



# Murdoch

## Specialised Activity Centre

### Structure Plan

## 7. Implementation

This Structure Plan for the Murdoch Activity Centre is a high-level, aspirational and long-term plan and a range of issues will require further consideration over time including further detailed planning, funding, and legislative changes. New and upgraded infrastructure needed to implement the Structure Plan in the medium to long-term has not been committed to, or funded by, Government.

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# 7. Implementation

This chapter sets out a framework to implement the structure plan strategy, having regard to potential legislative changes that may be necessary, modifications to statutory planning documents and other non-statutory measures that will be important to deliver an effective plan.

## 7.1 Statutory planning context

The structure plan has been prepared in accordance with the *State Planning Policy 4.2 Activity Centres for Perth and Peel* (2010) and with reference to the guidelines in the WAPC's *Draft Structure Plan Preparation Guidelines* (2011). Regard has also been given to the WAPC's policies and objectives in *Liveable Neighbourhoods* (2009).

The structure plan has implications for the Metropolitan Region Scheme and the local planning schemes for the City of Melville and City of Cockburn, as outlined later in this section.

## 7.2 Operation and implementation

The implementation of the vision outlined in the Murdoch Activity Centre Structure Plan will involve the coordination of a number of activities at State, regional and local level as well as the preparation of a number of key documents.

The statutory implementation actions shown in Table 7-1 are proposed but may change as a result of submissions and further review. There are also further studies required to support the structure plan strategy as outlined later in this chapter.

The preferred option is for the Murdoch Activity Centre Structure Plan to be delivered through the provisions of the respective local schemes, which will require the introduction of provisions to the City of Melville and City of Cockburn town planning schemes as well as the Metropolitan Region Scheme. Until such time as the activity centre is rezoned in the schemes, the WAPC will continue to be the approval body for development upon all reserved land.

Another option would be for the WAPC to deliver the structure plan through the introduction of an improvement plan over the site and delegating governance powers to a board. The details of this option will be explored further through a detailed discussion paper outlining how these measures could be implemented at Murdoch Activity Centre. An overview of improvement plans is provided in Section 7.5.

## 7.3 Amendments to the Metropolitan Region Scheme

The structure plan has implications for the Metropolitan Region Scheme. The changes that would potentially be required to the scheme are outlined in Table 7-1. The existing Metropolitan Region Scheme plan (illustrated at Figure 7.01) would therefore require requisite alterations.

The Structure Plan Key Diagram (Figure 7.02) illustrates the main land-uses and transport routes recommended for Murdoch Activity Centre. The key proposal is to designate the central part of the activity centre to a more appropriate zone to provide both the status and land use flexibility to assist with delivery of a diverse activity centre. This city centre area would include, as a minimum, three of the structure plan's precincts – the mixed use precinct, Murdoch Health and Murdoch University's eastern precinct. An alternative may be to rezone the land as a new specialised centre zone to reflect the specialised nature of activities and to align with the definition of the centre at Murdoch in *State Planning Policy 4.2*. This would require the introduction of this new zone classification to the Metropolitan Region Scheme.

Outside of the city centre area, it is proposed that land within Murdoch University remains as Public Purposes with land within the wider frame to remain in the Urban zone. The land south of Farrington Road, in the ownership of the WAPC, is currently reserved as Parks and Recreation in the Metropolitan Region Scheme. Whilst the existing recreational uses in this area will continue in the short to medium term, there is long-term potential to redevelop this area in association with the growth of the activity centre. This would not necessarily preclude recreational facilities continuing in this area for the foreseeable future.

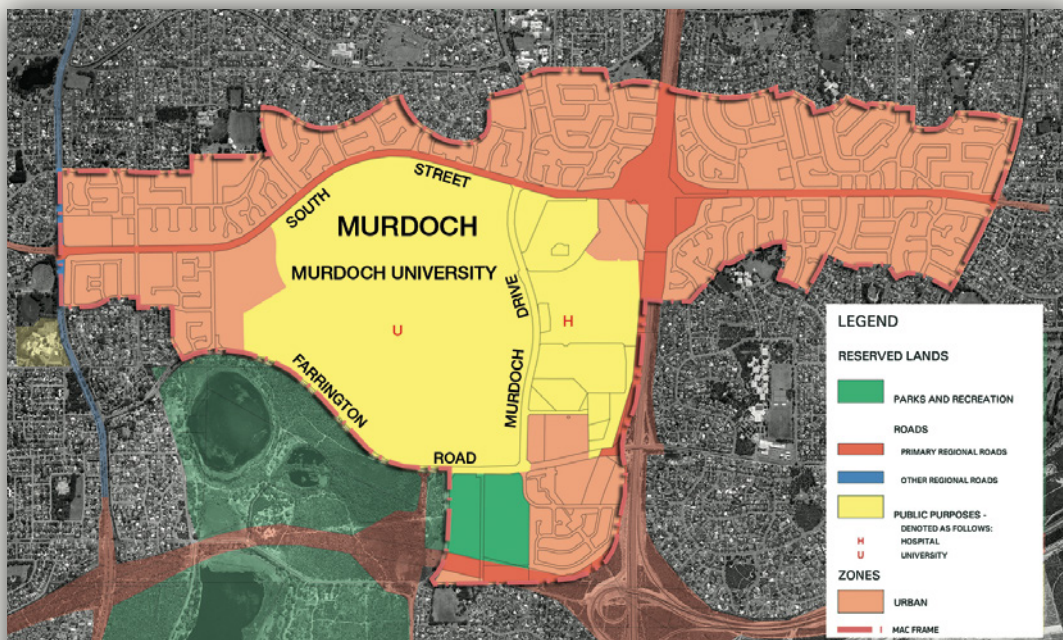


**Table 7-1: Statutory planning implementation**

Action	Scope	Implementation/ timing	By whom	Clearing authority
Investigate amendments to Metropolitan Region Scheme	<p>Changes to extent of Public Purposes – University reservation.</p> <p>Introduction of Central City Area or specialised centre zoning.</p> <p>Modification of Parks and Recreation reservation modification of Urban zoning.</p> <p>To accommodate any land changes as a result of road realignments or land swaps.</p> <p>To allow for a wider range of land uses on land that is currently reserved for public purposes.</p>	After structure plan is adopted by Western Australian Planning Commission.	Department of Planning	Western Australian Planning Commission
Amendments to City of Melville Community Planning Scheme 5	<p>A review of the local planning framework pertinent to the City of Melville is required to ensure consistency with Murdoch Activity Centre Structure Plan. Items for review and consideration include:</p> <ul style="list-style-type: none"> <li>introduction of structure plan/detailed area plan/local structure plan/development contribution provisions;</li> <li>introduction of activity centre or city centre zoning;</li> <li>to accommodate any land changes as a result of road realignments or land swaps;</li> <li>development area zoning; and</li> <li>special control areas.</li> </ul>	Immediate	City of Melville	City of Melville Western Australian Planning Commission
Amendments to City of Cockburn Town Planning Scheme 3	<p>A review of the local planning framework pertinent to the City of Cockburn is required to ensure consistency with Murdoch Activity Centre Structure Plan. Items for review and consideration include:</p> <ul style="list-style-type: none"> <li>to accommodate any land changes as a result of road realignments or land swaps;</li> <li>introduction of local structure plan provisions;</li> <li>development area zoning; and</li> <li>special control areas.</li> </ul>	Immediate	City of Cockburn	City of Cockburn Western Australian Planning Commission
Legislative change	Legislation may be required to be drafted to facilitate the implementation of the proposed structure plan and the introduction of the proposed uses. This may include amendments to the current provisions of the <i>Murdoch University Act 1973</i> .	Short term	Murdoch University, Dept. of Education Services	State Government
Changes to land tenure	Changes to vesting and land tenure of land may be required to facilitate future subdivision and development.	Short term	Murdoch University, Dept of Education Services	State Government



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**Figure 7.01:** Metropolitan Region Scheme zones and reserved lands at Murdoch (existing)

The boundary of the activity centre has been defined primarily using existing prominent urban features including major roads such as the Kwinana Freeway and South Street. The surrounding suburban frame boundary follows local suburban roads, parks and open spaces, particularly around the northern perimeter of Murdoch. This boundary is less refined but responds to the linear east-west transit corridor through the activity centre, including an indicative 400 metre catchment from transit services along South Street.

