted in 2007) and Palmerston City Centre (via an amendment gazetted in 2008). The planning scheme first lists planning principles for these three areas. For example, the six planning principles in the Palmerston eastern suburbs are to (Northern Territory Government, 2012a):

1. Provide compact, accessible, and walkable neighbourhoods that are safe and foster a sense of community and local identity;
2. Promote community focused neighbourhood centres with a compatible mix of uses serving the local community;
3. Relate the scale of development within neighbourhood centres to both the surroundings and the desired future character;
4. Provide a range of both lot sizes and housing choice to cater for diverse household types;
5. Providing community purpose sites of sufficient size to allow collocation and integration of schools and other significant community and active recreation facilities serving more than an individual neighbourhood;
6. Preserve and integrate areas of environmental heritage significance.

Each principle is further explained via strategies listed as sub-components. The subsequent maps, or area plans, designate such features as neighbourhood areas, specific zoning and future transport options.

The Area Plan and Planning Principles for Palmerston City Centre were recently altered in Amendment No. 243 (gazetted in August 2012) to “replace the community use designation with enlarged commercial and residential areas” within the Palmerston City Centre Area Plan and to rezone several lots from ‘Main Road’ and ‘Community Purposes’ to ‘Future Development’ (Northern Territory Government, 2012b). The Palmerston City Centre Area Plan (map) highlights a central core in the city that focuses on pedestrian space and street-level activity and encourages “high-rise, mixed-use development with active interface to pedestrian corridors and public spaces” (see Figure 4).

Figure 4: Palmerston City Centre Area Plan (Northern Territory Government, 2012a: Part 8- Pal)

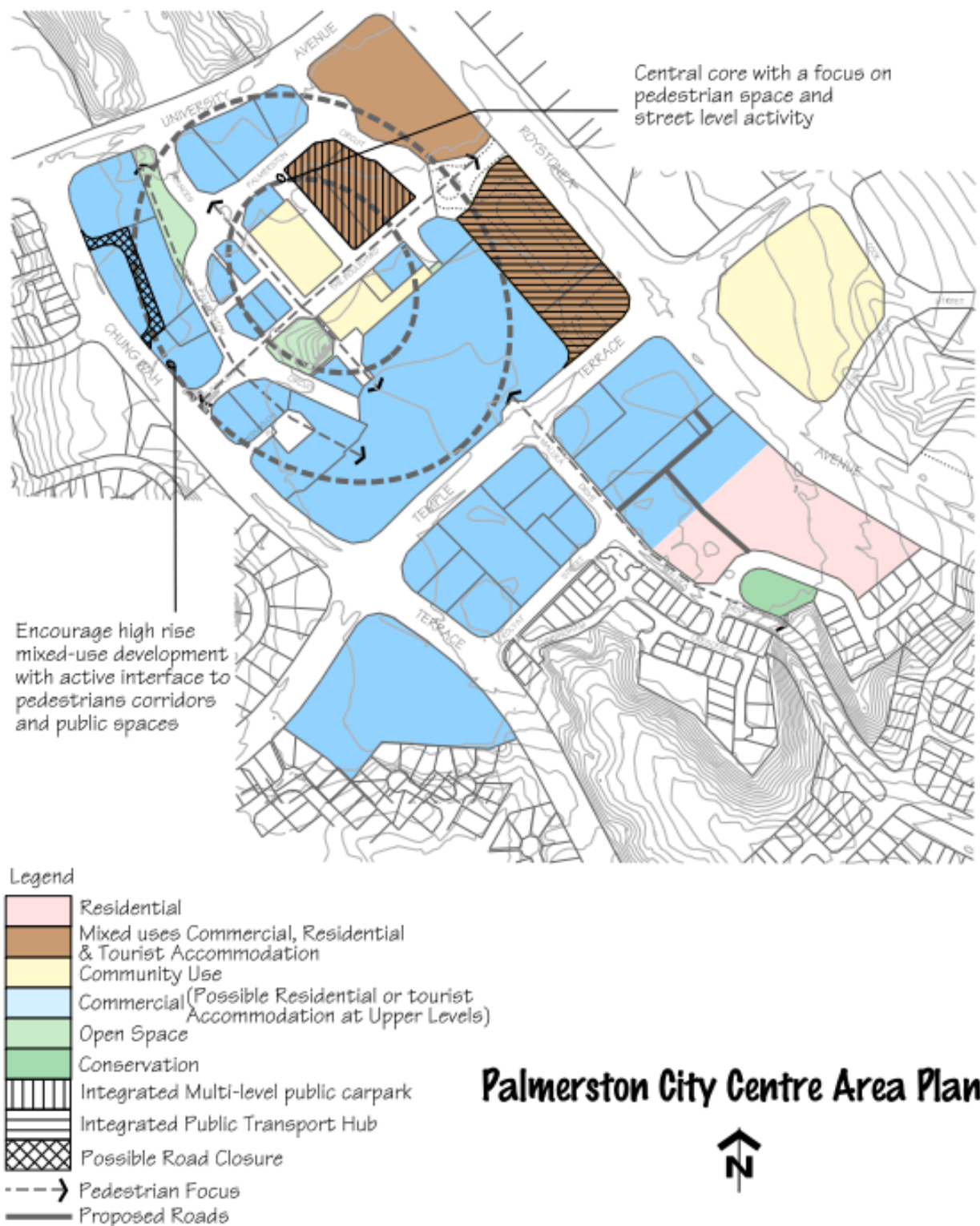


Figure 5: Town of Palmerston Concept Masterplan (DLPE, 2012b: Schedule 1, Pal-xvi)



Currently in the NT Planning Scheme there are eight 'specific uses' zones for Palmerston, which range in lot size and development complexity. Notably, the 'Specific Use Zone Palmerston No. 8' facilitates development of the Durack suburb. It describes "the sub-division, use and development of the land that provides for housing choice through a range of lot sizes and housing types, and includes opportunities for commercial and community uses" in conjunction with the Durack Master Plan. Among other overarching design principles, this specific use zone seeks to 'create a community that is connected with the [Charles Darwin] University through open space links to the existing lake and University campus' (Northern Territory Government, 2012a) (see Figure 5).

CIC Australia Ltd. and Larrakia Development Corporation (LDC) are in the final stages of the rezoning phase in The Heights, Durack development as zoned in the NT Planning Scheme (CIC Australia, 2012). The Heights, Durack site was rezoned and gazetted on February 22, 2012. To facilitate the development of The Heights, an initial superlot subdivision application was made and approved on April 20, 2012. Subsequent applications have now been approved for stages 1 to 7 (as at July 25, 2012), which will deliver 307 lots for residential purposes (excluding the independent living site, which will deliver approximately 70 dwellings) (CIC Australia & Larrakia Development Corporation, 2012). The master plan supporting documents conclude that very low and low income households probably do not earn enough money to buy a house in this development, but moderate income households (earning between 80% and 120% of median incomes in the Palmerston-East Arm district⁴) could afford to pay up to \$386,000 to buy a house at the proposed development (Gilmour, 2011).

Supporting authorities and agencies

As summarised by Gurran (2007: 132), development consent is required for land subdivision or consolidations and in situations specified by the Northern Territory Planning Scheme. The Development Consent Authority, which issues consents, was established under the Northern Territory Planning Act (s82). The Authority contains seven divisions that correspond to the larger population centres of the Northern Territory, including Darwin and Palmerston.⁵ Planning scheme amendments require public hearings, conducted by the Development Consent Authority, which makes recommendations to the planning minister. Applicants for development permission may appeal within 28 days against a refusal to grant the permit. An applicant may also appeal if the Development Consent Authority has not made a decision on the application within 12 weeks. Third party appeal rights are available in certain circumstances but generally only for matters within residential zones. Appeals are heard by the Lands, Planning and Mining Tribunal. The Department of Lands, Planning and the Environment provides professional and technical support and the Mayor of Palmerston and two aldermen sit on the Development Consent Authority's Palmerston Division committee.

The Northern Territory's Environmental Protection Agency conducts research, inquiries and reviews on emerging and strategic issues, environmental incidents, and decisions, which affect ecologically sustainable development in the Territory.⁶

⁴ This district encompasses to the combined areas of Palmerston and East Arm (an area to the west of Palmerston).

⁵ For further information on the Development Consent Authority, see <http://lands.nt.gov.au/planning/development-consent-authority>

⁶ For further information, see <http://www.epa.nt.gov.au/our-work>

Planning for unprecedented growth

The Northern Territory Government's significant land release program aims to meet housing demand, along with residential developments in the private sector. The Strategic Planning Group is focused on major growth initiatives and projects including land release programs, infrastructure projects and innovative planning initiatives.⁷

The Northern Territory Government is expediting the release of crown land in the Palmerston area to assist with meeting housing demands, and continuing development of residential land releases in the Greater Darwin Region (DLPE, 2012c). Within the eastern section of Palmerston, the four new suburbs of Bellamack, Johnston, Mitchell and Zuccoli will provide about 3000 new residential lots (see Table 3) and house 15,000 people in the next five years, as a priority action for the Northern Territory Government (Northern Territory Government, 2012c).

Table 3: Palmerston subdivisions (DLPE, 2012a)

New subdivision	Developer	Development Permit (Master Plan)	Subdivision Approval
Bellamack	Briety/Urban PAC	678 lots (755 dwellings)	ALL
Johnston 1	Hannons/Tomazos	198 lots (429 dwellings)	ALL
Johnston 2	Urbex	284 lots (548 dwellings)	ALL
Zuccoli	LDC/Urbex	507 lots (759 dwellings)	143 lots so far
Zuccoli 2-4	-	Estimated 950 lots	-
Mitchell	-	Estimated 480 lots	-

A set of 10 year strategies developed by the Northern Territory Government will also guide the development of Palmerston, including the 10 Year Infrastructure Strategy, the 10 Year Road Strategy and the 10 Year Transport Strategy.⁸ Particularly of note for Palmerston in the 10-Year Infrastructure Strategy is a commitment "to ensure future housing demand is met in balance with a sustainable region, around half of growth in Darwin is proposed to be through infill development, with the remaining half to be Greenfield developments such as Weddell, Palmerston East and potential private developments at Cox Peninsula" (Northern Territory Government, 2012b: 23). The 10 Year Infrastructure Strategy also lists government priority actions relating to Palmerston:

- Construct additional public and social housing and new senior villages in Palmerston (Northern Territory Government 2012b: 41).
- Deliver new schools and facilities to support development in the new Palmerston suburb of Zuccoli (Northern Territory Government 2012b: 41).
- Construct a new community hospital (2012b: 42)
- The \$35.9 billion National Broadband Network will deliver high speed broadband to the homes and businesses of Territorians in remote and regional areas as well as key urban areas including Darwin and Palmerston, Nhulunbuy, Katherine, Tennant Creek and Alice Springs (Northern Territory Government 2012b: 45).

⁷ For further information, see <http://www.dlp.nt.gov.au/strategic-planning/future>

⁸ For further information, see <http://www.dlp.nt.gov.au/strategic-planning/future>

The 10 Year Infrastructure Strategy also estimates that “By 2018 Palmerston will be at capacity and vacant blocks around Darwin will be developed. Long-term future growth can be catered for through the development of the new city of Weddell which will be a leading tropical, sustainable and liveable city” (Northern Territory Government 2012b: 23).

In 2011, the Northern Territory Government released a consultation paper on the *Greater Darwin Regional Land Use Plan Towards 2030*. The government described the plan as providing ‘a roadmap for growth in the Darwin, Palmerston and Litchfield areas’ (Northern Territory Government, 2011a). The plan was to be released in 2012, however following the change of government in 2012 the status of this plan is unclear.

Land Development Corporation

The Land Development Corporation is the Northern Territory Government’s land developer. The Corporation assists key industry sectors to take advantage of major industrial projects in the region and facilitates strategic industrial land development to further stimulate economic growth. As discussed above, a range of residential developments is underway that include working with the private sector on shared equity joint ventures to fast track residential land releases and housing developments, such as the Palmerston subdivision of Zuccoli, approximately 20km southeast of Darwin. The Land Development Corporation has just sold 28 residential dwellings in Bellamack Gardens and is also planning to develop Lot 10286 Tarakan Court Johnston, for the City of Palmerston (Land Development Corporation, 2012).

Influence of local government

Unlike local government in other states, local government in the Northern Territory does not have responsibility for development assessment and land use planning (LGANT, 2012). The NT Planning Scheme provides the land use planning and the Development Consent Authority (DCA) assesses the development. As mentioned above, however, the DCA Palmerston Division contains representatives from the City of Palmerston.

In regards to infrastructure funding through the development planning process, the ‘service authorities’, such as local councils, develop contribution plans that can require developers, as a condition of planning consent, to contribute to car parking and other infrastructure (Gurran, 2007: 138).

Palmerston City Council’s Municipal Plan 2012–2017 recognises the need for exceptional planning based on the designation as one of the youngest and fastest growing cities in Australia (City of Palmerston, 2012b). The Plan notes that:

the City of Palmerston is gearing up for an acceleration of growth with the suburbs of Bellamack and Johnston continuing to expand rapidly and the new suburb of Zuccoli about to commence. Add to this the anticipated development of “The Heights” in Durack and the new mixed-use development on Maluka Drive, and the City will see significant change during the year ahead (City of Palmerston, 2012b).

Council also develops strategic management plans, of which the CBD master plan is one example.

The City of Palmerston released the *Palmerston City Centre 2030 Master Plan* in 2012 (City of Palmerston, 2012a). The Master Plan states that the Palmerston city centre has developed in an “unplanned and uncoordinated manner, resulting in a centre that is unlikely to sufficiently support the growing population or be sustainable in the future” (City of Palmerston, 2012a: 5). Market research conducted in 2011 to inform the Plan generated the following findings relating to Palmerston CBD:

- Demand for more office space within the CBD, particularly for mid-sized office space (100-200m²) or large areas for government departments.
- Demand for space for those businesses whose core area of business is within the Greater Darwin Region.
- Demand for higher density residential areas within and surrounding the CBD.
- Difficulty encouraging retail uses within the CBD as there is inadequate floor space available, but also due to competition with Darwin CBD. Cyclical retail trends are noted depending on the space available. Small businesses are looking for small retail space between 60-100m² (City of Palmerston, 2012: 31)

The vision of the Master Plan is that the City will “foster a sense of community in a clean, safe friendly and sustainable environment” (City of Palmerston 2012a: 41). The master plan proposes strategies to:

- Focus the core of the City Centre within the main “square”
- Improve and create new street linkages and connections including pedestrian and cycle connections
- Improve linkages to encourage walkability between the two currently separated areas of the centre
- Provide for a light rail or fast bus route system and a substantial bus interchange, while also retaining existing local bus stops
- Straighten The Boulevard by removing traffic circles to create a green “civic street” as a “main street” for a range of activities. Straighten sections of Palmerston Circuit to provide clear development blocks.
- Provide a legible town centre structure with linked streets and laneways for vehicles, pedestrians and cyclists.
- Create a “hub” or “meeting place” with the creation of a town green, off Civic Way, reflecting the current open space and formalising the public domain.
- Provide and create a formalised public domain with green streets and linked open spaces
- Reduce on grade car parking, and encourage street parking and parking on the individual sites as basement or undercroft parking.
- Allow a mix of uses with civic, retail, commercial, entertainment and residential/mixed use precincts within the main “square” and supporting uses across the broader area.
- Allow for the continuation of the current Palmerston Shopping Centre with a redesign to turn uses to activate and face the street and public open space.
- Create redevelopment opportunities with a diversity of block sizes
- Provide a parallel service lane within the road reserve of Roystonea Avenue to allow improved public realm, activation, improved pedestrian linkage and a movement economy (City of Palmerston 2012a: 61)

The Master Plan also provides an integrated land use and transport plan, based on the COAG Capital Cities Criteria.