The outcome is a modified corridor plan with a structure plan boundary that stretches across a five kilometre extent from Karel Avenue east of Murdoch Station to North Lake Road to the west. This suburban frame takes in smaller activity centres along the South Street corridor but is largely anchored around the central area of Murdoch Activity Centre, contained by Kwinana Freeway, Farrington Road, Windelya Road and South Street.

The structure plan indicates an alignment for future rapid transit services through the activity centre along Discovery Way and Barry Marshall Parade and connecting with the Murdoch bus/train interchange. This connects to

the existing strategic transport route along South Street between Fremantle and Murdoch. The precise alignment of the proposed rapid transit route through the activity centre will require further more detailed analysis separate to this structure plan, including consideration of an appropriate corridor width to accommodate future rapid transit services.

### 7.4 Relationship to the local planning schemes

The Key Diagram at Figure 7.02 is a strategic summary of the key spatial and land use components of the structure plan for the activity centre. It represents an interface between the Metropolitan Region Scheme and local planning schemes for the area, and should be used as a guide to subsequent amendments to local schemes.

One of the key proposals is for the identification of Murdoch Activity Centre as a city centre in the Metropolitan Region Scheme and local planning scheme. This zoning would relate to the area of Murdoch containing the core activities and/or areas of change, such as the Mixed Use Precinct,



hospitals, and Murdoch University Eastern Precinct with the core campus of the University remaining in a Public Purpose reserve for education.

The current local planning schemes are Community Planning Scheme 5 for the City of Melville and Town Planning Scheme 3 for City of Cockburn. The City of Melville is already well advanced in a review of Community Planning Scheme 5, which was originally gazetted in 1999.

The structure plan will have implications for the provisions of the respective local schemes. This will involve the introduction of structure plan, detailed area plan, local structure plan and development contribution provisions as well as new zonings to facilitate the objectives of the structure plan.



Figure 7.03: Murdoch University

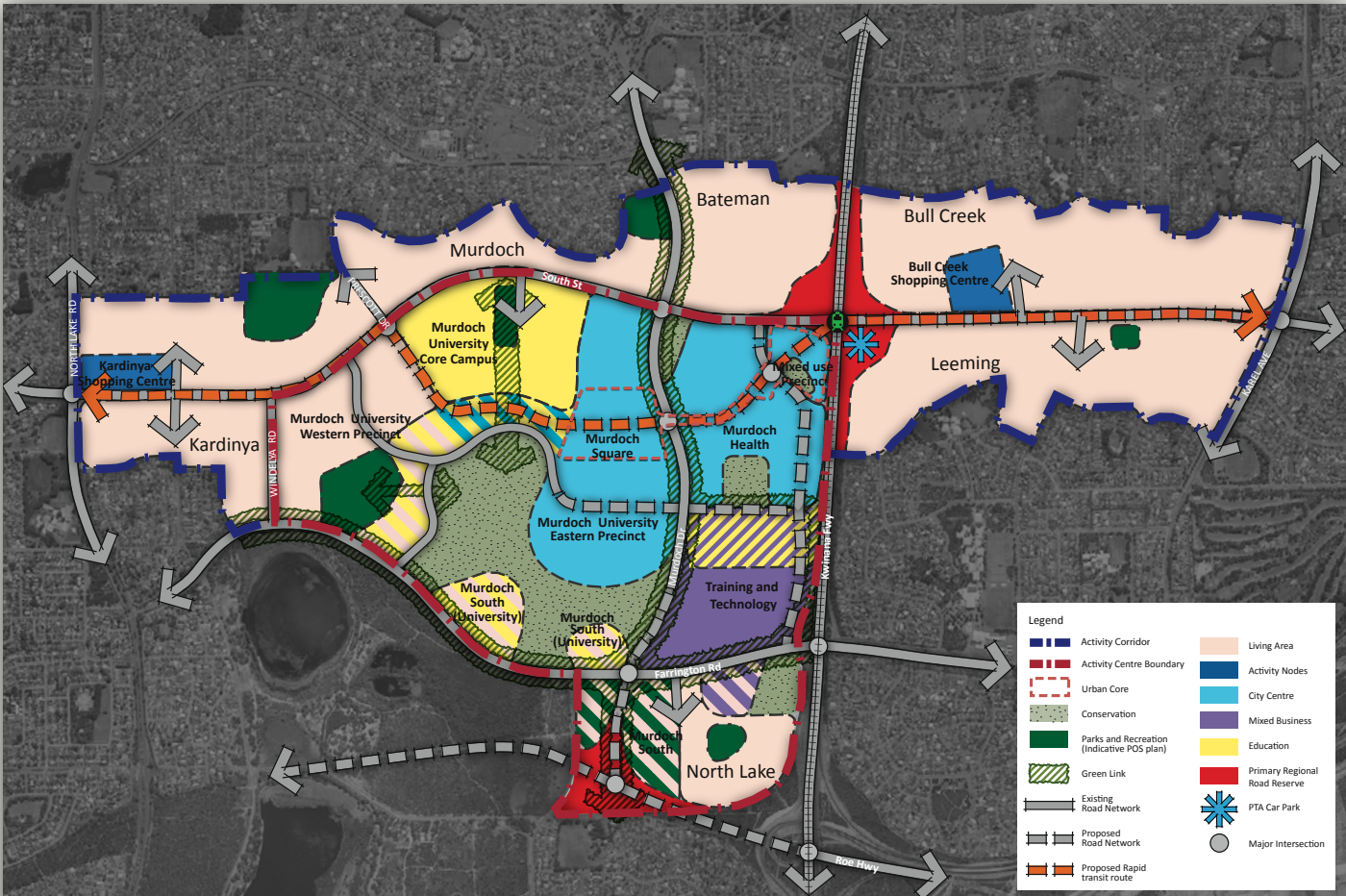


Figure 7.02: Structure plan key diagram



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## 7.5 Improvement schemes and plans

If it is determined that delivering the structure plan through the local schemes is not a feasible option, then delivery by the WAPC through the introduction of an improvement plan may be an alternative.

In accordance with Part 8 of the *Planning and Development Act 2005*, the WAPC may declare improvement plans for the purpose of advancing the planning, development and use of any land within the State. The WAPC also has the power to make an improvement scheme, which overrides the relevant local planning scheme, in order to implement an improvement plan.

This approach means the WAPC can effectively take over the local authority's strategic planning and development control functions in the improvement plan area. For the duration of the improvement scheme, existing local and region planning schemes will cease to apply to the land identified in the improvement scheme. In effect the WAPC becomes the development control authority for the improvement scheme area.

Given the scale of the activity centre at Murdoch, across two local government areas with significant public purposes reserved land, the potential use of an improvement scheme and plan should be investigated further in consultation with the local authorities in order to assist with implementation of the structure plan. A similar model has been used to progress the current scheme for Perth Waterfront, albeit that the Metropolitan Redevelopment Authority is now the responsible agency for its delivery. As a scale comparison, Perth Waterfront is a 10 ha site which is a similar size to the indicative area of Murdoch Square outlined in this structure plan.

## 7.6 Local structure planning guidance

Table 7-2 consolidates key information for each precinct which has been outlined in previous chapters of the structure plan. The primary guidance relates to land use and transport planning considerations. Some advice on urban design is included, however, built design guidelines are set out in full in Chapter 5: Urban Form according to the spatial structure of core, corridor and frame.

## 7.7 Development staging

Indicative staging for the development of the activity centre is shown at Figure 7.04, based on planned, anticipated and predicted growth in the next 20-year period.

Construction activity at Murdoch is currently focused on Fiona Stanley Hospital, St John of God Hospital, and associated upgrades to the strategic road network, all programmed for completion in 2014. In the meantime, the mixed use precinct is in advanced stages of planning and, subject to gaining approvals, initial site development could commence in the next few years. Completion of Fiona Stanley Hospital and St John of God extensions is expected to create demand for a range of new facilities on the hospital doorstep and the mixed use precinct is well placed to accommodate this in the first instance. (Figure 7.05).

In this respect, Murdoch University's eastern precinct is also expected to prove attractive to development associated with the early momentum of the two hospitals. With the concept of the urban core for Murdoch, it is important that this is followed through in a commitment to establish the second urbanisation node at Murdoch Square at the earliest opportunity, as opposed to allowing ad-hoc development to occur along Murdoch Drive. It is anticipated that the next phase of eastern local structure planning will follow on from this structure plan with approvals secured over the next five years.

It is recognised that the proposals for Murdoch Square are dependent on resolution of land tenure within the University





**Table 7-2: Precinct requirements summary**

Precinct	Primary land uses	Other land uses	Precinct character	Urban form	Precinct based transport priorities	Additional guidelines for retail development
Murdoch University Core Campus	<ul style="list-style-type: none"> <li>educational facility</li> <li>research facility</li> <li>short-term accommodation</li> </ul>	<ul style="list-style-type: none"> <li>child care centre</li> <li>small scale convenience</li> <li>office</li> <li>club</li> <li>entertainment activities</li> <li>financial establishment</li> <li>religious associated use</li> <li>community facility</li> <li>ancillary use</li> <li>temporary use</li> </ul>	Formal mid-density campus, formal rectilinear plan with horizontal emphasis to building forms	<ul style="list-style-type: none"> <li>height: 3 to 4 storeys up to a maximum of 6 storeys within tree line in landmark locations</li> <li>active edges to transit route</li> <li>refer to Table 5.1 – Built Form Guidelines</li> </ul>	<p>General campus traffic separated to periphery with no through access on Discovery Way apart from priority vehicles and transit</p> <p>Walk-based campus preserved and enhanced with new traffic calming</p>	N/A
Murdoch Health	<ul style="list-style-type: none"> <li>hospital</li> <li>research facility</li> <li>health facility</li> <li>short-term accommodation</li> </ul>	<ul style="list-style-type: none"> <li>community facility</li> <li>small scale convenience</li> <li>ancillary use</li> <li>office</li> </ul>	Dense urban campus with large building forms, occupying full blocks with horizontal forms and occasional landmark structures	<ul style="list-style-type: none"> <li>height: 3 to 6 storeys up to a maximum of 10 storeys in landmark locations</li> <li>active edges to transit route</li> <li>refer to Table 5.1 – Built Form Guidelines</li> </ul>	Enhancement of pedestrian crossing/environment on Barry Marshall Parade	N/A
Mixed Use Precinct	<ul style="list-style-type: none"> <li>health facility</li> <li>office and research</li> <li>entertainment</li> <li>convenience retail (including supermarkets)</li> <li>multi-unit housing</li> </ul>	<ul style="list-style-type: none"> <li>financial establishment</li> <li>child care centre</li> <li>ancillary use</li> <li>temporary use</li> </ul>	Urban core – high density perimeter block form with vertical elements and articulation	<ul style="list-style-type: none"> <li>height: 4 to 8 storeys up to a maximum of 15 storeys in landmark locations</li> <li>create active frontages</li> <li>high quality public spaces and shop top mixed uses will be encouraged</li> <li>refer to Table 5.1 – Built Form Guidelines</li> </ul>	Priority transit zones with restricted traffic access to promote sustainable transport alternatives	<ul style="list-style-type: none"> <li>higher-density car parking preferred in off-street locations</li> <li>short term on-street parking to be integrated into street</li> </ul>
Murdoch Square	<ul style="list-style-type: none"> <li>educational facility</li> <li>health facility</li> <li>office and research</li> <li>entertainment</li> <li>convenience retail (including supermarkets)</li> <li>multi-unit housing</li> <li>community facilities</li> </ul>	<ul style="list-style-type: none"> <li>financial establishment</li> <li>child care centre</li> <li>ancillary use</li> <li>temporary use</li> </ul>	Urban core – high density perimeter block form with vertical elements and articulation	<ul style="list-style-type: none"> <li>height: 4 to 8 storeys, possible landmark buildings</li> <li>create active frontages</li> <li>high quality public spaces and shop top mixed uses will be encouraged</li> <li>refer to Table 5.1 – Built Form Guidelines</li> </ul>	Priority transit zones with restricted traffic access to promote sustainable transport alternatives	<ul style="list-style-type: none"> <li>higher-density car parking preferred in off-street locations</li> <li>short term on-street parking to be integrated into street</li> </ul>
Murdoch eastern precinct (excluding Murdoch Square)	<ul style="list-style-type: none"> <li>multi-unit housing</li> <li>serviced apartment</li> <li>community facilities</li> <li>research and development</li> </ul>	<ul style="list-style-type: none"> <li>educational facility</li> <li>health facility</li> <li>veterinary facility</li> <li>office</li> <li>caretaker's residence</li> <li>home business</li> <li>ancillary use</li> <li>temporary use</li> <li>small scale convenience</li> </ul>	Mid-scale urban forms informal or semi-formal block arrangement with vertical elements and articulation	<ul style="list-style-type: none"> <li>height: 4 to 6 storeys up to a maximum of 10 storeys in landmark locations</li> <li>development is to provide a transition between the town centre and adjoining areas with complementary land uses, scale and massing of built form and semi-active frontages</li> <li>refer to Table 5.1 – Built Form Guidelines</li> </ul>	<p>General traffic circulation</p> <p>Extension of existing campus network of foot and cycling</p>	N/A



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**Table 7-2: Precinct requirements summary** (continued)

Precinct	Primary land uses	Other land uses	Precinct character	Urban form	Precinct based transport priorities	Additional guidelines for retail development
Murdoch western precinct	<ul style="list-style-type: none"> <li>• multi-unit housing</li> <li>• serviced apartment</li> <li>• retirement complex</li> <li>• short term accommodation</li> <li>• residential care accommodation</li> <li>• secondary education facilities</li> <li>• sport and recreation</li> </ul>	<ul style="list-style-type: none"> <li>• entertainment retail</li> <li>• small scale convenience</li> <li>• caretaker's residence</li> <li>• child care centre</li> <li>• home business</li> <li>• ancillary use</li> <li>• temporary use</li> </ul>	<ul style="list-style-type: none"> <li>• mid-scale urban forms (in transit corridor)</li> <li>• informal or semi-formal block arrangement with vertical elements and articulation</li> <li>• low-rise urban</li> <li>• neighbourhoods (outside transit corridor)</li> <li>• less formal plan with infill opportunities and occasional large stand-alone buildings</li> </ul>	<ul style="list-style-type: none"> <li>• height: 4 to 6 storeys up to a maximum of 10 storeys in landmark locations</li> <li>• southern area</li> <li>• 2 to 3 storeys up to a maximum of 6 storeys in landmark locations.</li> <li>• there is considerable long-term redevelopment potential in this area which could realise a more dense urban form</li> <li>• refer to Table 5.1 – Built Form Guidelines</li> </ul>	<p>Future rapid transit corridor activating redevelopment</p> <p>Walk-based campus preserved</p>	N/A
Training and technology	<ul style="list-style-type: none"> <li>• educational and training</li> <li>• research facility</li> <li>• service industrial linked to the health, educational and commercial functions of the centre</li> <li>• office and technology premises</li> </ul>	<ul style="list-style-type: none"> <li>• small scale convenience</li> <li>• ancillary use</li> <li>• temporary use</li> <li>• power sub-station</li> </ul>	Dense urban campus with large building forms occupying full blocks with horizontal forms	<ul style="list-style-type: none"> <li>• height: 3 to 6 storeys up to a maximum of 10 storeys in landmark locations</li> <li>• refer to Table 5.1 – Built Form Guidelines</li> </ul>	<p>Transition from road access environment to an active street environment with on-street parking</p>	N/A
Murdoch South	<ul style="list-style-type: none"> <li>• sport and recreation</li> <li>• club</li> <li>• community uses</li> <li>• multi-unit housing</li> <li>• residential</li> </ul>	<ul style="list-style-type: none"> <li>• entertainment retail</li> <li>• small scale convenience</li> <li>• home business</li> <li>• ancillary use</li> <li>• temporary use</li> </ul>	Low-rise urban neighbourhoods less formal plan with infill opportunities and occasional large stand-alone buildings	<ul style="list-style-type: none"> <li>• height: 2 to 3 storeys up to a maximum of 6 storeys in landmark locations</li> <li>• refer to Table 5.1 – Built Form Guidelines</li> </ul>	<p>Transport opportunities along Farrington Road reviewed in light of Roe Highway extension outcomes</p>	N/A
Suburban frame	<ul style="list-style-type: none"> <li>• multi-unit housing</li> <li>• residential</li> <li>• small scale convenience</li> <li>• community uses</li> </ul>	<ul style="list-style-type: none"> <li>• district shopping and discount department store (only at activity nodes)</li> <li>• religious associated use</li> <li>• home business</li> <li>• child care centre</li> <li>• sport and recreation</li> <li>• small scale entertainment</li> <li>• offices and service industry</li> <li>• ancillary use</li> <li>• temporary use</li> </ul>	Low-rise suburban neighbourhoods less formal plan with infill opportunities and occasional large stand-alone buildings	<ul style="list-style-type: none"> <li>• height: 1 to 2 storeys up to a maximum of 4 storeys in landmark locations.</li> <li>• redevelopment of activity nodes for mixed uses</li> <li>• refer to Table 5.1 – Built Form Guidelines</li> </ul>	<p>Accommodating rapid transit along South Street</p>	<p>Activity nodes/district centres</p> <p>Multi-level</p>