Importantly, the Master Plan is an initial framework that “requires further detailed work to develop absolute floor areas, height and planning controls” (City of Palmerston 2012a: 101) and the City intends the Master Plan to be the basis for a rezoning/development plan for approval by the Development Consent Authority and incorporation into the Planning Scheme.

As there are now two different proposed plans for Palmerston City Centre, namely Council's CBD Master Plan and the NT Government's City Centre area plan, discussions are now underway between local and Territory governments with regard to the most appropriate course of action.⁹

Other relevant institutions

The Australian Government released the National Urban Policy in 2011, which is the first time the government has sought to establish overarching national goals for making the nation's cities more productive and sustainable.

A further framework shared by all states and territories is the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*, which describes how to assess impacts on threatened species, and world and national heritage sites.

⁹ Both of the proposed plans for Palmerston City Centre encourage high rise mixed-used development with active interface to pedestrians corridors and public spaces. Council's CBD Master Plan is more detailed than the NT Government's plan.

Environmental, social and economic indicators

The first component of the case study research involved investigating themes and indicators presented in the indicator framework. Each theme and group of indicators is explored here using the indicators as headings and they are discussed across of the three sustainability domains (environmental, social and economic). Each of the domains draws on different data sources at the local level, the availability of which varies across the indicators. The analysis presented shows that population growth is impacting on all three sustainability domains in a range of ways.

While environmental data for Palmerston is limited, it appears that population growth, and the associated increase in the number of dwellings in the area, are contributing to a range of existing environmental problems, from gross higher energy usage, to the spread of weeds due to garden waste dumping, and the general catchment and biodiversity impacts associated with the expansion of residential development into new areas of land.

Socially Palmerston appears to be fairly disadvantaged in comparison to other urban areas in the Northern Territory. Levels of university education are significantly lower than in Darwin or the Northern Territory as a whole, however Palmerston has a higher proportion of residents with certificate or diploma qualifications, and the proportion of residents with these qualifications is also growing more rapidly in Palmerston. The historical existence of a number of major construction and resource projects in the area is thought to have contributed to this trend in education, as these facilities have attracted higher numbers of non-university qualified employees to work and live in the area. While there was a slight dip in the rate of social security take-up in Palmerston over the past five years, SEIFA scores suggest that Palmerston has a significant number of areas of socio-economic disadvantage. Unemployment is consistently higher in Palmerston than in Darwin. However, Palmerston remains one of the least disadvantaged areas in the Northern Territory. Interestingly, while health outcomes are usually closely related to socio-economic status, Palmerston residents have (on average) a similar health status to residents of Greater Darwin. Higher proportions of the population are smokers and experience psychological distress, while a lower proportion are overweight or obese and self-reported health status is comparatively higher. Socially, with the high cost of accommodation in Darwin expected to continue and with Palmerston being seen as a more affordable option, population growth in Palmerston is expected to sustain a young population, with only a slight decrease in the proportion of people under the age of 34 by 2025. In Palmerston, every age group has increased in the past decade, meaning there will be an ongoing and possibly increased need for provision of schools, children's and family services, and health services in the area.

In economic terms, Palmerston has areas of both advantage and disadvantage, but as much of the economic data available is for the Greater Darwin region as a whole, it is difficult to obtain a full picture of the situation in Palmerston. As in the rest of Australia, household disposable income has steadily increased in the past decade. However this increase has been less marked in the Darwin region than elsewhere in the country, and while household wealth has increased over the past decade, it has decreased slightly in the past five years. Household debt service ratios and the ratio of debt to income have also increased. Average house and unit prices in Palmerston are lower than the state and Darwin averages, and the proportion of low income households in mortgage stress in Palmerston follows the same trend with a significantly lower percentage of households in stress. However, Palmerston still has a higher proportion of low income households in rental stress than either Darwin or the NT as a whole. While the supply of public housing in Palmerston has decreased significantly in the last five years, the area still has a comparatively high number of dwellings rented from the government. Transport data indicates Palmerston is a highly car dependent area, with a very low level of public transport usage. This high level of dependence on private vehicles likely reflects the relatively poor level of public transport infrastructure in the area, and has a number of negative implications for sustainability, as discussed further in the case study.

Environmental indicators

Climate and atmosphere

The Northern Territory Government committed funding in 2008–09 to the establishment and ongoing operation of a comprehensive air quality monitoring system for the Darwin region (Northern Territory Government, 2011b). The system will build on current monitoring for particulates to other pollutants identified in the National Environment Protection Measure on Ambient Air Quality (AAQ NEPM) in a manner consistent with the technical requirements of the AAQ NEPM. One station was installed near Palmerston in November 2010. However, results for this station have not yet been published. At a Darwin/Palmerston regional level, analysis of 2000–2001 data indicated that nitrogen oxides, sulphur dioxide, carbon monoxide, ozone and lead aerosols were not a cause for concern when assessed against the AAQ NEPM standards.

No data is available for energy usage or CO₂ emissions at the local level.

Ecosystems and biodiversity

Like much of the Northern Territory, Palmerston is home to the introduced pest, the cane toad. Cane toads are regularly spotted and caught in Palmerston. Frog Watch, a conservation and educational group, has a collection bin at Archer Transfer Station, which can be used to humanely dispose of live toads.

There are two natural reserves in Palmerston – the Palmerston Escarpment and Mitchell Creek. The Palmerston Escarpment was designated a reserve to protect the bushland values of the escarpment. Council notes that there are many native animals and plants located in the reserve, some of which are unique to the Palmerston area. Dumping of garden waste in the escarpment by local residents is causing particular concern because it introduces and spreads noxious weeds and alters the natural values of the reserve. While the escarpment is a place of natural history for the Palmerston area, data regarding the number of species located in the escarpment is not provided publicly on Council website. The other natural reserve in the area, Mitchell Creek, is the natural drainage system for the Palmerston Escarpment and discharges into the Elizabeth River. The creek is home to fourteen vegetation communities and two significant plant species – *Eucalyptus atrovirens* and *Typhonium praetermissum*.

Water

Water consumption per capita in the Greater Darwin Region is significantly higher than in other Australian cities (Northern Territory Government, 2011a). The previous Territory Government's strategic plan, *Territory 2030* (Northern Territory Government, 2009) set a target of reducing household potable water use by 30% by 2020 (Northern Territory Government, 2009: 55). To support the community to save water, the government is offering rebates for water saving appliances and rainwater tanks. However, while these initiatives are available, water-related data for the Palmerston area is lacking.

In regards to surface water quality, according to the NT Department of Natural Resources, Environment, the Arts and Sport, there are no current monitoring stations in the Palmerston area.

Land

Because Palmerston was built as a planned city, much of its land is developed or earmarked for development, with little empty land remaining. Land use in Palmerston must meet principles and criteria set out in the Northern Territory Planning Scheme. Current land uses in Palmerston range from residential (single dwelling to medium density) to service commercial to community purpose. As can be seen in Figure 6 there is little land that has not been developed, confirming stakeholder reports of land constraints in Palmerston.

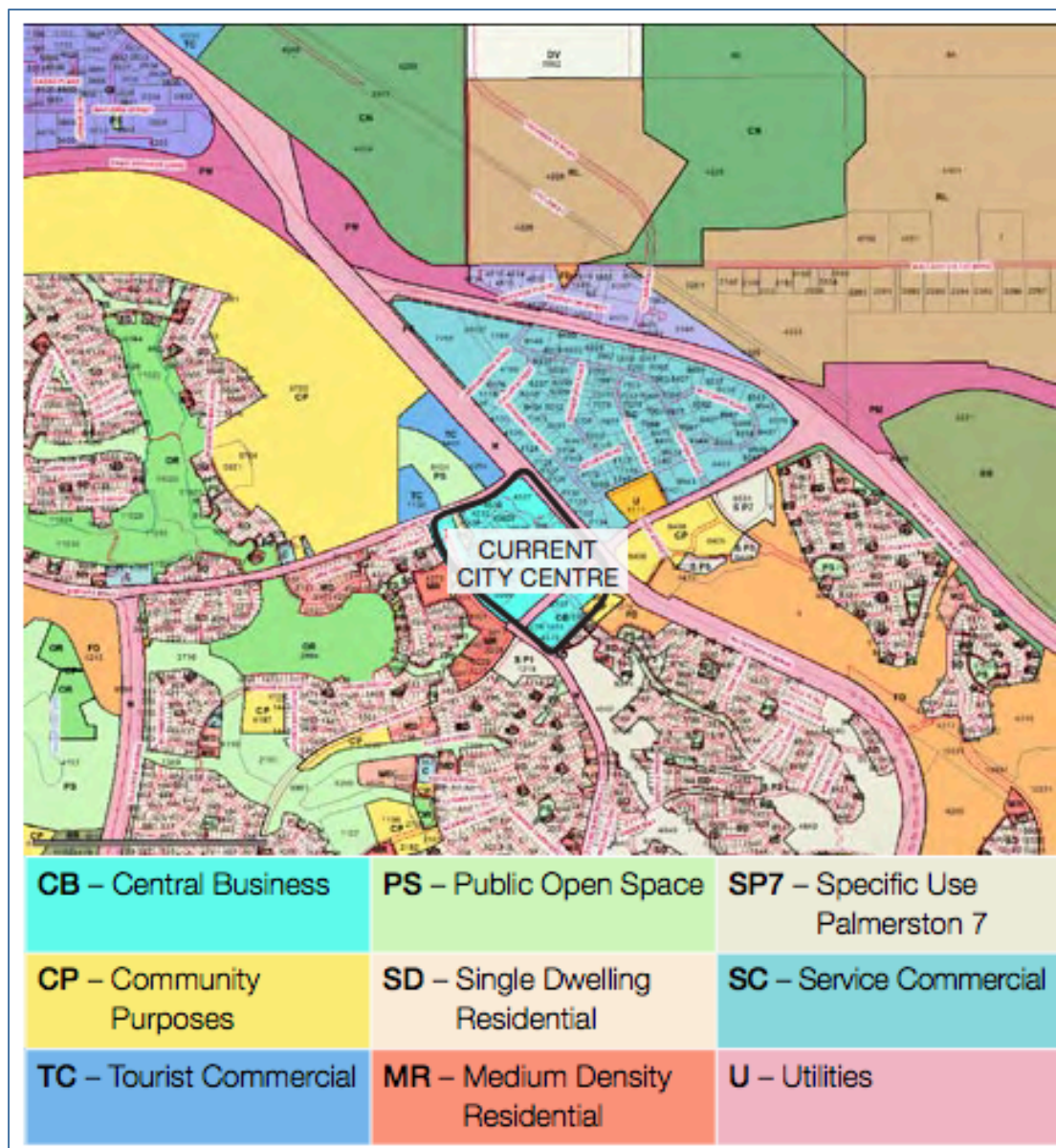


Figure 6: Palmerston planning zones (Source: City of Palmerston, 2012a: 22)

Waste

Data regarding waste in the case study area has proved difficult to obtain. Palmerston has twice-weekly domestic waste collection and fortnightly kerbside recycling collection, but there is no publicly available data on tonnage or diversion rates. However, even without publicly available data, the City of Palmerston notes in its Annual Business Plan 2012/13 that funds have been set aside for the closure of the local landfill, indicating that population growth or community demand has had an impact on local environmental services and waste management (City of Palmerston, 2012: 16).

Social indicators

Skills and education

There are a number of ways to assess educational attainment in populations. Common measures are the proportion of the adult population that has a bachelor’s degree or higher, and the proportion that has a certificate or diploma qualification. On the first measure, Palmerston has a lower level of attainment than Greater Darwin or Northern Territory. However the proportion of the population with certificate and diploma-level qualifications is higher than in Greater Darwin and the Northern Territory as a whole. These results are shown in Figure 7 and Figure 8.

The proportion of the adult population with a bachelor’s degree or higher in Palmerston increased from 8.1% of the population in 2001 to 10.7% in 2011. In comparison, the proportion of the adult population with a bachelor’s degree or higher across Greater Darwin increased from 13.2% of the population in 2001 to 17.3% in 2011. The figures for the Northern Territory are similar to Greater Darwin, with the proportion of the adult population with these qualifications changing from 11.3% of the population in 2001 to 15.3% in 2011. As these figures show, the proportion of people with university qualifications is not only lower in Palmerston than in Greater Darwin or the NT, but the recent percentage increase has also been smaller.

Attainment of certificate and diploma level qualifications in Palmerston changed significantly over the 10 years between 2002 and 2012, increasing from 25.2% of the adult population to 32.8%. Over the same period, levels of attainment for these qualifications grew minimally at the Greater Darwin and Northern Territory level, where the proportion of the population holding these qualifications remains lower than in Palmerston.