**Figure 7.04:** Indicative development staging plan by precinct



**Figure 7.05:** Artist's impression of proposed clinic at St John of God Hospital – view from Barry Marshall Parade (image source: SJOGH)

campus and reconciliation of the state zoning for educational purposes. Therefore, at present, development earmarked for the University's eastern precinct is subject to further legal and planning processes with uncertain timescales.

Another educational institution with significant development plans is Challenger Institute of Technology. Masterplanning for expansion of their Murdoch campus is at preliminary stages and is subject to funding approval by State Government. This project is therefore considered as having a mid-term time frame, with development commencing in the 5-10 year period ahead (up to 2021).

During the next decade, the structure plan strategises that development is focused in the urban core of the activity centre. This centres on building up a critical mass within



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Murdoch Square and the mixed use precinct and also includes development along the transit link between these two key nodes, for example, further development on the edges of the hospital precinct to support activation and consolidation of built form along Barry Marshall Parade.

Longer-term strategic development, beyond 2021, should provide consolidation in and around the core, including infilling of key sites within the urban corridor, particularly through the western part of the University campus and also other areas abutting the urban greenway, which will attract future development if rapid transit services are delivered as planned. Again, this may be subject to resolution of current tenure and zoning.

A key task for this structure plan is to set the context for major infrastructure provision by the public sector agencies, including transport infrastructure. This is set out in the following pages. In addition, background analysis has revealed that further investigations are required to inform on ground conditions in low lying areas and also to establish which public utility networks at Murdoch (e.g. wastewater) may require upgrading to support future development configurations in this plan.

### 7.8 Transport Infrastructure

The WAPC approved the development of Fiona Stanley Hospital, including peripheral roads and intersections, on the understanding that the proposed Barry Marshall Parade busway will be connected to the Murdoch Station Interchange. No other external infrastructure works were considered necessary at the time. However, a number of additional short term works have now been identified to support the growth of the overall activity centre at Murdoch. (Figure 7.06)

Further transport improvements are also proposed in the medium term up to 2021 (Figure 7.07) However the funding and delivery of this infrastructure will be a future decision of State Government. Longer term but uncommitted transport projects, beyond 2021, are also discussed within this section and are identified at Figure 7.08.

An important element of the longer term transport strategy for the Murdoch area is the provision of a southern connection of Murdoch Drive to either the proposed Roe Highway extension or Kwinana Freeway. This proposal is currently subject to statutory approvals and future funding commitments.

Without the full implementation of the key road network improvements identified, in particular a suitable southern access to/from the Kwinana Freeway (the preferred option being the Roe Highway extension), the full development of Murdoch Activity Centre as envisioned in the new Structure Plan will be constrained.

Further information on the staging of proposed transport infrastructure is set out by the following.

#### Critical transport infrastructure (short term, i.e. by 2015)

The following road infrastructure upgrades will be implemented for the opening of the Fiona Stanley Hospital in 2014 (Figure 7.06).

- a) Transport Infrastructure – Main Roads WA.
  - Widening of Kwinana Freeway (between Leach Highway and Roe Highway).
  - Construction of the new busway linking Barry Marshall Parade to Murdoch Station.
  - Replacement of the northbound Kwinana Freeway off ramp to the north side of South Street.
  - Upgrade of the Murdoch Drive/South Street intersection with additional turning lanes.

A study has been undertaken by DoP in partnership with LandCorp and the City of Melville into a tunnel access to the mixed use precinct prior to the opening of Fiona Stanley Hospital. However, the study concluded that the tunnel would not be important or justifiable at any stage. In the medium term a link from Murdoch Drive south to the Mitchell Freeway or an extended Roe Highway will have a far more significant impact on providing for motor vehicle accessibility to and from Murdoch.

- b) Public Transport Services – Public Transport Authority.