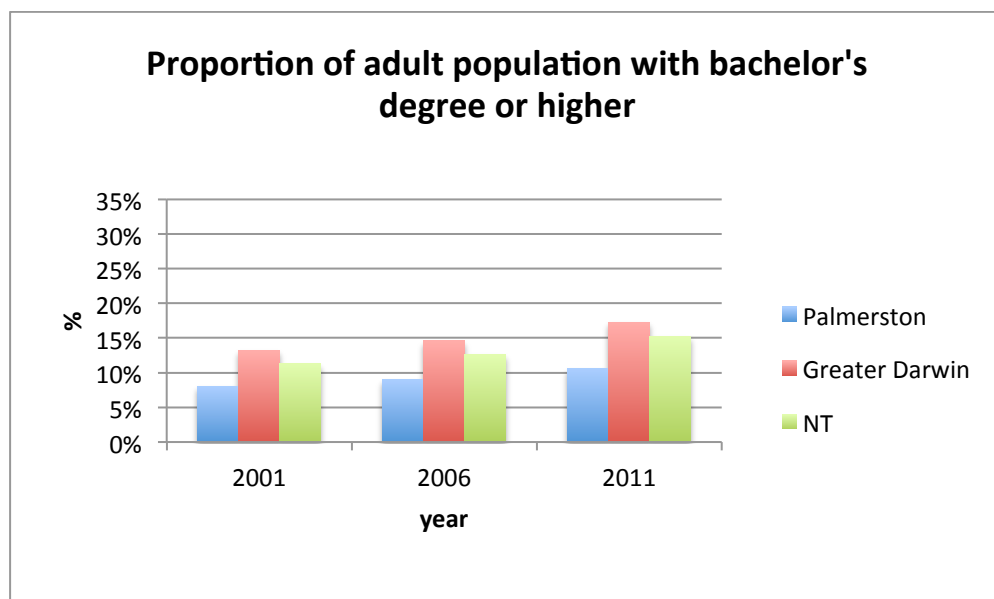


Figure 7: Comparison of adult population with Bachelor degree or higher qualifications (Source: ABS, 2012b)

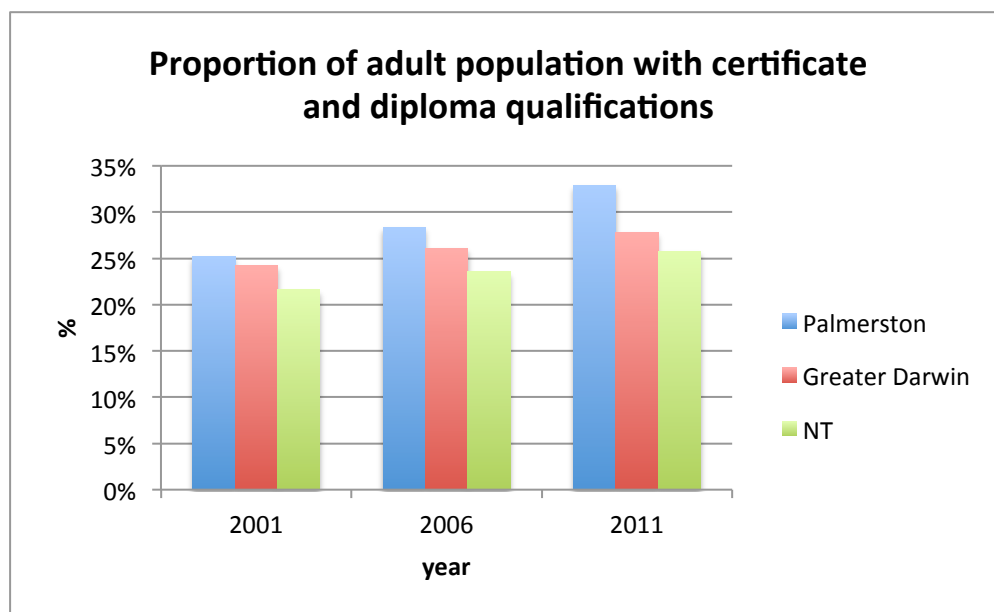


Figure 8: Comparison of adult population with certificate and diploma qualifications (Source: ABS, 2012b)

Health and socio-economic disadvantage

As research on the social determinants of health has shown, health outcomes are closely related to socio-economic status (World Health Organisation, 2012). Socio-Economic Indexes for Areas (SEIFA) scores suggest that Palmerston has many areas of socio-economic disadvantage. They also show large variability within the LGA, with a minimum census collection district (CD) score of 332 and a maximum of 1147. Palmerston was ranked 30 of 34 in the Index of Relative Socio-economic Disadvantage within the Northern Territory in 2006.

Table 4: Social and human capital – disadvantage (Source: ABS, 2008)

	Palmerston	Greater Darwin	Northern Territory
SEIFA Index (IRSD) score	412	995	878
Minimum IRSD score of CDs	332	332	205
Maximum IRSD score of CDs	1147	1147	1155
Rank in Northern Territory	30 (of 34 LGAs)		
Rank in Australia	412 (of 667 LGAs)		

Compared with Greater Darwin, Palmerston has a higher proportion of the population who are daily smokers (21.5% in Palmerston compared with 19.7% of the Greater Darwin population), and a higher percentage of people experiencing psychological distress (8.5% compared to 8.3% for Darwin). For other key measures, such as self-reported health status and proportion of overweight or obese persons, Palmerston rates are around the same as those of Greater Darwin (see Figure 9). However it should be noted that aggregation to the LGA level may be hiding higher concentrations in specific areas.

Table 5: Social and human capital – health (Source: PHIDU, 2010)

	Palmerston 2007	Greater Darwin 2007	Northern Territory 2007
Proportion reporting fair to poor health	10.0%	10.4%	Not available
Proportion of population that are daily smokers	21.5%	19.7%	Not available
Proportion of population that are overweight or obese	36.4%	37.5%	Not available
Proportion of population experiencing psychological distress ¹⁰	8.5%	8.3%	Not available

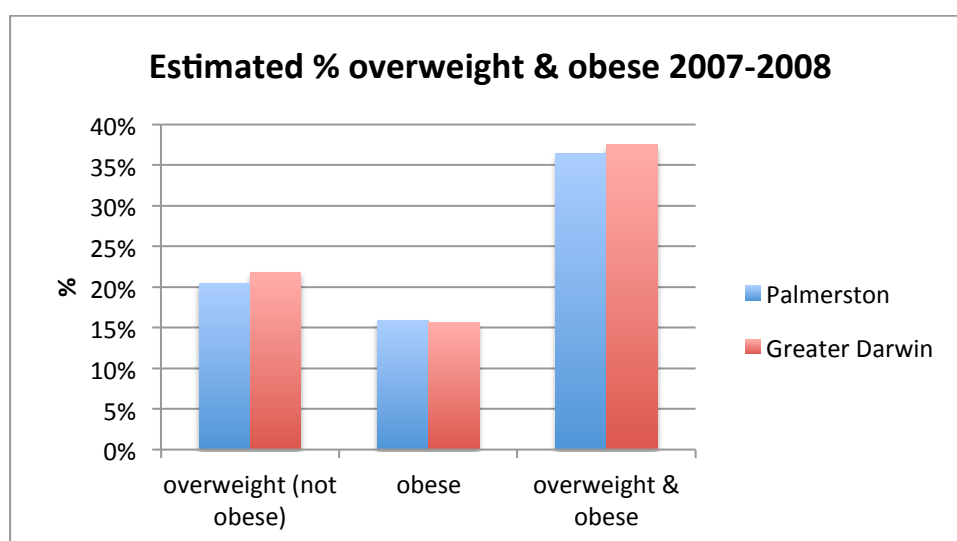


Figure 9: Comparison of estimated % overweight & obese (Source: PHIDU, 2010)

Employment and unemployment

Unemployment in Palmerston has been consistently higher than in Darwin. According to latest figures from the *Small Area Labour Markets Survey (SALMS)* (shown in

¹⁰ percentages are of people experiencing high or very high levels of psychological distress on the Kessler 10 scale

Table 6 below) Palmerston's unemployment rate in June 2012 was 2.1%, compared to 1.8% for Darwin.

As shown in Figure 10, unemployment decreased steadily in Palmerston between 2001 and 2011. In contrast, unemployment levels have plateaued in Darwin and increased in the NT between 2006 and 2011.

Table 6: Social and human capital – employment (Source: NIEIR, 2012; DEEWR, 2012) (Note: * data items marked with an asterisk use NIEIR data for the NT Darwin region, which comprises all of the Darwin CBD, all the suburbs and virtually all of the commuter and hobby farm belt; The NT Lingiari region has been used as a comparator for the rest of the NT, the area incorporated into this region is all remaining NT land outside of the NT Darwin region.)

	Palmerston (June 2011)	Palmerston (June 2012)	Greater Darwin (June 2011)	Greater Darwin (June 2012)
Unemployment rate	1.5%	2.1%	1.3%	1.8%
	NT Darwin region	NT Lingiari region		
Hours worked per week*	31.8 hours (2012)	18.6 hours (2012)		
Social security take-up*	10.7% (2012)	23.7% (2012)		

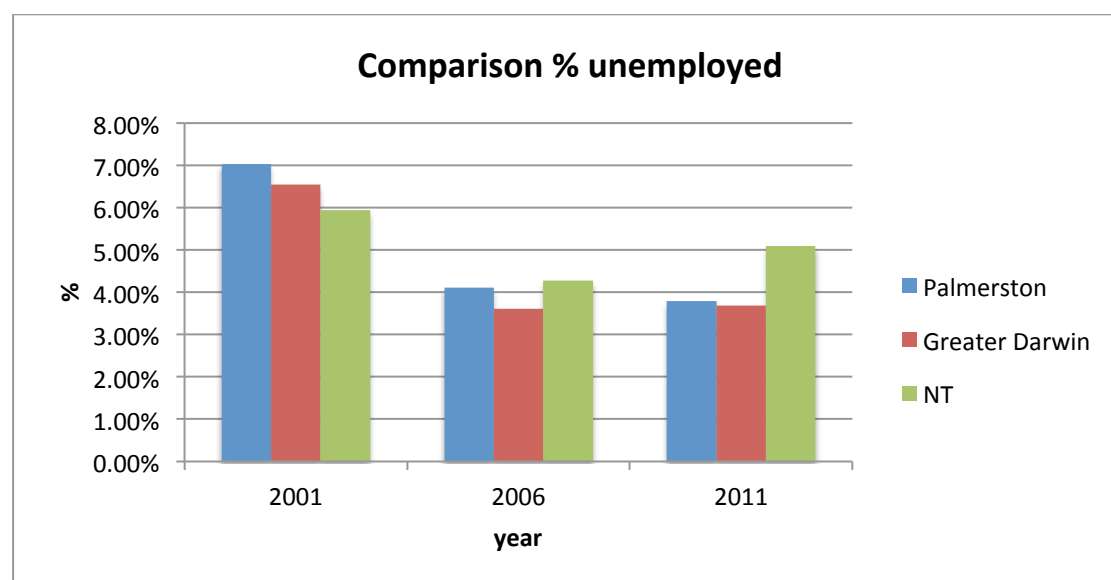


Figure 10: Comparison of unemployment rates (Source: ABS, 2007 & 2012a)

Security and crime

It is difficult to identify local level data on feelings of safety or security. Crime statistics provide some indication of the security or safety of an area, although it is well-documented that caution should be exercised when interpreting crime statistics, not least because they include only *reported* incidents.

The Northern Territory Department of the Attorney-General and Justice reports recorded offences down to the LGA level. For Palmerston, the figures recorded show an increase in general assaults and a decrease in sexual assault between 2006 and 2011. However, generally both types of offences (offences against the person and property offences) have been increasing since 2005. In the period between the 12 months to end of March 2006 and the 12 months to the end of March 2011, there has been a +81% change for total offences against the person, and a +31% change for property offences (see Table 7).

Table 7: Social capital - security and crime (Department of the Attorney-General and Justice, 2011) (Note: Figures are total number of offences for the twelve months from April to end of March of each year listed in Palmerston LGA)

	05/06	06/07	07/08	08/09	09/10	10/11
Offences against the person	281	301	404	450	468	510
Property offences	1,970	2,231	2,764	2,853	2,979	2,571

Economic indicators

Wealth and housing affordability

Standard of living is usually measured by disposable household income, adjusted for household size and controlling for housing costs. In the period between 2001 and 2007 household disposable income across Australia grew on average by 3.1% a year, accelerated to 6.5% per year during the GFC (2008–2009) and in the years since has dropped back to 1.6% (NIEIR, 2012). In the NT Darwin region (which includes all of the Darwin CBD, all the suburbs, including Palmerston, and virtually all of the commuter and hobby farm belt) this growth has been slightly higher, with disposable income increasing by a total of 6.1% in the period from 2007 to 2010 (9.1% in 2008–2009), and then decreasing by a total of 2.4% from 2010 to 2012 (NIEIR, 2012).

The National Institute of Economic and Industry Research (NIEIR) report calculates household wealth as the value of dwellings owned by residents of an LGA plus holdings in financial assets less the stock of household liabilities. As the table below shows, household wealth has increased over the last decade, though it decreased between 2007 and 2012. Household debt service ratios and the ratio of debt to income have also increased.

The 2012 (12 months to September 2012) average house price in Palmerston was \$485,000, compared to \$564,000 in the Darwin LGA and \$500,000 across the state. Median unit price trends reflect a similar pattern, at \$357,000 in Palmerston, compared to \$425,000 in the Darwin LGA and \$397,000 across the state. While Palmerston has a lower median property price than Darwin, there is variability between suburbs with house price averages of \$505,000 to \$561,000 in some of the newer suburbs in the LGA (e.g. Durack and Farrar) and compared to averages of \$420,000 to \$465,00 in older suburbs (e.g. Moulden and Woodroffe).

Table 8: Economic capital – wealth and housing affordability (Source: NIEIR, 2012) (Note: NT Darwin includes all of the Darwin CBD, all the suburbs and virtually all of the commuter and hobby farm belt); *represents growth in chain volume measures using ABS methodology).

	NT Darwin 2001	NT Darwin 2011
Wealth per household*	\$367,000	\$654,000
Household debt service ratio	9%	12%
Household debt to gross income ratio	0.72	0.94
Average dwelling price	\$218,200	\$446,100
Average dwelling price to household disposable income	1.8	2.4

The proportion of Palmerston households experiencing mortgage stress¹¹ is significantly lower than in Greater Darwin and the Northern Territory as a whole. While the proportion of Palmerston households experiencing rental stress is only slightly higher than in Greater Darwin and about 4 percentage points higher than in the Northern Territory overall (see Figure 11 for a comparison). In 2006 in Palmerston, 0.8% of mortgaged owner-occupiers and 14.3% of private renters were classified as being in mortgage or rental stress.