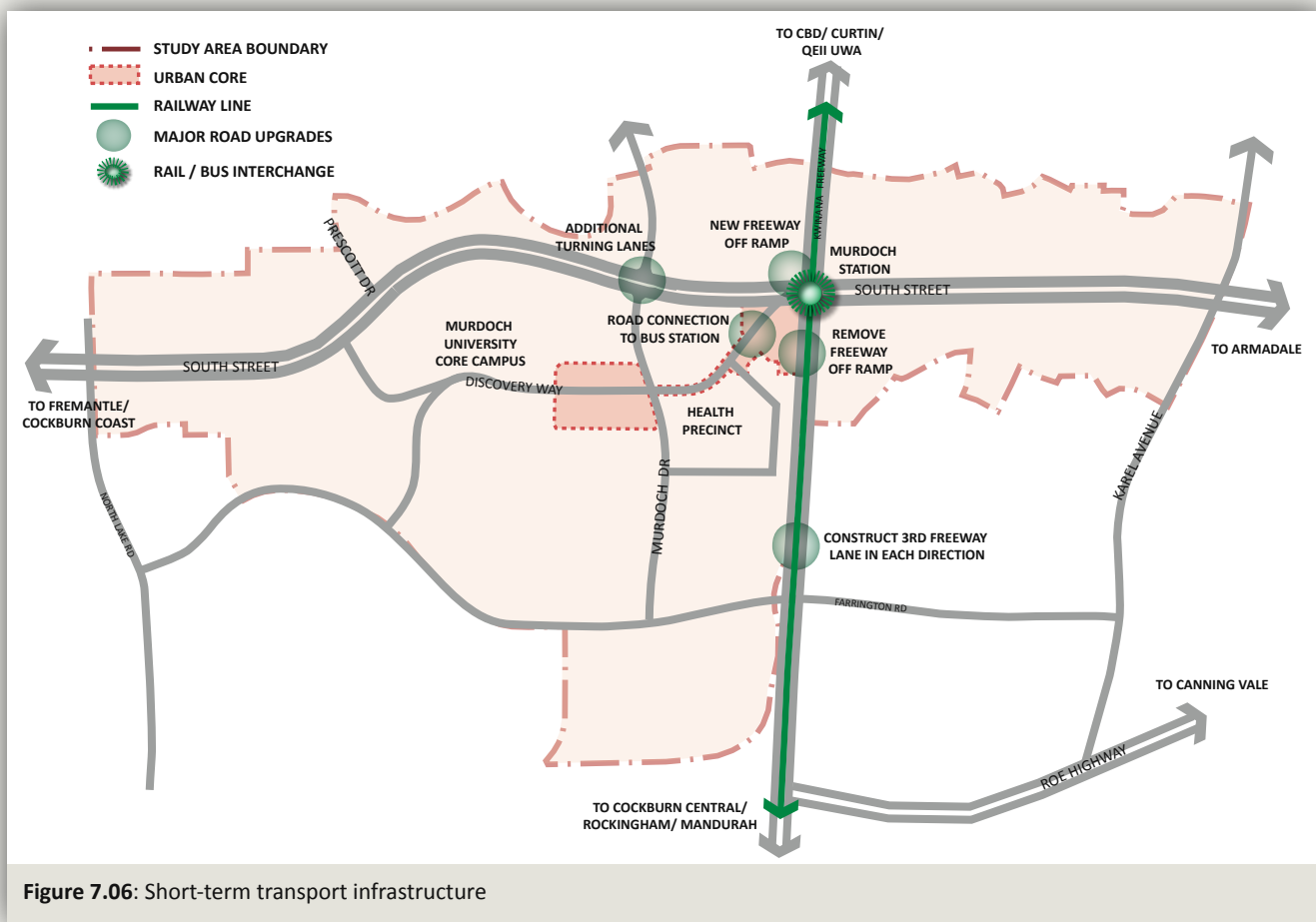


The DoP produced the Murdoch Activity Centre Public Transport Master Plan in August 2010 which considers the need for additional buses to achieve the planned mode shift to public transport. This plan estimates the public transport requirements of Murdoch for 2021 and 2031.

The Public Transport Authority supports the findings of the Masterplan and has prepared a service plan for 2014 (opening of Fiona Stanley Hospital) that provides for approximately 50 per cent of the improvements identified as required by 2021. The plan focuses on complementing the strong north-south public transport services along the Mandurah rail line with improvements to key east-west bus routes. The improvements will notably result in:

- high frequency and high capacity bus services linking Murdoch to Cannington and Fremantle; and
- very high frequency and capacity bus services through the University to Murdoch Station.

These key bus service improvements are central to enabling greater public transport access, particularly by students and health workers, helping ensure that the road system can continue to reasonably cope with peak hour demands. Additional public transport services will be required at Murdoch in the medium to longer term as identified in the Public Transport Masterplan. Potentially, the annual bus operation costs could be funded at least partially from a levy on parking in the centre.





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### Transport infrastructure recommended to be provided by 2021

The structure plan recommends the following transport infrastructure be provided by 2021 to accommodate expected increases in road traffic (Figure 7.07).

- Implementation of an east-west rapid transit system along South Street including route along Discovery Way and Barry Marshall Parade to Murdoch Station.
- Southern extension of Fiona Wood Road to Farrington Road (including a link to Kwinana Freeway northbound).

In addition to the above mid-term road proposals, there will be continual improvements to bus services between 2014 and 2021 in accordance with the Public Transport Masterplan and this will focus on the district feeder services centred on Murdoch Station via the activity centre.

The 2021 time frame for delivery of the additional transport infrastructure is indicative and is recommended from a planning viewpoint. Funding of any regional infrastructure priorities will be a decision of the State Government. It should be noted that DoP and Department of Transport will be investigating the potential to support public transport services and capital requirements by raising revenue from parking within the centre via a parking tax/levy, cash-in-lieu, or other mechanism, as proposed in *State Planning Policy 4.2 Activity Centres for Perth and Peel*.

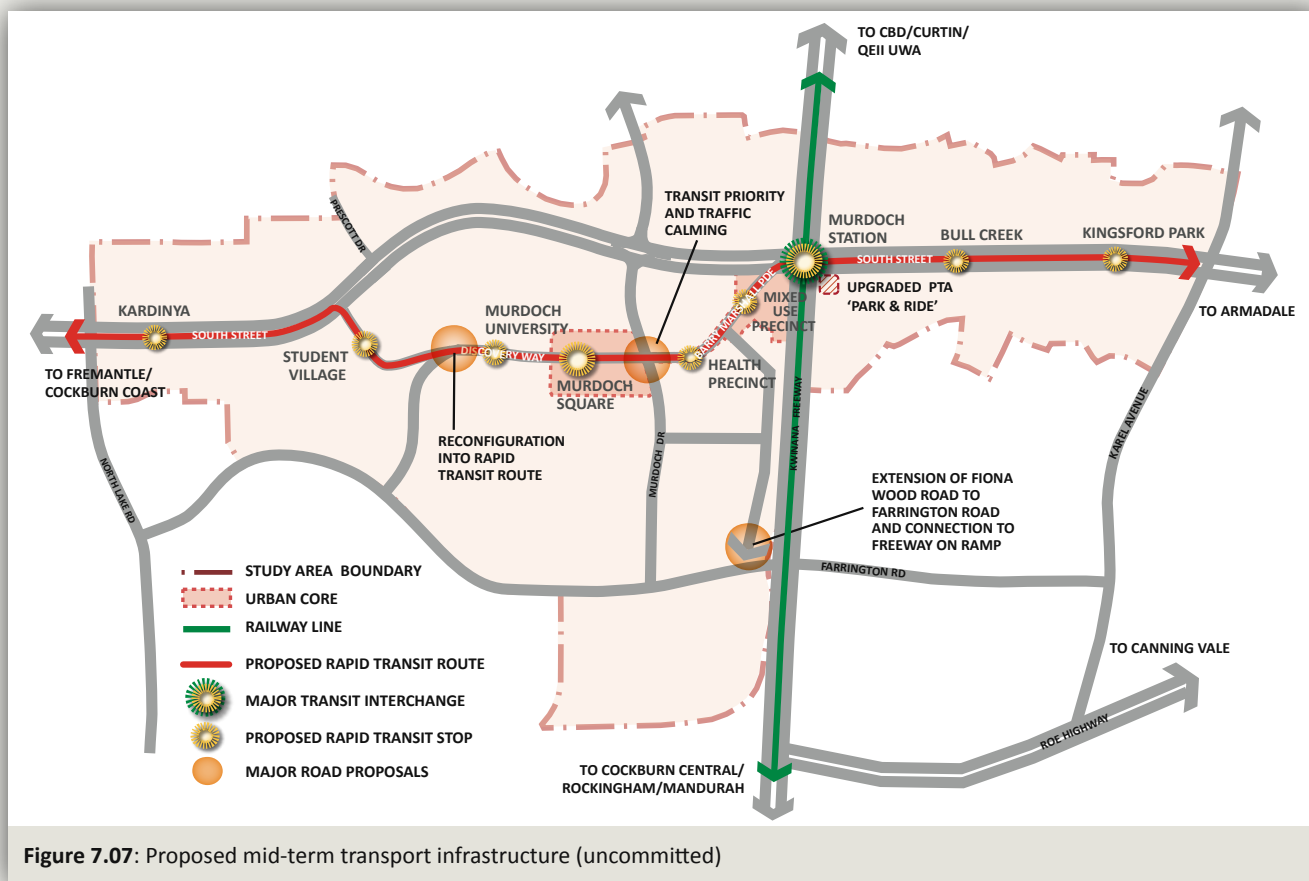


Figure 7.07: Proposed mid-term transport infrastructure (uncommitted)



- Upgrading of the Rapid Transit route through Murdoch University's campus to provide enhanced priority.

- The draft *Public Transport Plan for Perth* currently promotes the introduction of rapid transit services between Murdoch and Fremantle as part of its long term transport network. This structure plan promotes the aspirations of key stakeholders at Murdoch Activity Centre for rapid transit services to be developed within the next 20 years as an important transport intervention that will enhance accessibility to, and the profile of, the activity centre.