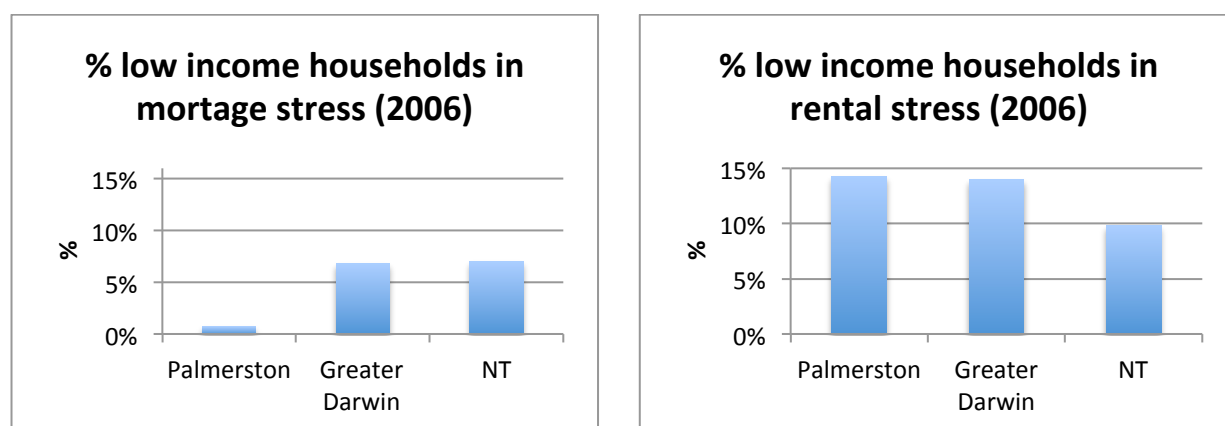


Figure 11: Comparison of low income households in mortgage and rental stress (2006) (Source: PHIDU, 2010; ABS, 2007)

Palmerston has a higher percentage of dwellings rented from the government housing authority than Greater Darwin (9.9 % compared to 6.9%), but a lower percentage compared to the Northern Territory overall (12.3%). However, as

¹¹ The definition of ‘mortgage stress’ or ‘rental stress’ encompasses those households in the bottom 40% of income distribution (with less than 80% of median income) that are spending more than 30% of household income on mortgage or rent.

Table 9 below shows, between 2006 and 2011, the proportions of government rental housing in Palmerston and Greater Darwin decreased significantly, as public housing was sold off and not replaced. In 2006, the percentage of dwellings rented from the government housing authority was significantly higher in both Palmerston (13.1%) and in Greater Darwin (11.7%).

Table 9: Economic capital – housing (Source: PHIDU, 2012; ABS, 2012a)

	Palmerston	Greater Darwin	Northern Territory
Dwellings rented from the government housing authority	13.1% (2006) 9.9% (2011)	11.7% (2006) 6.9% (2011)	8.3% (2006) 12.3% (2011)
Dwellings rented from the government housing authority (% change 2006-11)	-24.5%	-41.3%	+48.1%

Transport and infrastructure

The 2011 Census indicates that Palmerston has a higher proportion of work trips made by car than both Greater Darwin and the Northern Territory as a whole. Only 3.9% of the working population use public transport to travel to work, emphasising the high car dependency in Palmerston. As shown in Table 10, levels of public transport use are similar to the Darwin and NT averages, whereas walking as a mode of transport is significantly lower in Palmerston.

Table 10: Economic capital – transport (Source: ABS, 2012)

	Palmerston	Greater Darwin	Northern Territory
Car as driver	67.7%	63.1%	56.3%
Car as passenger	7.3%	7.3%	7.9%
Public transport	3.9%	4.0%	4.0%
Walking	2.3%	4.9%	11.0%

Access to broadband Internet connections is a common measure of communications infrastructure. The uptake of broadband services increased rapidly between the 2006 and 2011 census periods. In 2006 37.9% of Palmerston residents had access to a broadband Internet connection; this increased to 72.7% in 2011. The proportion of residents with a broadband connection is higher in Palmerston than in either Darwin or the Northern Territory as a whole (see Figure 12). The rate of uptake in Palmerston (a 128.3% increase between 2006 and 2011) was also higher than in Darwin (115.2%) and the Northern Territory as a whole (113.6%).

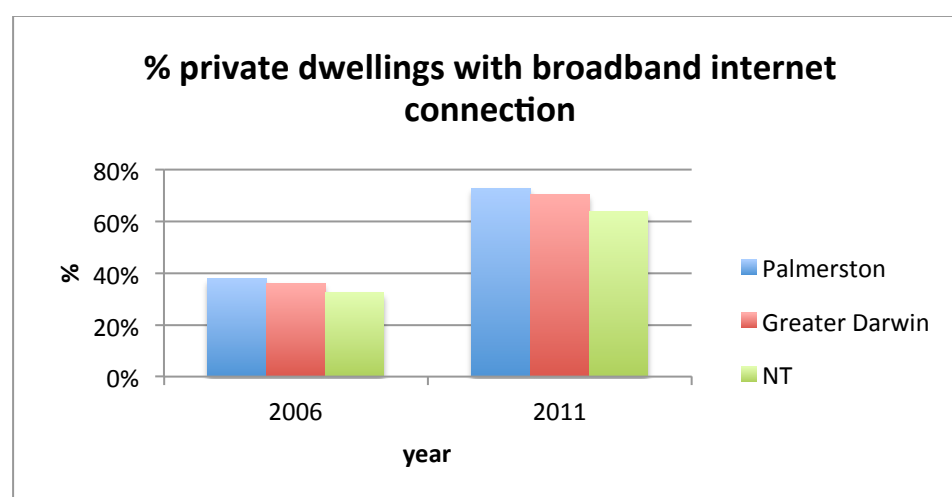


Figure 12: Comparison of broadband internet connection (2006 & 2011) (Source: ABS, 2007 & 2012a)

Productivity

Data regarding Palmerston's contribution to productivity in the Darwin region is not available. The dominant industry employers in Palmerston are defence (10.1%), Territory Government administration (6.9%), school education (4.6%), and public order and safety services (4.4%) (ABS, 2012). Three key industries for the Darwin region are mining (value of production estimated at \$561 million in 2007-08), tourism (visitors spending an average of \$818 million per annum) and agriculture (value of production estimated at \$117.6 million in 2008-09).

Business innovation

Local-level business innovation data is virtually non-existent, unless it is collected through small, locally based surveys. Patent counts per population are often used as proxies for innovation, but these are not necessarily representative of all innovation, as patents are only used in certain types of innovation (technology-based and radical innovative activity) and exclude other more common forms of innovative activity such as service or organisational innovation. The NIEIR State of the Regions report calculates 10.4 patent applications per 100,000 population for the NT Darwin region (applications between 1994–2011), this compares with the Australian average of 21.01.

Stakeholders

Stakeholders were identified from a process of stakeholder mapping. A long list of stakeholders was identified from this process. This list was refined and selected stakeholders were invited to participate in an interview.

A total of 13 stakeholder interviews were conducted from 12–16 November 2012. The list of stakeholders interviewed is shown below.

Table 11: List of stakeholders

Interviewee	Position and Organisation	Role of organisation	Category
George Maly	Manager Palmerston Planning, Department of Lands, Planning and the Environment	NT government agency	Planning
Jay Fitzgerald-Gaston	Manager, Research, Urban Housing Policy unit, Department of Housing	NT government agency	Social
Jack Schafer	Policy Officer, Department of Housing	NT government agency	Social
Shaan Novak	Manager, Public Transport, Department of Transport	NT government agency	Planning
Ben Mountcastle	Project Officer, Public Transport, Department of Transport	NT government agency	Planning
Wayne Zerbe	President, Palmerston Regional Business Association	Business Association	Economic
Pam Robinson	Environment and Climate Change Strategic Planner, Palmerston City Council	Local Government (employee)	Environmental
Paul Bunker	Deputy Mayor, Palmerston City Council	Local Government (elected)	All
Kate Peake	Executive Officer, Regional Development Australia NT	Commonwealth Government coordinated committee	Planning
Toni Vine Bromley	Executive Officer, NT Shelter	NGO	Social
Sue McKinnon	Alderman, Palmerston City Council	Local Government (elected)	All
Chantal Bramley	Top End Regional Coordinator, Territory Natural Resource Management	NGO	Environmental
Richard Horton	Environment Project Officer, Environment Protection Authority NT	NT government agency	Environmental

Positive and negative views about population growth

There were a range of views about the positive and negative impacts of rapid population growth in Palmerston.

Many stakeholders were positive about the way in which the development of Palmerston had provided a more affordable place to live at a time when housing prices in Darwin were rising and becoming out of reach for many. Many also suggested that the residential development that had occurred in the area since the 1980s had helped to create a more mixed community, compared to the previous period in which the area was characterised by its concentration of public housing. Many felt that encouraging more of a demographic and socio-economic mix had helped to lift the overall 'feel' of Palmerston, and had improved the area's previous 'reputation' as the struggling, 'poorer cousin' of Darwin.

On the other hand, stakeholders pointed to a range of negative impacts. These were not necessarily associated with population growth per se, but were generally seen as the result of the particular kind of development that had been implemented in Palmerston in order to accommodate the growing population of the area. In particular, stakeholders felt that the development had been poorly planned because it was highly car dependent, with insufficient local employment for residents meaning that many were commuting by car to Darwin. Many stakeholders pointed to the negative environmental impacts of high car dependence, as well as the difficulties faced by Palmerston residents who do not have access to a car and are reliant on limited bus services.

There were also a number of concerns about the social impacts of past development policy in Palmerston. While most stakeholders could see the benefits of diversifying the demographic make-up of the area, many pointed out that the government had achieved this by selling off large numbers of public housing dwellings, without building replacement properties elsewhere. As a result of this policy, those areas of Palmerston that had formerly comprised concentrations of public housing may now be more mixed, however because demand for public housing has continued, the waiting list has simply grown in response to the reduction in the number of available dwellings. There were also some concerns about the social impact of high concentrations of defence housing in the area, particularly centred around the perception that these residents are typically transient and therefore difficult to engage in community consultation and community development activities, and that defence housing is typically new, large and relatively luxurious and so creates a stark contrast with older, smaller public housing dwellings, potentially contributing to feelings of social division. A number of stakeholders also pointed to the tendency to develop new residential areas in Palmerston without simultaneously developing the range of services and infrastructure, including social services and public transport, that would be needed by the residents who moved there. This had led to what many saw as a shortage of services in Palmerston, creating challenges for lower income residents who may find it difficult to access services in Darwin.

Many stakeholders pointed to what they saw as a poorly regulated planning process in which developers had exercised excessive influence. The kind of development delivered as a legacy of these processes was seen to be less than ideal, particularly in terms of social and environmental sustainability. There were a number of comments about planning and governance arrangements for Palmerston, and some stakeholders suggested that many of the current challenges may be partly the result of the unique planning environment of the NT, in which a very large geographic area with a very small population is served by three levels of government that have not always worked well together, and in which the NT Government is small and relatively lacking in resources and capacity compared to the state governments. The fact that Territory self-government is a recent phenomenon was also suggested as an explanation for why environmental planning and regulation in the NT is not as developed or effective as in some states. Stakeholders also pointed to tensions between the local council and the Territory

Government, arising because the council is keen to influence the future direction of planning and development in the area but has no planning powers.

In particular there were many negative comments about the way the Palmerston CBD had been developed. Some of the features of the CBD that stakeholders pointed to as part of the legacy of a poor planning process included the large areas of CBD land dedicated to surface car parking, the lack of an accessible, legible layout with an activated, 'main street' feel, and the lack of activity in the CBD after business hours. A number of stakeholders felt that future planning strategies should attempt to address these issues by encouraging higher density, mixed use development, including residential development in the CBD.

Stakeholders suggested that any remaining available residential land in Palmerston would be taken up (developed or planned for development) by 2016, with many feeling there was a need to start developing some effective planning for the kind of infill or higher density development that might be necessary in Palmerston after this point.

These issues are discussed in greater detail in their respective theme categories below. Quotations from the stakeholder interviews are used throughout the text to provide further illustration. Quotations are shown in *italics*.

Governance and the planning system

A number of stakeholders commented on the nature of the planning system in the NT, suggesting that at times it can operate as a barrier to strategic and effective planning for development and population growth.

'It's not really a great relationship between federal, Territory and local government. The NT is probably not an ideal place to have three tiers of government, given how small the population is. Relationships between the shires [rural local government areas] and the Territory Government have definitely not been good.'

Some felt that the NT Government did not recognise the diversity of functions of local government:

'I think the NT Government sees local government as just roads, rates and rubbish, you know, that old perception. But then they are also expected to pick up a lot of services that don't fall within those three areas. And they really don't get recognition when they do.'

Others suggested that while they have little power, local councils are often burdened with the responsibility for longer term maintenance of various aspects of the local infrastructure, and that this can affect their willingness to adopt particular measures.

'What gets transferred to council is mostly the costly things, and so there is a resentment with the Territory Government about that. And it has consequences for later. As an example, there are some drainage ponds in one of the developments that have become council's responsibility to maintain, but they have filled up and council doesn't have the funding to clean them out. So this means other new urban design features that get suggested by the Territory Government aren't really taken up, because there is a fear that something similar will happen and council will be left with responsibility for them in the long term'

There was particular comment, and some frustration from a number of stakeholders, that local governments do not have planning powers in the NT:

'Local governments would definitely like to have the capacity to drive development in their local area, but they aren't really given a place at the table to make those decisions. That's very frustrating.'

'Local government doesn't have planning powers. They play a really important advocacy role, but that can be quite limited.'

'Unfortunately all our planning here is controlled by the Territory Government. Council might want to do more infill development in Palmerston, but those kinds of planning decisions are out of council's control – all those decisions are made by the NT Government'

'We are still really lacking in community facilities, and open space. But because council doesn't have planning rights, it can't address a lot of the issues – so that's frustrating'.

For many, this situation was less than ideal because planning decisions are made with little involvement from the level of government that is in many ways closest to the community as has a significant investment in the outcomes:

'Local governments are really quite powerless in the NT. I'm not sure if it's part of the reason, but what we have really lacked here is that level of community involvement in strategic planning. For example, there has been a lack of detailed information about the [NT] government's Greater Darwin regional plan. So I don't think the community has a sense of where the government is going in terms of a long-term framework – hence the reason for a lot of the ad hoc development that we see.'

Similarly, some did not think the NT Government had sufficient local knowledge to make these detailed planning decisions:

'Planning decisions are made by the NT Government, and I think planning in Palmerston is a bit of a stretch for them. The Minister might receive a well thought out town plan, but that Minister doesn't necessarily have the local knowledge or expertise to make decisions at that level. So town planning seems to be relatively short-term vision, and that means developers end up having a lot of say.'

Some stakeholders pointed to the ongoing discussion about the need for a new plan for the development of Palmerston CBD as evidence of the inefficiencies and lack of coordination in the planning system. While the NT Government prepared a city centre area plan for Palmerston, Palmerston City Council then commissioned a new and separate CBD master plan. The plan was commissioned because even though council has no planning powers it has strong views about the kinds of changes that are needed in the CBD. As one stakeholder put it:

'So now there are two plans, and they are a bit at odds. There is a process now of trying to mesh them together.'

'The council has no planning powers, but they have developed their own vision for the CBD, so now they are lobbying the Territory government to get it to ratify the master plan into planning scheme.'

Another aspect of the planning system on which stakeholders commented was the allocation of funding under the Commonwealth's Regional Development Australia (RDA) program. As one stakeholder pointed out, because there is only one RDA region in the NT, the Regional Plan, which guides allocation of funding for the Territory, *'covers such a large area that the plan is by necessity very broad'*.

Further, there can be a difference of views about the status of Darwin within this funding program, depending on one's perspective:

'The Regional Plan doesn't have a specific focus on Palmerston – it tends to view Darwin and Palmerston as one regional centre, one that shares many services. Also, the public perception in the Territory is that RDA funding is for 'regional' areas and locals don't necessarily see that as including Darwin and Palmerston. So while Darwin and Palmerston may be seen as 'regions' from a Canberra perspective, from the local perspective those areas are the capital city! For locals, 'regional' means far more remote areas. This is especially an issue in the NT where there are such high needs in the more remote areas of the Territory.'

Another governance issue raised was the suggestion that the capacity of the NT government – at least compared to that of state governments elsewhere in Australia, was relatively limited:

'One of the issues that NT suffers from is the kind of government we have here means that the level of growth has probably been too much to keep up with. The Territory government has a capacity issue – we are very young in terms of how long we have had [self-government] so there is that maturity issue. And the NT government still doesn't have the authority to make certain decisions.'

Further, it was suggested that because the population in the area tends to be fairly transient, with people coming to work in the NT for a few years and then moving away, it can be a challenge to maintain sufficient bureaucratic skills and capacity:

'We have a problem in the Territory with the level of turnover we have in the public service. That means there's not a lot of long-term corporate knowledge or understanding of local issues, and environmental issues.'

Community engagement

A number of stakeholders perceived the population of Palmerston to be fairly transient, with a high turnover as many people come to the area for a few years – for example as employees in mining or defence – before moving on. Some suggested that the transient nature of the population resulted in 'a lack of community networks' in Palmerston and 'not much in the way of engagement'. Stakeholders noted that Palmerston Council was undertaking some community development activities, however some felt that the transient nature of the population reduced the capacity for the community to be engaged with and participate in decisions about planning and development. As one put it:

'The high population turnover means the usual accountability to the community isn't there. It's hard to consult with the locals to ask what they want. Parents for example – you might think they would be interested because the future might affect their kids, but then if they are not planning to stay in the area for long they won't necessarily get involved. Also we don't really have an older community to consult because older people often move south – they find the climate too difficult. And the Aboriginal community is quite ostracised and marginalised. So lots of groups are not well represented in consultations. And because they are so transient, you can consult, but when you go back later it's likely to be completely different people.'

Another also pointed to the low level of community involvement in the area, suggesting this contributed to a lack of respect for the area on the part of government and developers:

'There have been some local community groups formed recently, but in general it is very difficult to get that social perspective [on plans or proposals for the area]. I think that means there really hasn't been that much respect for the area.'

Influence of developers

There were a striking number of comments from various stakeholders that pointed to a common perception that development in Palmerston has largely been 'developer-led'. Many felt that developers have had excessive influence on the process:

'The private sector plays a large part in guiding development. And politics. Palmerston centre was masterplanned – but the way land has been released, has meant that the private sector has been able to develop the way they want.'

'In a smaller community everyone is a bit closer, and the players are more likely to know each other. So in that sense the political system here allows for developers to have a greater level of influence on what happens.'

'Like in the southern states, development here has been very private investor driven. The system of governance we have here is expensive to run, and enforcement is expensive. So developers have ended up paying for lots of infrastructure and growth and they have therefore had some ability to do as they please.'

For many, the level of influence that developers have exerted on the process has produced some negative outcomes – both for the community and in terms of sustainability. There was a perception that some planning decisions had been 'political' rather than good examples of strategic planning for the benefit of the community.

'It's been developer-led development. Which has really meant ramping up the residential development but ignoring the bigger picture in terms of social planning and social outcomes.'

'The NT Government is pretty connected to developers.'

'[Name of development removed] was a political deal, and a lot of examples of poor planning here have been the same kind of story. But that's the Territory – that's how it happens here.'

'These developments tend to happen in the dead of night. We need better consultation, and a bit more transparency to the system.'

'Developers built suburbs here that look exactly like the suburbs they build everywhere else in Australia. Some developers even got away without putting in any street trees.'

'Development has been very developer led. That's why for example the footpaths are not there, or they're very narrow. It's only very recently we've even had an Environmental Protection Agency in the NT.'

'I don't think transport planners had much influence in the past. Development was very developer-led, with the [Government's] attitude being 'let's just get the land out there in order to get the developers in'. So public transport is an afterthought – the planning for it has happened after the development.'

There was some evidence that this perception, while still common, may be slowly changing. For example, one stakeholder suggested that government transport planners now work more closely with developers to ensure that developers include some transport infrastructure (such as bus shelters). Another pointed to the establishment of the EPA as evidence of the recognition of the need for an independent body to advise on matters of ecologically sustainable development, and to the recent reports that the EPA has produced on ecologically sustainable development, and on how to improve environmental assessment in the NT (Environmental Protection Authority 2010a, 2010b, 2010c). Another suggested ideas about sustainable development were slowly being taken up:

'Definitely there is now greater recognition of that need to plan from the outset for a good quality urban environment – so now we are seeing the development of guidelines for walking neighbourhoods and so on. [There is more understanding of] contemporary planning theory and ideas about walkable neighbourhoods and liveable neighbourhoods.'

Further, a number of stakeholders pointed to the apparent shelving of the proposed development at Weddell¹² as evidence that government planners had learned some lessons about the need to plan for more sustainable outcomes, including halting the continued 'sprawl' development in favour of more infill. Many stakeholders seemed to feel that this was a positive, because the proposed site was so far from Darwin and Palmerston that building there would be another example of poor planning that would create additional low density sprawl, and another car-dependent community with poor services, infrastructure and transport links.

'I think Weddell was really premature – we can do a lot of infill before we look at moving further out. We have very low rise development in Palmerston, and if we are going to be a city we really need to grow upwards not just outwards. There are some key areas [in Palmerston] that could develop into medium to high rise service areas. They would be near transport, the university and workplaces, and that would start to build up the level of activity in the centre.'

'I think there's been a recognition that urban consolidation needs to happen first, before we go about creating another city. That way we might not need to look at something like that [new development at Weddell] for another 20 years.'

Land use and layout

Many stakeholders referred to Palmerston as an example of relatively poor planning – although some pointed out that it *'simply reflects the planning theory of the time'*:

'In the 1980s it was a no-no to build a straight road. So we have lots of cul-de-sacs. At the time, some people perceived cul-de-sacs as safer.'

As many pointed out, however, there are a number of negative legacies of this type of planning:

'We have lots of cul-de-sacs and little windy roads, and that kind of design is incredibly car dependent'.

In general stakeholders perceived the land use planning that had occurred in Palmerston as poor:

¹² The previous NT government had proposed a new satellite development at Weddell (approximately 40 kilometres south east of Darwin). However many stakeholders suggested that since the change of government, this development is now rumoured to have been put on hold by the newly elected government.

'The character of Palmerston is very ad hoc, because there hasn't been any real strategic thinking or planning. There were boundaries and then they just said 'build within the boundaries'.'

Some stakeholders pointed to the increasing competition for open space that has accompanied the growth of Palmerston:

'We are beginning to see more competition for open space. Palmerston was originally planned with plenty of open space. But more recently we have seen more need for sharing of open space between community and schools. Sporting facilities are also starting to invade some areas of open space.'

Others noted that the open space available was not always of high quality:

'When subdivisions were developed, there was a specification about the proportion of open space that must be included. But because of the topography and the expense involved in using some kinds of land, developers have tended to identify the most constrained land – the sloped or the flooded areas – and say that's the open space.'

CBD design

While stakeholders perceived the land use planning in Palmerston as a whole to be poor, they were particularly critical of the design of the Palmerston CBD, with more than one stakeholder using the term 'a dog's breakfast' to describe the outcomes of the development that had occurred there:

'Look at development in Palmerston – it's a dog's breakfast, because planning has been so ad hoc. Palmerston just started with one building and a water tower. Since then it's very much been developer led and government has just let them do it. There has been no master plan as far as a design concept for the city.'

'The CBD is a dog's breakfast. There was a plan, but Palmerston grew so fast that the developers somehow just put things anywhere. Now we just have to live with it. There isn't a good ratio of commercial space to residential, and there's not enough office space. And the CBD is really just dead after hours. Ideally we would fill in the CBD much more – with higher density apartments, offices and hotels. That would make the centre more active.'

'It's a poorly designed CBD. And the layout is now really constrained by the road infrastructure, so it's relatively difficult to expand or redesign now.'

'Palmerston was envisaged as a city but it wasn't built as one. So it's always functioned as just a suburb of Darwin. There has been some effort to grow the CBD, but there is not a huge amount of employment or business infrastructure there. The government infrastructure came later [after the residential development] and now the CBD is coming up against land constraints so it can't really be grown much.'

For many stakeholders, the failure to plan for and develop a higher density CBD in Palmerston has contributed to the current lack of activity in the CBD:

'Palmerston is still evolving. From a social point of view – there is no residential development in the CBD – so if you come into town after 6pm, it's a ghost town. We need to have more of that interaction, activity and movement in the CBD, because that brings security, and that brings more people. Once people start living in the CBD, you get a critical mass of people, and then people start opening cafes and other services. You can't build those amenities first because they'd be empty, you need to have people living in the area first and creating that critical mass and that activity.'

Many felt that higher density infill development in and around the CBD would help to address some of these issues:

'We are really seeing the impacts of the types of development that happened in the centre – it is really not a good example of an activity centre. We need to do much better to create a sense of place, and an attractive urban environment. We need to get some infill development – residential development – in the CBD.'

'Low rise sprawl development can create environments where there can be vandalism and anti-social behaviour because the houses are so spread out and there is no real ownership or overlooking of those spread out 'communal' spaces. It is when you have more density and lots of people around that there can be better surveillance and security.'

A number of stakeholders pointed to the need to 'activate' the Palmerston CBD, with some referring to Palmerston Council's CBD Masterplan as one current attempt to address these issues. However as council has no planning powers, the decision on whether to endorse the CBD Masterplan rests with the NT Government – something a number of stakeholders found frustrating.

There were some positive comments about some aspects of the Palmerston CBD, with a number of people mentioning the outdoor market space as a positive addition (paved areas for stalls have been provided, with access to power points).

'The library and market space in Palmerston have been very well designed and that has really helped to link the different spaces that people use.'

Others suggested local examples of good CBD planning that could be replicated in Palmerston:

'There are some clear opportunities to create links between more places in Palmerston. One way is by creating shaded walking corridors to help keep people out of the sun – they've done this in Darwin for example. If you create those kinds of spaces then it helps to encourage and grow the different kinds of activities that can happen there.'

Need for higher density development

A number of different stakeholders commented on the need for more higher density and infill development in Palmerston. For some stakeholders, higher density development was seen as a means to better 'activate' the centre of Palmerston, as discussed above, while others suggested it would be a more economically sustainable approach:

'The current satellite model of development makes it very expensive to deliver infrastructure and services. And our power bills here are already high enough!'

'Why spend so much money on expanding all the infrastructure further and further out, when you can instead concentrate on infill, where you already have the infrastructure?'

Others simply saw infill development as inevitable because *'new land is running out'*:

'Palmerston is constrained. Moving out in different directions you either hit the Stuart Highway, the river or the rail line. The new suburbs that are already planned will have to be pretty much the last – once they are finished we are going to need to start infilling.'

However some suggested that the benefits of higher density development were not well appreciated by government:

'We've seen the developers that are from interstate introduce more of a mix of lot sizes – from 400 to 800 square metres. It's a better use of land, because residential lot sizes in Palmerston are generally 800 square metres. But there have been cases where smaller lot sizes have been opposed by the Development Consent Authority. The Authority took the view that the developer was ripping off the community with smaller lot sizes.'

Others reflected on how unpopular higher density development also seems to be with the community, and on the need to better explain the benefits of this kind of development:

'People often don't like high density growth – or they think they don't because they've seen examples of it that have been really poorly planned. But high density, if it's planned well, it can be very positive.'

'When you talk about building high rise or duplex, then you get an outcry from community. But we can't keep on sprawling. We really need to look at infill. We need to educate the community about some of the negative impacts [of low rise sprawl]. Because the community thinks that sprawl just gives them more space.'

'The general population probably shouldn't have that much say in town planning. Because they don't realise that Darwin actually does have a space constraint issue. It is very land locked, and it's constrained by the port, the mangroves, and the tidal areas. So we need to start thinking about higher density.'

With the apparent shelving of the proposed development at Weddell, many stakeholders expected some form of infill development to be the next stage of development for Palmerston, with some suggesting the recent change of government had made this new approach more likely.

Active and public transport links

Poor public transport connections to Palmerston were a concern for many stakeholders:

'The public transport system is better than it was, but it hasn't grown to meet the growth of the population in Palmerston.'

'There is a bus service, but it's not that great.'

'It's not really feasible for people to catch the bus from Palmerston to Darwin for work.'

Palmerston to Darwin bus routes do not experience a commuter peak hour, as the large majority of commuters travel to Darwin by car. Bus travel is free for seniors, pensioners, people with a health care card and students, so these groups make up a high proportion of the bus users.

Stakeholders reported that the current public transport (bus) service network is at capacity – that is, there is no capacity to expand current scheduling without additional funding. Currently, as new development occurs, the general approach is to make a minimal deviation to existing bus routes to take them into the edge of that new development, with little capacity to go further than this.

The lack of a bus service is a particular problem for some groups in the community without access to a car:

'When refugees arrive here, many of them are living in town near Casuarina or near the University to study English. Mission Australia runs a job connection network in Palmerston, so many of them want to access that, but it is quite difficult for them to get from Casuarina to Palmerston by bus. The service is poorly signposted and the odd location of the bus terminal in Palmerston means that when they get off the bus it's really not clear where they are or how they should get around, there are no maps or directions or anything.'

Stakeholders acknowledged that residents in newly developed residential areas wish to see the bus service provided from the time they move in, however because these areas are populated slowly, the NT Government may not always see it as feasible to provide a service until the population reaches a certain level.

The layout of Palmerston has also made providing efficient bus routes challenging. As one stakeholder put it, the practice of 'backfencing' (using fences to divide houses from the main streets, and facing them onto smaller roads and cul-de-sacs instead) is not optimum from a transport planning perspective:

'In some of these older Palmerston suburbs, all of the streets have been back-fenced so that means the buses can't go down the main corridors, and its therefore a very circuitous route that they have to take.'

Stakeholders reported that while a light rail corridor had been provided between Darwin and Palmerston, light rail was unlikely to be provided in the near future because of insufficient population densities.

Stakeholders also pointed out that the area was in general not a good example of a 'walkable' design:

'I don't think the masterplan was informed by the needs of people – for example, there might be services within 400 metres, but you won't find a footpath to get to them.'

The footpaths in Palmerston are very narrow – not wide enough for two mums to walk side by side with prams for example – and then we have some people on motorised scooters. There's really not much room. That's the kind of infrastructure where there needs to be better investment.'