**Legend:**

- STUDY AREA BOUNDARY
- URBAN CORE
- RAILWAY LINE
- PROPOSED RAPID TRANSIT ROUTE
- MAJOR TRANSIT INTERCHANGE
- PROPOSED RAPID TRANSIT STOP
- MAJOR ROAD PROPOSALS

**Map Labels:**

- TO FREMANTLE/ COCKBURN COAST
- KARDINYA
- ST. IVES
- PRESOTT DR
- STUDENT VILLAGE
- MURDOCH UNIVERSITY
- DISCOVERY WAY
- MURDOCH SQUARE
- HEALTH PRECINCT
- MURDOCH DR
- TRANSIT PRIORITY AND TRAFFIC CALMING
- MIXED USE PRECINCT
- MURDOCH STATION
- BULL CREEK
- KINGSFORD PARK
- TO ARMADALE
- SOUTH STREET
- UPGRADED PTA 'PARK & RIDE'
- TO CBD/CURTIN/ QEII UWA
- TO CANNING VALE
- ROE HIGHWAY
- JANDAKOT AIRPORT
- TO COCKBURN CENTRAL/ ROCKINGHAM/ MANDURAH
- PROPOSED ROE HIGHWAY EXTENSION TO STOCK ROAD
- SOUTHERN ROAD LINK TO KWINANA FREEWAY/ PROPOSED ROE HIGHWAY
- FARRINGTON RD
- KAREL AVENUE
- ROE HIGHWAY EXT
- NORTH LAKE RD
- DIVERSION OF TRANSIT ROUTE TO EXIT AT SOUTH STREET/PRESOTT DRIVE
- DIVERSION OF MURDOCH DRIVE



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feasibility analysis, a study is carried out to confirm alignment and specifications for the rapid transit route through the activity centre. This study would examine necessary upgrades to Discovery Way including the plausibility of a future diversion of this route through the University campus to the intersection of South Street/Prescott Drive, as illustrated in Figure 7.08.

Notwithstanding the environmental considerations that are currently subject of an approvals process, the proposed extension of Roe Highway and related connection of Murdoch Drive is a key enabler to the overall strategy to enhance public transit access through Murdoch Activity Centre. Through providing an alternative route to the freeway network to the existing South Street interchange, traffic flows will be better distributed in the surrounding road network and will allow for public transport priority measures to be introduced, such as on South Street. If Roe Highway is not approved or delivered in this period then an extension of Murdoch Drive to the south-east to connect directly to Kwinana Freeway will need to be pursued.

The grade separation of South Street and Murdoch Drive has been raised as a future option to assist with traffic flows. However, it has been assessed that this is not required in addition to the proposals to provide a new southern access to the freeway network. Grade separation of this intersection also has potential for considerable adverse changes to the urban environment at a key gateway point to the activity centre. Encroachment of a car dominant environment is not supported by the structure plan in this location due to the implications for pedestrians, cyclists, local residents and public realm.

### 7.9 Road network

The structure plan will serve to establish the design of new street types which, for example, may contain reduced road reserve widths or introduce traffic calming or priority transit zones where necessary.

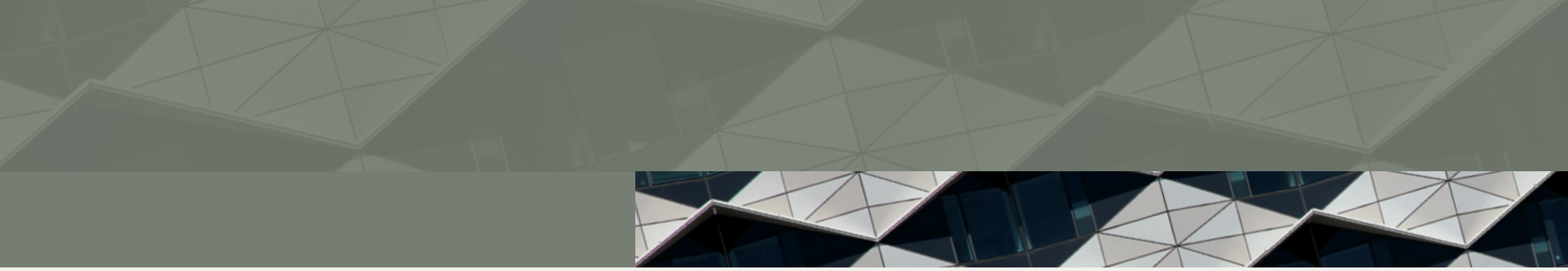
Once Structure Planning is completed, detailed road planning can take place in consultation with the Local Authorities (for Local Roads), Department of Planning (for 'Other Regional Roads') and MRWA (for 'Primary Regional Roads').

This division of responsibility for roads within Murdoch Activity Centre between State and Local Government is not unusual but recent experience has highlighted some inconsistencies of the system in terms of supporting the development of a strategic urban centre. As with planning controls, where there are options available to bring responsibility 'under one roof', this might be advantageous in the case of roads within the Murdoch area.

All roads within Murdoch University are currently the responsibility of the University, along with the control of car parking within the campus boundaries. This regime presents both opportunities (for design innovation unhindered by local authority standards) and possible constraints (to coordination of activity centre transport planning). Agreement on the best way forward needs to be determined as part of the post structure plan planning, including legislative and land tenure review of Structure Plan proposals for the University.

The option to reserve the priority transit route through the activity centre has been highlighted. Much of this route traverses the University via Discovery Way. A sufficient corridor would be required to allow upgrading of the route for public transit over time. However, it would also be important to ensure that any reservation does not sterilise development along the edges of the corridor in the same way that historical broad road reservations have affected urban areas around metropolitan Perth.





## 7.10 Governance, collaboration and incentivisation

The experience to date at Murdoch Activity Centre has demonstrated the complexity of delivering specialist projects through traditional government planning frameworks. The coordination of resources and actions is challenging due to the nature of individual departmental, agency or institutional priorities. The structure plan encourages increased coordination at Murdoch, to address these challenges.

A governance model should be identified and implemented for the Murdoch Activity Centre that can adequately oversee the planning and development by different agencies and institutions at Murdoch to deliver an effective and integrated specialised urban centre. A key part of this governance structure may be a specific organisation for the Murdoch Activity Centre with responsibility for integrated planning and centre-wide coordination of resources.

Consultation with stakeholders has identified the need for a governance organisation that is central and accountable and can take a whole of precinct view. Any new organisation should also facilitate collaboration between local institutions and industry stakeholders and promote initiatives which secure market investment. This would be a wide ranging and significant portfolio.

In this respect, it is important to regard Murdoch as an economic development project rather than a commercial development opportunity. If Murdoch is to achieve its full potential and status as a specialised activity centre then it would be beneficial for major stakeholders in Murdoch to harness both public sector and private interests to develop networks and built form together. It is considered that this approach would deliver the required variety of users, activities and amenities.

A governance structure could also potentially be supported by formal stakeholder networks and initiatives to incentivise action and commitment to pursuing innovative outcomes. Private sector engagement could also be enhanced by a commitment by Government to relocate public services to Murdoch.

Identifying and implementing a governance structure for Murdoch Activity Centre should be undertaken as a matter of urgency in light of its importance to the success of achieving a creative and integrated specialised activity centre.

Key objectives of an appropriate governance structure for the Murdoch Activity Centre should include, but not be limited to, the following.

1. Unified forward planning for the activity centre (with common decision making according to agreed targets).
2. Public and private institutions embracing collaborative ideas, opportunities and agreements across their curriculums/portfolios.
3. Creating a regime where sharing of training, education and research facilities is common place.
4. Designing an environment where sharing facilities (transport, car parks, public spaces, buildings, sports facilities, health services and other amenities) is part of daily life in a fully connected place.
5. Adopting resource conscious practices and collaborative projects with respect to the consumption and conservation of water and energy and management of waste.
6. Developing an economic strategy which will create the conditions for investment (e.g. incentives for private sector development) without diluting planning objectives for intense activity, transport and urban form.

Once the new structure plan is in place, it will be for the Government and its key stakeholder partners to drive the collective plan forward.



# 7. Implementation

## Development Contributions

The potential to 'levy' major development proposals within the activity centre in order to build up a fund for public infrastructure could be considered. This fund could be used to pay for, for example, the design of new public realm or an upgrade to community facilities. These will be important to enhancing the overall urban quality of the place as Murdoch develops. Development contributions may be seen as a disincentive to the market and their use needs to be carefully assessed. However, once in place, they can form an important tool to lever added value from various types or scales of development over time.

An option could be the implementation of Development Contribution Areas (normally through the Local Schemes) to coordinate the sharing of the cost of common infrastructure between developing landowners needs to be considered. This would be most appropriate at Sub-Precinct or Detailed Area Planning level. These matters are for further consideration by the planning authorities or existing governance groups for Murdoch Activity Centre or by any new governance organisation that may be set up to oversee the implementation of the structure plan and Murdoch planning initiatives.

## 7.11 Further studies

The implementation actions in this structure plan include a number of recommendations for further work to be carried out to support initial investigations and consultations. In addition, indicative development staging will require to be underpinned by further research into local or sub-regional conditions at Murdoch, such as economic prospects or specific transport options. Some detailed studies are already underway, reflecting the level of planning and design activity being applied to the activity centre.

The studies fall into the following categories.

- Additional technical or specialist studies.
- Governance arrangements for the activity centre.
- Economic incentives and funding mechanisms.
- Major public sector infrastructure investment.

The recommended studies are outlined in Table 7-3 and can be undertaken as part of the next stage of the planning process. The majority should be carried out within 2-3 years of structure plan approval. Others are identified as mid-term studies – within the next 5-10 years. Both State and local governments should demonstrate their commitment by commissioning further work. This will require support or input from a number of the primary stakeholders.

One of the initial sub-projects that should be undertaken in the context of this structure plan is a Strategic Housing Sites study which looks at the potential of large greenfield sites (e.g. the WAPC land around Farrington Road) as well as the existing residential suburbs within the activity centre boundary. This study would advise on the overall capacity of the area to meet housing targets in *Directions 2031* and also consider the ability of suburbs to regenerate from a physical/practical and economic perspective. Additionally, the study could consider exemplar urban housing models and the scope to locate a significant State Government demonstration project within the activity centre (e.g. affordable housing).

Other detailed area surveys are required to inform on such topics as district water management, the post-Murdoch Activity Centre Structure Plan structure of commercial activity centres and alignment of future rapid transit services.



**Table 7-3: Recommended further studies**

STUDIES	Indicative Time Frame C-Critical (Immediate), S-Short (1-5 years), M-Medium (5-10)	RESPONSIBILITY (Lead agency in bold)
<b>Activity</b>		
Economic Activation Strategy and Activity Centre Positioning Paper	S	<b>WA Planning Commission/Dept of Planning,</b> LandCorp, Murdoch University, Dept of Treasury
Economic development strategy for Key Precincts	S	<b>City of Melville, relevant institutions,</b> WA Planning Commission/Dept of Planning
Strategic Housing Sites study with regard for Temporary Accommodation and Affordable Housing	S	<b>Dept of Housing, WA Planning Commission/Dept of Planning,</b> City of Melville
Local housing Regeneration strategy	S	<b>City of Melville</b>
City of Melville Commercial and Local Activity Centres Strategy	S	<b>City of Melville</b>
<b>Movement</b>		
Public Transport Authority Murdoch Station car park relocation feasibility	C	<b>Public Transport Authority,</b> LandCorp, WA Planning Commission/Dept of Planning
Precinct basis traffic modelling	As required	<b>Landowner/s</b>
Traffic Management Strategy**(including creation of single traffic model held by all agencies)	S	<b>Dept of Transport,</b> WA Planning Commission/Dept of Planning, Main Roads WA
Rapid Transit between Fremantle, Murdoch and Canning Vale feasibility/ alignment	S	<b>Dept of Transport,</b> Public Transport Authority
Investigate costing and funding options for the provision of regional transport infrastructure for general traffic, public transport, walking and cycling	S	<b>Dept of Transport,</b> Main Roads WA, Public Transport Authority, WA Planning Commission/Dept of Planning
<b>Urban Form</b>		
Murdoch Square Masterplan (with MU eastern local structure planning)	S	<b>Murdoch University</b> (with WA Planning Commission/ Dept of Planning, City of Melville)
Redevelopment of Murdoch University West precinct including potential alternative alignment of future rapid transit corridor	M	<b>Murdoch University</b> (with City of Melville, Dept of Transport, Main Roads WA)
<b>Resource Conservation</b>		
Next Generation Plant and Alternative Energy feasibility study	M	<b>Multi-Institutional</b>
District Water Management Strategy *	S	<b>WA Planning Commission/Dept of Planning,</b> Dept of Water, City of Melville, City of Cockburn
Ecology and Biodiversity assessment of the whole study area	S	<b>WA Planning Commission/Dept of Planning,</b> Murdoch University, Dept of Environment Regulation
<b>Implementation</b>		
Development and adoption of a governance model	C	<b>WA Planning Commission/Dept of Planning,</b> Dept of Premier and Cabinet
Social and Community Impacts	S	<b>City of Melville</b>
Developer Contributions for Infrastructure***	S	<b>City of Melville,</b> WA Planning Commission/Dept of Planning

\* The level of detail provided by the District Water Management Strategy should be consistent with the guidelines in *Better Urban Water Management* (WAPC, 2008), State Water Strategy (2003) and the State Water Plan (2007) in addition to Department of Water requirements.

\*\* Prepared having regard to the draft *Transport Assessment Guidelines for Development* (WAPC).

\*\*\* Prepared having regard to *SPP3.6 Developer Contributions for Infrastructure* (WAPC).



# 7. Implementation

## 7.12 Monitoring and review

The structure plan has been prepared for a 20 year planning horizon, although it has considered longer term time frames where relevant. Much of this visioning and conceptualising is based on forward estimates of growth which will need to be monitored for continued relevance over the initial period of the plan. Unexpected events are a feature of urban development, particularly at the scales being considered at Murdoch. A regular review cycle of 5 years is therefore recommended.

## Risks and Limitations

Although robustness has been built into the Structure Plan through extensive consultation, the vision for the centre and strategic guidelines remain high level concepts subject to further testing through legislative, planning, technical and budgetary processes. Future decisions in these contexts may place constraints on developing the activity centre in the form stipulated.

In particular, there are statutory issues to be addressed before development of the Murdoch University campus can be contemplated further as part of the urban core of the activity centre. This process requires time to be fully resolved to the satisfaction of all parties. However, the timescale for completion of this Activity Centre Structure Plan suggests that the plan will be finalised with this uncertainty still in place. There is a risk that the overall strategy for an optimal and unified activity centre will not be delivered unless any necessary modifications to legislation and land tenure can be secured. In this regard, the structure plan does not assume these changes will be forthcoming but, in identifying redevelopment of the university's eastern precinct, it is recommending the changes be investigated and pursued as a matter of urgency if the strategy in this document is supported. If it does not occur, the structure plan may have to be revisited by 2015 in order to put alternative proposals and arrangements in place.

Beyond the planning and statutory obstacles, there are also economic uncertainties, environmental challenges and transport pressure of developing this strategic centre, questions may remain about the ability of Murdoch to become a competitive integrated knowledge based centre within the context of Western Australia. The challenges to be overcome are universal ones and not necessarily exclusive to Murdoch, but include factors and trends such as the following.

- The absence of unified forward planning for the activity centre since its inception.
- The genuine need for collaborative ideas, opportunities and agreements between the main Murdoch stakeholders.
- The perceived difficulty of local institutions to adopt a policy of sharing Training, Education and Research facilities and curriculums.
- The shift to an urban life and culture where sharing of facilities (car parks, public spaces, buildings, sports facilities, health services and other amenities) is common place.
- Increasing need for conservation of water, food and energy supplies.
- The limited success of recent urban regeneration projects in WA to engender compact dense urban places, activities and public transport.
- The expected need to incentivise the market e.g. subsidies and leases to develop in integrated ways.
- The lack of common goal setting and decision making across public and private sector organisations.

All of these variables together represent the considerable size of the overall challenge at Murdoch and the importance of strong leadership if the unique opportunity, the ambitions of stakeholders, and aspirations of the local community, are to be realised.





## 7.13 Key interventions and actions

A summary of the key actions recommended in this structure plan are as follows. These relate to studies, proposals and interventions highlighted throughout the plan and are considered priority actions.

Recommended lead agencies indicated in brackets.