However there were some positive comments, with some stakeholders noticing that some of the new developments had incorporated bicycle paths, and pointing to good bicycle paths between Palmerston and the defence barracks, enabling many defence employees to cycle to work.

Many stakeholders pointed to the need to address public transport provision in order to improve the sustainability of Palmerston into the future:

'We need to create a much more practical urban environment, with proper transport links. Transport is definitely an issue of the future.'

High car dependence

Overall, many stakeholders felt that the planning of Palmerston has created a very car dependent community.

'The lack of employment in the area means most people are commuting by car to Darwin.'

'Everyone drives in Palmerston. There's not a good enough public transport infrastructure to encourage people to take public transport. So every house has a high number of cars – that's a legacy of the poor planning. So everyone is driving and Palmerston is becoming a big car park.'

'The bus service is just not satisfactory. The road network and bus network is good, it's just not frequent enough. You can't really get home to Palmerston from Darwin after 10 pm. So car dependency has really been planned in to Palmerston.'

High car dependency has a number of negative implications. As some participants pointed out, *'road infrastructure is expensive – large amounts of money have been spent on the roads'*. Others felt that further improvement was needed to the road infrastructure given the numbers of people driving between Palmerston and Darwin:

'New road works have been completed so there is now a two lane dual carriageway connecting Palmerston and Darwin, but there still needs to be a lot more work on the roads to increase the flow of traffic.'

Another implication of high levels of car dependence is the need to dedicate large amounts of land to car parking. A number of stakeholders commented on the issue of car parking in Palmerston, with many pointing out how much land is used for this purpose:

'If you look at the [Palmerston] centre from the air, it basically looks like half of that whole area is just a big flat car park.'

'One of the main issues in Palmerston is parking. None of the buildings were planned to include underground car parking. So a large proportion of land in Palmerston is actually a car park. There just wasn't the necessary forethought and planning. But people who use those buildings all drive there. And they need somewhere to park, so we are stuck with these vast expanses of concrete car park.'

Palmerston City Council is attempting to address the issue of car parking by developing a strategy to ensure that all future development caters for its own car parking, for example, by incorporating underground car parks, as well as providing for some public car parking. However as noted above, because council does not have planning powers, this kind of strategy will need to be negotiated with the Territory Government and developers.

Environmental issues

Awareness and regulation

Many stakeholders suggested that environmental issues, including those associated with population growth and development had a relatively low profile in the NT:

'The idea of sustainability has really not taken hold up here. There is no real education at the community level. A lot of politicians and bureaucrats don't have any respect for the environment, and that means nothing is going to really happen.'

'No-one has really been driving the environmental agenda up here. The Territory Government has good intentions, but nothing is really happening. And local government doesn't really have the capacity.'

A number of stakeholders suggested that environmental legislation in the NT is a lot weaker than it is in the states. Several pointed out that the NT Government is quite young, whereas the states have had far longer to develop more rigorous regulatory systems and processes to protect the environment. One stakeholder suggested this made interstate developers more aware of the issues:

'There is not much real awareness of those issues of environmental impact here in the Territory. I think the developers from interstate are more respectful of the environment – I suppose because they come from a place where there is a lot more environmental regulation.'

One stakeholder pointed to a recent review of environmental assessment processes in the NT (EPA 2010), which found that relative to other jurisdictions, NT legislation is outdated – particularly with regard to safeguards for community development and environmental assessments:

'Developers have had to do Environmental Impact Assessments, but there is no obligation for the results of the EIA to be addressed. And the legislation has not been clear enough in spelling out what types of developments need to comply. So it is pretty well recognised that the planning processes used in the development of Palmerston leave quite a bit to be desired.'

Some speculated that this lack of *'maturity in the system and the regulations'* meant *'there is potential for people to undertake development works without quite as much rigour'*.

Many stakeholders expressed a wish to see improved processes for assessing and minimising the environmental impacts of development, with some suggesting that there was an increasing recognition of this need:

'I think strategic environmental assessment would help for the long-term development of the region and help with the environmental protection. It could offer some major benefits.'

'There is definitely room for the environmental protection legislation to be better developed in the NT.'

'In recent years there has been a recognition that there is a need for systemic reforms in regards to environmental legislation.'

One important recent addition to the regulatory framework for environmental management is the NT EPA. While it is a relatively young organisation, having only been established in 2009, many stakeholders saw it as playing an important role. To date, the EPA has played a review role, providing advice on sustainable development and responding to issues rather than having any responsibility for making decisions on assessments.¹³

Environmental impacts of development

Stakeholders pointed to a number of negative environmental impacts of development. A number mentioned impacts at the catchment level, including erosion:

¹³ The structure and role of the EPA is set to change following the recent change of government in the NT, however the new role is not clear yet.

'Development [in the Mitchell Creek catchment] has caused severe erosion. That construction is happening inside a natural habitat – these are pretty much virgin ecosystems, because they have never been cleared. So building housing and roads in that kind of environment inevitably has environmental impacts.'

'The catchment runs North–South, but most of the roads have run East–West. So we see ongoing construction works for services through the natural environment and across the natural flow of the creek.'

'Mitchell Creek is an area of steady development and the growing population is putting a lot of pressure on the creek. I think there has not been enough planning for the management of the Creek. The [local urban landcare group] has been actively trying to raise this issue.'

'The area is over 40 metres above sea level and the land runs steeply to Elizabeth River and Darwin Harbour. So it is a fairly sensitive area to be putting development into, especially because of erosion. The ecosystems have been fairly well maintained up until recently but when we start clearing whole swathes of land we see significant impacts.'

Some pointed to the problem of salvinia (which has been designated by the federal government as a weed of national significance) in the artificially built lakes at the Palmerston suburb of Durack. A number of stakeholders suggested there was some conflict or tension about these lakes, caused by the different values of different stakeholders:

'Council has tried biocontrol which is a more natural way of controlling weeds. But it is very slow and there has been pressure from residents to clear it more quickly – because for them it's just an aesthetic issue. So that is really competing with the environmental approach. But it's hard because the lakes were constructed in the first place for aesthetic reasons. So people have been sold that idea.'

'In Durack, there are a series of lakes. Residents have been sold that in the brochures and so on as a beautiful place to live. But council really sees them as drainage ponds, so there is a conflict.'

Another specific impact mentioned was increased runoff:

'The more we expand those areas of development, the more we increase runoff, because there are much greater areas of concrete and bitumen, paving and driveways and roads, and all that runoff can cause increased pollution of the local waterways.'

Others pointed to the biodiversity impacts associated with the encroachment of residential development into larger areas of the natural environment.

'Urban sprawl – that's the hugest environmental impact.'

'Urban sprawl affects connectivity and biodiversity, and reduces wildlife corridors.'

'There is concern about the threat to some of the rare types of eucalyptus in the area. The corridor buffer zone was much wider when the developers first came in, but recently we have really seen it dwindle down, so that is a concern.'

Environmental constraints on land

A number of stakeholders pointed out that while it may appear as if there is plenty of land available for development between and around Darwin and Palmerston, much of this land is constrained and unsuitable for residential development. Constraints mentioned included water logging and flooding (the area receives very high rainfall within a short period during the wet season), excessive slopes, mangroves, native title claims and the presence of biting insects (particularly along the coast). One stakeholder reported that 'constraint maps' of the area (showing the various constraints on land that make it unsuitable for development) show only very small areas suitable for residential development between Palmerston and Darwin.

Water supply

A number of concerns were raised about the water supply, and the capacity for existing sources to service a larger population in line with forecast population growth. One stakeholder suggested '*we have one dam, but our population is really outgrowing that*'. Another felt that '*with the Barracks growing and the influx of mining workers and Inpex¹⁴ workers there will be more pressures on the water supply*'. One stakeholder suggested that utility companies are '*now finding they need to look further afield to find new supplies*'.

One stakeholder reported that there had previously been two water reservoirs for Darwin, but that one had since been closed for drinking water and opened to water sport activities, leaving only one water reservoir. This stakeholder suggested that as a result '*we are now having to talk about the possibility of water restrictions*'. Another also suggested that the high evaporation rates typical of the climate were a challenge in terms of managing dams.

Environmental performance of housing

There were a number of comments made about the relatively poor environmental performance of most new houses that have been built in Palmerston in recent years, with many stakeholders feeling that far too little attention had been paid to the need to build houses that suited the tropical climate.

'Palmerston wasn't developed with environmental issues in mind. The NT has a unique environment, and we have the potential to create a really unique character of development. But we are doing this so poorly. Because Palmerston was developed from scratch, we could have really given it that tropical character. But there is almost no tropical housing in Palmerston. That older style, pre-[cyclone] Tracy housing isn't built. Now we just build standard houses and air condition the hell out of them.'

'They continue to build an inappropriate style of housing. They may be built to code, but they're inappropriate for the climate here. They're designed to have all the doors closed, with the air con on. So they are very power hungry, and that's a big issue here because the cost of energy in the NT is higher than in other states – and there's talk of further big rises. So people living in those kinds of houses are really going to feel that.'

'We've got a lot of concrete boxes.'

¹⁴ Inpex is a worldwide oil and gas exploration and production company, with a major liquefied natural gas project in the NT.

'Minimum lot size in NT has historically been 800 square metres – this came from experiences of development in Darwin when it was found that this block size allowed for through breezes to cool the areas. By the time Palmerston came in, 800 square metres was seen as unfeasible and therefore some of the lots are smaller than in Darwin – but there are still large houses on those lots.'

Some felt that the dominance of houses dependent on air conditioning was market-driven:

'Lot of southern people coming to live up here have high expectations. For example their expectation is that housing will have air conditioning.'

'The social reality is that the market drove air conditioning.'

'Everybody wants air conditioning now. And louvres are not compatible with air conditioning, so they have been disappearing from house designs.'

Others however, suggested this kind of housing was simply easier or more profitable for developers to build:

'Housing designs are developed to suit the developer, so often it's just what they build down south or elsewhere.'

A number of stakeholders suggested that Defence Housing had influenced the local market, particularly with regard to the increasing size of houses, and the dominance of a style of house that relies on air conditioning.

'Defence Housing started churning out different types of housing, due to demand of the defence workforce, and their families. So they were much larger houses than we'd seen previously in Palmerston, very much the large enclosed box-style house.'

'The subsidy that defence provides to its workers for Defence Housing means that they don't really care about the running costs, because they don't really feel the costs of electricity. So there is really no incentive to reduce electricity. That has really affected the way people use electricity – especially air conditioning.'

Some suggested that because the priority had been cyclone-proofing, other aspects of environmental performance had been neglected:

'Housing design isn't done very well. Since the 1974 cyclone they have been built bunker style. The housing that's being built is very much the style you see in Sydney and the southern states, big houses with a large garage at the front, and only a couple of metres to the boundary so no room for shading. So running costs are high because it's impossible to live in these houses without air conditioning.'

'Because the Top End is a cyclone region the need for appropriate engineering has been a big influence on the design of housing. Because that adds to the expense, people have tended to follow what others have done before – if it works, they do that because it's cheaper. So housing became quite standardised, with not a lot of innovation in design.'

'In the old days there wasn't enough emphasis on design. As long as it complied, it could be built. Everyone was probably more focussed on the cyclone rating – the engineering side of things – rather than on efficiency rating.'

'We're unique compared to down south. We have to think of cyclones. It might be great elsewhere to have big trees around your house, but in a cyclone the last thing you want is a big tree that can fall on your house.'

Some interviewees pointed to the irony that poorly designed houses have become the 'standard' against which more innovative, efficient house designs must compete:

'The system is actually working against good environmental design. People who want to be innovative and put in those more environmentally friendly features – like louvres – they now have to fight the planning regulations to be allowed to do that – because the standard way of building has become a brick box with air conditioning, so everything is compared to that.'

'In some ways I think the regulations or constraints on developers have actually made it harder to build tropical-style housing. If architects want to build tropical housing, then it can be harder to get approval for, because it is higher up [raised up off the ground], whereas the standard low-cost housing is all built at ground level. So that becomes the normal accepted type of development and if people want to do something different they have to argue against it. There's a view that that kind of house [the standard ground level house] is cheaper. But that's a false economy – it might be cheaper to buy but it's more expensive to run in the long run.'

Another suggested that the reliance of the 'standard' Palmerston house on costly air conditioning could undermine attempts to provide more affordable options in the housing market:

'In the new Palmerston suburbs that are being planned and built now – they all have varying levels of affordable and social housing. But those houses will be of that same style that needs air conditioning. That's a major issue for families living in Palmerston because they will be expensive to run.'

However a number of stakeholders had noticed a shift to a greater concern with energy efficiency in recent years, particularly since the change in NT regulation that requires star ratings.¹⁵

'Over the last five years I've noticed more solar panels on roofs.'

'Things are beginning to change. Before I don't believe people were educated or aware of it. People just didn't think about energy efficiency. All they cared about was cooling the house down. But now people are starting to think about the running costs of their house – especially with government saying that there are going to be massive increases in electricity prices.'

'Efficiency star rating has only just come in to the design of housing here, so that's still quite a new thing.'

'Recently we are seeing the beginning of raising awareness about building ratings, for example within government buildings.'

In general though, stakeholders felt there was significant room for improvement in the regulation of housing from the perspective of environmental performance:

¹⁵ Since May 2010, the NT Government has required new houses to achieve a 5 star energy efficiency rating.

'We still have work to do to improve the understanding of NABERS ratings, and to fully incorporate star ratings into the building code – we really need to do better at that kind of future proofing.'

'The government could do much more to encourage these things. Give people concessions and incentives. Solar hot water is quite big up here. But most unit developments in the past haven't used it. There hasn't been enough proactive policy and regulations – perhaps because government has been loath to put constraints on developers.'

'We are starting to see a few solar panels on roofs – mostly for hot water. That's a good start, but we need to go much further. Really when we build new suburbs we should be aiming to have them generate their own electricity. Then we could market that to people, to homebuyers as a benefit of living here – why wouldn't people want to move into housing like that?'

Social issues

Reputation/perceptions

Some stakeholders suggested that Palmerston had suffered something of a negative reputation in the past, perhaps because its residents tended to be younger and of a lower socio-economic demographic. Others suggested it tended to be seen as 'just a commuter suburb' for Darwin, with little personality of its own.

'There is a bit of a perception that Palmerston has been a second rate community.'

'Some people have always looked down on Palmerston as 'nappy valley' or as a suburb of single mothers, with the issues that come with that. But in a positive sense, it has provided affordable housing for those who couldn't afford Darwin.'

However some felt these negative views of Palmerston are changing:

'Early on, Palmerston was very much the destitute cousin of Darwin because they put so much public housing there and they developed models to provide cheap, mass produced housing. So it contrasts with Darwin which has a greater deal of diversity and wealth. They have certainly worked on that recently. Palmerston feels much nicer now.'

'It is becoming a more middle class community, which is a big change from the past. That will continue to impact on Palmerston; the socio-economic balance will continue to improve. But we need to keep thinking about how to provide mixed housing.'

The sheer level of population growth was thought to have contributed to the changing perceptions of Palmerston as people come to realise that it is a town of significant size. As one stakeholder put it 'we are not just an outer suburb of Darwin – we are actually larger than Alice Springs – that makes us the second-largest town in the NT'. For many, population growth had also acted as a catalyst for positive change:

'With population growth, it just gives us a bit more oomph to do things, and to get new initiatives off the ground. There have been some really good community initiatives recently, like our participation in Keep Australia Beautiful Sustainable Cities Award and the Melaleuca Awards, and the Stephanie Alexandra kitchen garden that we have at one of the local schools now. There are a whole range of things like that that are helping generate positive publicity for the area and fly the flag for Palmerston.'

'Population growth has helped provide a critical mass in Palmerston that makes advocacy for the community a little bit easier. We still have a way to go yet, but we are getting there.'

Others felt that population growth had made it easier to attract funding and investment to the area, including providing a stronger case for government grant applications.

Services not keeping up with population growth

Many stakeholders reported that social services in Palmerston had not kept up with population growth:

'The issue in Palmerston has been that we've seen an overwhelming increase in the population but no planning around that. So we just haven't had the service infrastructure to meet the increasing need.'

'Mental health and youth services are one of the biggest gaps in Palmerston. Palmerston has a high number of young people, and a higher number of Indigenous youth. Many of them show high rates of interaction with the justice system. But there are not enough support services or intervention services there, especially not the kind of social services that are incorporated into a holistic, wraparound case management system. There are also a high number of people who have complex mental health issues, but there are no mental health services in Palmerston. The nearest is in Parap or emergency in Royal Darwin [Hospital].'

'As the new suburbs were developed our local schools became very overloaded. They have finally addressed that by opening a new middle school.'

It was suggested that Palmerston's proximity to Darwin had led to a perception that people could travel there for services, but that for many this was unrealistic.

'Because Palmerston has the characteristics of a dormitory suburb, most of the services people need are still in Darwin. There's no youth refuge in Palmerston, and it has taken a long time to get NGOs to start operating in the area.'

'Services to meet the needs of the increasing population are poor. Some services are actually decreasing even though population is increasing. For example there used to be a 24 hour medical service that bulk billed. That now stops at 11 pm. Because Palmerston attracts a lower socio-economic population, many people do not really have the ability to pay for services – so they can't attend other [non-bulk billing] medical centres for example. So now many families have to travel to Royal Darwin [hospital] to access services after hours – and that means paying for petrol.'

One stakeholder mentioned the lack of Indigenous-specific services in Palmerston, suggesting that while many Indigenous people live remotely, many also come to Palmerston for short periods to access services or to visit family. Many of those family members live in public housing or in 'town camps' and this influx of visitors to a city lacking the services or facilities to meet their needs can cause overcrowding problems.

'In previous years, the impact of having so much public housing in Palmerston caused some problems, because the community support structures weren't very well developed to support the population.'

Public housing

Stakeholders reported that from the time Palmerston began to be developed it comprised a high concentration of public housing, clustered in particular areas. In the last ten or fifteen years, the policy of the NT Government has been to divest itself of much of the old public housing stock by setting up home ownership programs and offering housing for sale to public housing tenants. However there was no simultaneous program to develop new public housing, so as the Palmerston population increased and stock decreased, waiting lists for public housing simply became longer. As a result home ownership programs have recently been all but halted.

'It was a bit short sighted - when they sold off the old stock, they didn't replace it. The perception at the time was that lots of people were moving to the area with a different set of demographics and they wouldn't need public housing. But the reality is we will always need public housing, and now that idea has really been blown out of the water. We just have a much longer waiting list now.'

'Palmerston started out with a lot of public housing. Then the thinking was that they would sell off bits of public housing in order to lower some of the concentration. So there is a bit more of a mix now. But there hasn't been a replacement of the number of public houses that they sold off. So now there is a real shortage.'

Stakeholders suggested that where once public housing in Palmerston had been 'pretty easy to get into', there is 'now a much longer waiting list'. The Department of Housing provided some indication of the current waiting times for public housing in Palmerston, with for example, a non-pensioner needing to wait 6 years 2 months for a one bedroom dwelling and 3 years 9 months for a 2-bedroom dwelling.

Housing affordability

Stakeholders reported that the Palmerston rental market was highly competitive, partly as a result of the characteristics of population growth – which is driven by the large numbers of new people arriving in the area for work.

'We see a lot of people coming up here for work – they don't necessarily know how long they will be here, so they need rental properties. This has really driven short-term accommodation prices up. And that has local knock-on effects. There are always so many people looking for housing – there can be 50+ applications for one house. And companies subsidise rent for some workers. So all that really pushes rents up. Auctions aren't allowed in the rental market, but applicants can just offer a higher price on the application form, and that's quite common here. Also once a lease is broken or comes to an end, the rent always seems to go up because there's just so much demand.'

Stakeholders also pointed to 'more demand than supply' in the housing sales market, which had resulted in high prices. They also suggested that because Darwin house prices have risen, more affluent residents had moved to Palmerston, which was pushing affordable housing even further out.

'With Darwin housing prices the more middle class people are now moving out to Palmerston. And we are seeing the affordable housing moving further and further out [from Darwin]. For example in the new housing development in Mitchell [between Palmerston and Coolalinga] there is a bus service, but it's very limited. So we are seeing the people who are least able to pay for services having to live further away.'

Stakeholders reported that recent NT Government policy has required that a minimum proportion (15%) of the dwellings constructed when crown land is released for development should be affordable housing. This requirement does not apply to developers of private land, however stakeholders suggested there are some cases where parties have developed a similar approach in public private agreements (such the joint venture between Charles Darwin University, CIC and Larrakia Development Corporation to develop a housing estate on part of the CDU campus).

The NT has not previously had a community housing model of the kind found in other states, although there are Aboriginal housing associations.

'There has been very little community housing – we have public housing and then the private rental market, which is very expensive – there hasn't been anything in the middle.'

Recently a new organisation, Venture Housing, has emerged to fill this gap. Venture Housing will provide and manage rental housing, with tenants subject to an income test, and rents set as a proportion of income.

Stakeholders suggested that the shortage of affordable housing in and around Darwin is generally well recognised. Some pointed out that in their election campaign, the newly elected (2012) Country Liberal Party (CLP) Government pledged to provide (or head lease from developers) 2000 new houses and sublet them at 30 per cent below the average rental rate of the suburbs they were built in. While there appears to be little detail on how this promise will be delivered (or where the properties will be built), stakeholders suggested it demonstrated a recognition of the problem of affordable housing shortages in the area.

Many stakeholders suggested that the sell-off of public housing had contributed to the lack of affordability in the rest of the rental market:

The NT Government has sold off lots of public housing, and the low to moderate income population are being squeezed out of [the private housing] market.

One stakeholder suggested that a number of houses were being built in the NT under the national rental affordability scheme, but that there was a need for many more affordable rental houses.

Social divisions

A number of stakeholders referred to the issue of social division in Palmerston – with one saying *'social divisions are quite prominent, with little mix between old and the new development.'*

Many stakeholders pointed to a need for a greater mixture of housing types in Palmerston. But some also acknowledged that this could be a challenge as many people hold negative and sometimes racist perceptions about public housing tenants:

'There is a stigma about public housing. And a large proportion of people living in public housing here are Aboriginal. Some of them have large numbers of family members coming to visit, and the houses aren't necessarily designed to cope with so many visitors. So there can be big groups of people around sometimes and the impact of that can be felt by neighbours as a knock-on effect.'

Many people mentioned the ongoing social divide between the Indigenous and non-Indigenous populations – both in relation to housing and more broadly – and the need to find ways to spread the benefits of development to the Indigenous population, and to make sure that their needs are met. Others talked about the need to improve the way issues of cultural diversity in general are addressed:

'Cultural diversity is really important for Darwin. It has always been very multicultural. We've always had a strong Chinese and Greek population, and Aboriginal people of course. So when we build new communities, we need to get better at considering the different cultures that are in the area, and how they live and operate.'

Influence of expanding defence force presence

Many stakeholders pointed to the influence of large numbers of defence employees and their families as residents in Palmerston, with some concerned about the social issues this can cause:

'There has been a dramatic increase in the number of defence force people here. From a social perspective, that's caused a degree of social antagonism, between defence and non-defence [residents]. It relates directly to the issue of housing – defence people are placed in luxurious accommodation, large homes with large yards. But a lot of the existing public housing in Palmerston is quite old. So you have those clusters of public housing right next to clusters of luxurious new homes.'

'Lots of people – like defence people – only come to Palmerston for small amounts of time. That can cause social antagonism too.'

'I'm concerned about the increase in population concentration in Palmerston of defence people. There hasn't been enough planning going into that. The NT Government is now trying to deliver public housing options in Palmerston that are not all clustered together, so that there is a mix of housing in the market. That is working, but there is still a density of defence force people.'

'Palmerston is a defence town, there's a huge population of defence people because of the barracks in that area. It's probably been a mix of positive and negative. It's helped grow the area, but that population is also skewed, with more men than women.'

Economic issues

A number of stakeholders suggested that economic development in Palmerston had been minimal, with many simply seeing it as a 'dormitory suburb' for Darwin.

'Palmerston has no economy – from an economic point of view it is only a suburb of Darwin.'

However, some felt that further population growth would help boost the local economy:

'The economic base is quite narrow. But the growth of Palmerston will help with that – it's helping to create a critical mass to grow the economy.'

Employment

There were mixed views about employment opportunities in Palmerston. Some pointed to a number of positive developments:

'Employment opportunities have grown Palmerston. The NT has been lucky, since big project after big project has turned up – East Timor, Conoco-gas, the Federal Government Intervention [into Aboriginal communities], the opening of the rail and port facility, that's linked to the mining sector, cattle industry and export. Then there's the new gas plant and the new defence build-up. So we've had a constant cycle of projects that have kept this area growing.'

'The relationship between Palmerston and defence means there's ongoing employment opportunities there.'

'There is talk of building a new jail out near Palmerston, so that will provide some local employment.'

Stakeholders pointed to the plan to build a new hospital in Palmerston, with one pointing out that this will not only create new employment opportunities but that many of these new jobs will attract female employees – in contrast to the current dominance of male dominated industries like defence, the new jail and Inpex.

Others however, pointed to a need for more local employment opportunities, and to ongoing attempts to address this gap:

'There are not enough employment opportunities in Palmerston, especially employment opportunities that can support younger workforce.'

'There has been an effort to grow employment in Palmerston, because there is a traffic issue with the whole population of Palmerston travelling in to Darwin every morning. But they've also spent money on the road infrastructure to get people to Darwin.'

One suggested the NT Government could assist in the provision of local employment by relocating some government agencies or departments to Palmerston. However another noted that the NT Government was *'is trying to push some public sector employment out to Palmerston'* but that the challenge was *'they keep coming up against space constraint issues'*.

Another noted that many of the employment opportunities that arose in Palmerston tended to be short-term, which caused a number of other problems:

'Inpex [gas plant] will provide huge employment opportunities. But it's another short-term project so we'll see that familiar pattern – there will be a big influx of people, but when they move out again property prices collapse.'

Others pointed to the need for the local housing market to respond to the specific characteristics of the local employment market:

'Housing needs to suit the population – a lot of employees are fairly transient, they are only in the area for a while and they are young and many of them are single and don't necessarily need large family houses.'

'When you look at a lot of the new housing being built, it is very expensive. They are four-bedroom homes, two baths, two garages. It's homogenous housing developed by developers. There's no innovation in design or density patterns in the community. It's very suburban. That means you get the same type of people moving in, so there's a lack of diversity.'

'We have lots of young people in Palmerston who are growing up and will eventually need their own housing. But there really isn't going to be anywhere for them to move. Everything being built is large houses. There are some apartments, but they are expensive.'

Education

A number of stakeholders mentioned the need for improved education facilities in Palmerston, to provide opportunities for local residents:

'CDU has a campus out in Palmerston, but they really don't make the most of it – that campus really needs to be expanded – it needs to increase or broaden the range of courses it offers. Also the campus is quite isolated in Palmerston and it's quite hard to get there, which is an issue because a lot of the young people don't have cars.'

'We have a Palmerston campus of CDU but it hasn't really been developed by the main university to be a self-supporting tertiary facility. It's lacking the range of courses. I think the university is focused on its Casuarina campus so Palmerston is suffering from under resourcing.'

Business

Stakeholders noted that one positive of population growth had been that it provided a critical mass to support more businesses in the area and help keep them viable. Some stakeholders suggested that an influx of people from southern states had altered local expectations about the kind of housing that would be provided.

Housing market

Some felt land had been released with too little time spent on planning and controls. However, another stakeholder suggested that the NT Government had not released land fast enough to keep up with demand:

'Palmerston hasn't grown fast enough. The speed of land release by the NT Government wasn't quick enough. Most land will be sold off the plan, but people won't get the title for that land for 18 months to two years. Then it takes a year to begin building, and six months to finish. So in total it takes a really long time.'

A number of stakeholders talked about how 'tight' the housing market is, across private sales, private rental and public housing. The stories they told included people queuing overnight to secure new residential building blocks to purchase, extremely large numbers of applicants applying for rental properties, and new workers staying in hotels and rental apartments. One stakeholder suggested that Inpex had booked out hundreds of apartments in Darwin for workers for the new gas plant.

Challenges and issues of population growth in Palmerston

The case study shows that population growth is having environmental, social and economic impacts on the local area.

The issues and challenges that emerged strongly from the stakeholder interviews and the analysis of documents were:

- a history of poor planning decisions, particularly with regard to land use, layout and design issues and the design of Palmerston CBD
- unique planning and governance create challenges with regards to Council roles and responsibilities
- lack of public transport options, leading to high car dependence
- unique challenges of governance in the NT
- housing affordability.

Stakeholders made many comments suggesting that there is a widespread perception that planning and development in Palmerston has left a legacy of issues that are challenging to address. Development has been typically suburban in nature, with low density detached houses expanding across new suburbs to fill the available residential land. Many noted that this was not a sustainable approach, particularly as it creates high levels of car dependence and fails to deliver sufficient population density to enable the efficient provision of public transport. With available land fast running out, many stakeholders felt there was a need to better plan for the continued development of Palmerston into the future. For many this included a desire to see higher density mixed-use development, particularly in and around the Palmerston CBD, which many see as needing redesign and redevelopment to improve walkability and amenity and encourage greater levels of physical activity.

However many stakeholders felt that the planning and governance arrangements for Palmerston faced additional challenges. In particular, while the local council has a high level of interest and investment in the future of the area, unlike local governments elsewhere in Australia, it has no planning powers. The existence of two different plans for the redevelopment of Palmerston CBD, one prepared by council and one prepared by the Territory Government suggests a need for improved collaboration between the different levels of government.

Housing affordability remains a particular concern in Palmerston, and is an issue that will continue to need addressing. This includes a need to incorporate affordable and public housing schemes into new developments, something that the NT Government recently confirmed will be an ongoing focus of government policy (Mills, 2012).

Information gaps and opportunities

Detailed analysis of data availability, gaps and possible alternative measures is provided in the following Tables 14-17.

A summary of theme and indicator data is provided in Tables 18-21.

Table 12: Natural capital - data availability, gaps and alternative measures

Natural Capital				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Climate and atmosphere	1. Air quality	Number of days in year that key pollutants exceed national air quality standards	Not available	No alternative measure available
	2. GHG emissions	Net greenhouse gas emissions	Not available	No alternative measure available
		Greenhouse gas emissions per capita	Not available	No alternative measure available
	3. Energy usage	Residential and non-residential electricity use	Not available	No alternative measure available
Ecosystems and biodiversity	4. Terrestrial ecosystems	Extent of native vegetation	Not available	No alternative measure available
		Extent and distribution of protected areas	Not available	Number of natural reserves in area
	5. Vulnerable and endangered species	Number of endangered species, population and communities listed under the <i>EPBC Act</i>	Not available	No alternative measure available
	6. Reestablishment of local vegetation communities	Number of hectares under restoration by Council and volunteers	Not available	No alternative measure available
Water	7. Water consumption and availability	Water consumption (per capita)	Not available	No alternative measure available
		Water availability to meet demand	Not available	No alternative measure available
Land	8. Ground cover	Ground cover	Not available	No alternative measure available
Waste	9. Waste disposed to landfill	Waste disposed to landfill	Not available	No alternative measure available
	10. Recycling rates	Proportion of waste generated being recycled	Not available	No alternative measure available

Table 13: Social and human capital - data availability, gaps and alternative measures

Social and Human Capital				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Skills and education	11. Educational attainment and qualification	Highest level of educational attainment	Available	n/a
	12. Education services	Ratio of childcare places to population of children aged 0-5 years resident in the LGA	Not available	No alternative measure available
		Ratio of primary school places to population of primary aged children resident in the LGA	Not available	No alternative measure available
Health	13. Self-reported health status	% reporting fair to poor health	Available	n/a
	14. Life expectancy	Life expectancy	Not available	n/a
	15. Persons who smoke daily	% of adults who are daily smokers	Available	n/a
	16. Obese persons	% of adults that are overweight or obese	Available	n/a
	17. Mental health	Proportions of adults rated as psychologically distress	Available	n/a
	18. Access to open space	Open space per capita	Not available	No alternative measure available
Institutions and governance	19. Fair and functioning institutions and governance	Levels of trust in key institutions	Not available	No alternative measure available
	20. Community engagement	Proportion of people who volunteer	Available	n/a
Employment	21. Under-employment	Underemployment rate	Not available	Hours worked per week
	22. Unemployment	Unemployment rate	Available	n/a
	23. Local employment	% people working and living in the same LGA	Not available	No alternative measure available
Security	24. Security	Feelings of safety	Not available	No alternative measure available
		Incidence of personal and household crime	Not available	Offences against the person; Property offences

Table 14: Economic capital - data availability, gaps and alternative measures

Economic Capital				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Wealth	25. Household net wealth	Household net worth	Not available	Wealth per household
Housing	26. Housing supply gap	Net dwelling gap	Not available	Average dwelling price
	27. Housing affordability	Low income households in rental stress	Available	n/a
		Low income households in mortgage stress	Available	n/a
Transport and infrastructure	28. Mode of transport to work	Car as driver	Available	n/a
		Car as passenger	Available	n/a
		Public transport	Available	n/a
		Walking	Available	n/a
		Other	Available	n/a
	29. Transport infrastructure	Kilometres of dedicated cycling paths	Not available	No alternative measure available
	30. Access to broadband internet	% households with broadband connection	Available	n/a
Income	31. Income disparity	Disparity in disposable household weekly income	Not available	Social security take-up; Household debt service ratio; Household debt to gross income ratio
Productivity and innovation	32. Multifactor productivity	Multifactor productivity	Not available	No alternative measure available
	33. Innovation	Business with innovative activity	Not available	Patent counts per population
Socio-economic status	34. Relative socio-economic disadvantage	ABS Index of Relative Socioeconomic Disadvantage (IRSD) score	Available	n/a

Table 15: Contextual indicators - data availability, gaps and alternative measures

Contextual Indicators				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Population	35. Population size	Number of persons	Available	n/a
	36. Rate of growth	Annual rate of population growth	Available	n/a
	37. Population density	Number of persons per square kilometre	Available	n/a
	38. Gender and age profile	Gender and age profile	Available	n/a
Land use	39. Land use change	Rates of greenfield development	Not available	n/a
Cultural diversity	40. Proficiency in spoken English	% do not speak English well or not at all	Available	n/a
	41. Indigenous population	% indigenous	Available	n/a
	42. Country of birth	Country of birth	Available	n/a
Regional migration	43. Net overseas migration	Net overseas migration	Not available	No alternative measure available
	44. Overseas born	% born overseas	Available	n/a
	45. Domestic or internal migration	Net number of regional internal migrants	Available	n/a

Summary of theme and indicator data for Palmerston

Table 16: Natural capital - data figures

Natural Capital						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Climate and atmosphere	1. Air quality	No. of days exceeding air quality standards (PM ₁₀)	Not available	n/a	n/a	n/a
	2. GHG emissions	Net greenhouse gas emissions	Not available	n/a	n/a	n/a
		Greenhouse gas emissions per capita	Not available	n/a	n/a	n/a
	3. Energy usage	Energy consumption	Not available	n/a	n/a	n/a
Ecosystems and biodiversity	4. Terrestrial ecosystems	Extent of native vegetation	Not available	n/a	n/a	n/a
		Number of natural reserves in area	2 natural reserves	n/a	LGA	Local Council
	5. Vulnerable and endangered species	Number of endangered species, population and communities listed under the <i>EPBC Act</i>	Not available	n/a	n/a	n/a
	6. Reestablishment of local of vegetation communities	Number of hectares under restoration by Council and volunteers	Not available	n/a	n/a	n/a

Water	7. Water consumption	Water consumption (per capita)	Not available	n/a	n/a	n/a
		Water availability to meet demand	Not available	n/a	n/a	n/a
Land	8. Ground cover	Ground cover	Not available	n/a	n/a	n/a
Waste	9. Waste disposed to landfill	Waste disposed to landfill	Not available	n/a	n/a	n/a
	10. Recycling rates	Proportion of waste generated being recycled	Not available	n/a	n/a	n/a

Table 17: Social and human capital - data figures

Social and Human Capital						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Educational attainment	11. Educational attainment and	% adults with tertiary qualifications	8.1% (2001), 10.7% (2011), Increase	5 years (Census)	LGA	ABS
		% adults with Certificate/ Adv Diploma	25.2% (2001), 32.8% (2006), Increase	5 years (Census)	LGA	ABS
	12. Education services	Ratio of childcare places to population of children aged 0-5 years resident in the LGA	Not available	n/a	n/a	n/a
		Ratio of primary school places to population of primary aged children resident in the LGA	Not available	n/a	n/a	n/a
Health	13. Self reported health status	% reporting fair to poor health	10.0% (2007), Greater Darwin 10.4% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	14. Life expectancy	Life expectancy	Not available	n/a	n/a	n/a
	15. Persons who smoke daily	% of adults who are daily smokers	21.5% (2007), Greater Darwin 19.7% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	16. Obese persons	% of adults who are overweight or obese	36.4% (2007), Greater Darwin 37.5% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	17. Mental health	% of adults rated as psychologically distress	8.5% (2007), Greater Darwin 8.3% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data

	18. Access to open space	Open space per capita	Not available	n/a	n/a	n/a
Institutions and Governance engagement	19. Fair and functioning institutions and governance	Levels of trust in key institutions	Not available	n/a	n/a	n/a
	20. Community engagement	% of volunteering	14.3% (2006), 14.6% (2011), Increase	5 years (Census)	LGA	ABS
Employment	21. Underemployment rate	Hours worked per week	31.8 hours (2012), 5.6% increase from 2007	Annual	NIEIR region	SoR
	22. Unemployment rate	Unemployment rate	2.1% (June 2012), Greater Darwin 1.8% (June 2012)	Monthly	DEEWR labour force region	DEEWR, Labour Force Region
	23. Local employment	Participation rate	Not available	n/a	n/a	n/a
Security	24. Security	Offences against the person	281 (2005/06), 510 (2010/11), Increase	Annual	LGA	Department of the Attorney-General and Justice
		Property offences	1,970 (2005/06), 2,571 (2010/11), Increase	Annual	LGA	Department of the Attorney-General and Justice

Table 18: Human capital - data figures

Economic Capital						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Wealth	25. Household net wealth	Wealth per household	\$367,000 (2001), \$654,000 (2012), Increase	Annual	NIEIR region	SoR
Housing	26. Housing supply gap	Average dwelling price	\$218,200 (2001), \$446,100 (2012), Increase	Annual	NIEIR region	SoR
	27. Housing affordability	Households in rental stress	14.3% (2006); NT 9.8% (2006)	5 years (Census)	LGA	PHIDU
		Households in mortgage stress	0.8% (2006), NT 7.0% (2006)	5 years (Census)	LGA	PHIDU
Transport and infrastructure	28. Mode of transport to work	Car as driver	Palmerston 67.7% Greater Darwin 63.1%	5 years (Census)	LGA	ABS
		Car as passenger	Palmerston 7.3% Greater Darwin 7.3%	5 years (Census)	LGA	ABS
		Public transport	Palmerston 3.9% Greater Darwin 4.0%	5 years (Census)	LGA	ABS
		Walking	Palmerston 2.3% Greater Darwin 4.9%	5 years (Census)	LGA	ABS
	29. Transport infrastructure	Kilometres of dedicated cycling	Not available	n/a	n/a	n/a
	30. Access to broadband internet	% households with broadband	37.9% (2006), 72.7% (2011), Increase	5 years (Census)	LGA	ABS
Income	31. Income disparity	Social security take-up	10.7% (2011), 0% increase from 2007	Annual	NIEIR region	SoR
		Household debt service ratio	9% (2001), 12% (2011), Increase	Annual	NIEIR region	SoR

		Average dwelling price to household disposable income	0.72 (2001), 0.94 (2011), Increase	Annual	NIEIR region	SoR
Productivity and innovation	32. Multifactor productivity	Multifactor productivity	Not available	n/a	n/a	n/a
	33. Innovation	Patent counts per population	10.4 per 100,000 (1994-2011), national average 21.01	Annual	NIEIR region	SoR
Socio-economic status	34. Relative socio-economic disadvantage	ABS IRSD score	Palmerston 412, Greater Darwin 995, NT 878	5 years (Census)	LGA	ABS

Table 19: Contextual indicators - data figures

Contextual Indicators						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Population	35. Population size	Number of persons	22,120 (2001), 29,301 (2011), Increase	Annual	LGA	ABS
	36. Rate of growth	Annual rate of population growth	Average 2.9% per annum 2001-2011	Annual	LGA	ABS
	37. Population density	Number of persons per square kilometre	419.7 (2001), 556.0 (2011), Increase	Annual	LGA	ABS
	38. Gender and age profile	Gender and age profile	See Figure 3	5 years (Census)	LGA	ABS
Land use	39. Land use change	% infill development	Not available	n/a	n/a	n/a
		% greenfield development	Not available	n/a	n/a	n/a
Cultural diversity	40. Proficiency in spoken English	% do not speak English well or not at all	6.2% (2001), 8.7% (2011), Increase	5 years (Census)	LGA	ABS
	41. Indigenous population	% indigenous	11.9% (2001), 11.2% (2011), Increase	5 years (Census)	LGA	ABS
	42. Country of birth	Country of birth	See Table 20	5 years (Census)	LGA	ABS
Regional migration	43. Net overseas migration	Net overseas migration	Not available	n/a	n/a	n/a
	44. Overseas born	% born overseas	12.8% (2001), 15.3% (2011), Increase	5 years (Census)	LGA	ABS
	45. Domestic or internal migration	Net number of regional internal migrants	Data inconclusive ¹⁶	Annual (2006-2010)	SLA	ABS

¹⁶ ABS (cat. no. 3412.0) Migration, Australia, 2010-11 experimental regional internal migration estimates. Data for Palmerston inconclusive.

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Appendix

Table 20: Contextual indicators – country of birth (Source: ABS, 2012b)

Country of birth	2001	2011	Percentage point change 2001-2010
Australia	78.1%	76.1%	-2.0%
Bosnia and Herzegovina	0.0%	0.0%	0.0%
Cambodia	0.1%	0.1%	0.0%
Canada	0.1%	0.1%	0.0%
China (excl. SARs and Taiwan)	0.1%	0.2%	0.1%
Croatia	0.0%	0.0%	0.0%
Egypt	0.0%	0.0%	0.0%
Fiji	0.0%	0.1%	0.1%
Former Yugoslav Republic of Macedonia	0.0%	0.0%	0.0%
Germany	0.5%	0.4%	0.0%
Greece	0.4%	0.1%	-0.3%
Hong Kong (SAR of China)	0.0%	0.0%	0.0%
India	0.2%	0.8%	0.6%
Indonesia	0.3%	0.4%	0.1%
Iraq	0.0%	0.0%	0.0%
Ireland	0.1%	0.2%	0.1%
Italy	0.1%	0.1%	0.0%
Japan	0.0%	0.0%	0.0%
Korea, Republic of (South)	0.0%	0.1%	0.1%
Lebanon	0.0%	0.0%	0.0%
Malaysia	0.3%	0.3%	0.0%
Malta	0.0%	0.0%	0.0%
Netherlands	0.3%	0.2%	-0.1%
New Zealand	2.1%	1.9%	-0.2%
Philippines	1.2%	2.1%	0.9%
Poland	0.0%	0.0%	0.0%
Singapore	0.2%	0.1%	0.0%
South Africa	0.1%	0.5%	0.4%
South Eastern Europe	0.0%	0.0%	0.0%
Sri Lanka	0.1%	0.2%	0.1%
Thailand	0.4%	0.4%	0.0%
Turkey	0.0%	0.0%	0.0%
United Kingdom, Channel Islands and Isle of Man	4.0%	3.5%	-0.5%
United States of America	0.2%	0.2%	-0.1%
Vietnam	0.6%	0.3%	-0.3%
Born elsewhere	2.3%	2.6%	0.3%
Country of birth not stated	8.0%	8.6%	0.7%