### **RECOMMENDATION 1** **– Establishment of a Governance Model**

Investigate the formation of a representative body of public and private sector organisations at Murdoch, potentially with a board of trustees, funding and marketing responsibilities, control of land, delegated planning powers, design review advisory panel, and collaboration centre. (Western Australian Planning Commission/Department of Planning)

### **RECOMMENDATION 2** **– Consider the need for amendment to the Murdoch University Act of Parliament**

Investigate changes that may be required to the Act to allow for new types of complementary development to occur across the campus, within the overall concept for the activity centre. Related to this, the tenure options for land within the campus should be examined to permit flexibility for alternative uses. (Department of Education Services)

### **RECOMMENDATION 3** **– Amendments to the Planning Schemes**

The MRS and relevant TPS(s) require to be changed to allow for new land use priorities across the activity centre and to consider the notion of a ‘city centre’ or ‘specialised centre’ designation in its own right. (Western Australian Planning Commission/Department of Planning and local government)

### **RECOMMENDATION 4** **– Commitment to Activity, Planning and Design Guidelines**

Activity and design priorities for the Urban Core have to be supported and implemented to ensure that the concept of a two nodal centre is delivered and that specialisation and intensity of use is achieved within the central area without dilution caused by off centre development approvals. (Western Australian Planning Commission/Department of Planning and local government)

### **RECOMMENDATION 5** **– Sub-Regional Rapid Transit route connecting Murdoch**

An east-west rapid transit corridor linking Fremantle to Murdoch (and onwards to the east) should be supported by Government and shown in the Final Public Transport Plan for Perth. Studies should be carried out to consider the optimum corridor(s) to the west and east as well as to confirm the route through the activity centre. (Department of Transport, Public Transport Authority and Main Roads WA)

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## 7. Implementation

### **RECOMMENDATION 6**

#### **– Restriction and management of further Car Parking**

As part of an integrated transport regime for the centre there should be a presumption against further major surface car parks developed within the activity centre. Additional parking should predominantly be on-street or contained within the existing or reduced footprint of current car parks, using multiple level or underground forms if necessary. (Department of Transport, Western Australian Planning Commission/Department of Planning and local government)

### **RECOMMENDATION 7**

#### **– Identification and enabling of strategic housing sites**

In order to meet the D2031 Housing targets for Murdoch within the 20 year time frame, a number large strategic housing sites need to be brought forward through the planning system with sufficient capacity to absorb the bulk of the dwelling requirements whilst meeting the high urban design expectations set out in this structure plan. (Western Australian Planning Commission/Department of Planning and Department of Housing)

### **RECOMMENDATION 8**

#### **– Retail provision and Centre Hierarchy**

In order to provide a sufficient level of shopping to support the centre's economic profile and predicted employment levels, a significant scale and variety of retail offer will be necessary within the centre's core. This may require alterations to the traditional shopping centre hierarchy, functions and locations in the structure plan area. (Western Australian Planning Commission/Department of Planning and local government)

### **RECOMMENDATION 9**

#### **– Redevelopment of Educational Campuses**

The 'town and gown' urbanised context would be enhanced through closer cooperation between educational stakeholders to enable mutual economic and educational benefits and takes advantage of the high frequency transit opportunities. (Murdoch University and Challenger Institute of Technology)

### **RECOMMENDATION 10**

#### **– Future development area (land banking)**

Underdeveloped and agricultural land within the southern frame of the activity centre, including the WAPC land south of Farrington Road, should be held for future investigation into development which can help support the full potential of the centre, pending economic progress with the core activity centre, local ground conditions and improvements in transport services to this area. (Western Australian Planning Commission/Department of Planning and Murdoch University)

### **RECOMMENDATION 11**

#### **– Place of Government**

Both State and local Governments should demonstrate their commitment to the planned activity centre through assessing the scope to relocate primary offices to Murdoch as a catalyst development and part of a series of public sector initiatives. (Department of Finance and local government)





# Murdoch

## Specialised Activity Centre

### Structure Plan

## References



# References

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# References

## Glossary

The following glossary summarises the intended meaning of some terms used in this document.

<b>Activation</b>	To make a place full of life. To facilitate, stimulate and accelerate creation of activity and liveliness, such as in terms of economic, social and physical activity.
<b>Activity Centre</b>	Community focal points, including activities such as commercial, retail, higher density housing, entertainment, tourism, civic/community, higher education, and medical services.
<b>Affordable housing</b>	Dwellings which households on low-to-moderate incomes can afford, while meeting other essential living costs. It includes public housing, not-for-profit housing, other subsidised housing under the National Rental Affordability Scheme together with private rental and home ownership options for those immediately outside the subsidised social housing system.
<b>Amenity</b>	The characteristics of a place that make it desirable, pleasant, enjoyable, useful, convenient, comfortable and valuable.
<b>Bio technology</b>	Using living things (plants, animals, organisms) to make products or to do tasks. A technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use or commercial products.
<b>Bioswales</b>	A depression in a landscape designed to carry or hold water and remove silt and pollution from surface water runoff.
<b>Building envelope</b>	A defined area within which a building should be contained. A building envelope may be 2 or 3 dimensional.
<b>Built Form</b>	The position, shape, size, height, style and appearance of buildings.
<b>Business incubator</b>	A place to help establish new businesses. A place designed to nurture growth of new and small businesses in their critical early stages of establishment.
<b>CBD</b>	Central Business District, usually of the capital city.
<b>Central Area Transit (CAT)</b>	A public transport service only around a given centre. Examples are the bus services that operate within the Perth CBD and Fremantle on loop routes for public use. These services are typically free.
<b>Collaboration</b>	Working together to produce or create something, especially in a joint intellectual effort.
<b>Commercialisation</b>	To take action intended to generate financial profit.
<b>Consumer Services</b>	Services to help people with their everyday lives. These may include such services as banking, educational services, communication services, transportation services and health services.



<b>Export Oriented</b>	Mainly concerned with the export of goods or services (rather than for the domestic market).
<b>Feeder bus</b>	A public transport service which brings passengers to a railway station from surrounding areas.
<b>Green Building</b>	Buildings that have reduced environmental impact. Buildings including measures to reduce the use of resources such as energy and water use, and waste production.
<b>Greenfield areas</b>	Areas not previously developed for urban purposes.
<b>‘Heat island’ effect</b>	Where an urban area may be significantly warmer than its surrounds, usually due to urban development that removes natural shade and uses materials which effectively retains and generates heat.
<b>Heavy rail</b>	A passenger rail system that is segregated from vehicles and pedestrians. Examples are the Joondalup, Midland, Armadale, Thornlie, Fremantle and Mandurah rail lines.
<b>High Frequency (transport)</b>	A public transport service which departs every 15 minutes or less.
<b>Incentivisation</b>	The practise of building a system or an arrangement of good reasons, promotion, motivation and/or inducements to provide incentives for desired action.
<b>Intensity, Intensification</b>	In relation to development, usually translates to higher density residential development and more economic activity in the same place.
<b>Legibility</b>	The ability for people to clearly find their way around a place.
<b>Local Planning Schemes, Local Schemes, Town Planning Schemes</b>	A legal document administered by local Governments to manage land use and development within a defined scheme area.
<b>Local Planning Strategy</b>	A document created by local Governments setting out the future land use planning intentions for a local government area.
<b>Localisation economy</b>	The clustering of businesses in related industries to achieve economic benefits.
<b>Masterplanning</b>	The process of preparing a comprehensive long term plan to guide future development.
<b>Metropolitan Region Scheme</b>	A legal document setting out the broad land use zones and reserves for the Perth metropolitan region.
<b>Mobility</b>	The ability to move from one location to another.
<b>Modal split</b>	The division of journeys according to the means of travel.
<b>Modal Shift</b>	A change in the modal split.
<b>Multiplier effect</b>	Where an increase in one thing leads to a greater increase in something else. For example, where a job is created, it leads to the creation of multiple other jobs.



# References

<b>Podium and tower style</b>	Buildings which are characterised by a large footprint for the lower levels with a more narrow tower form above. This built form is usually used to block or obscure the full height of the building from view from ground level.
<b>Public realm</b>	Includes all exterior places, linkages and built form elements that are physically and/or visually accessible regardless of ownership. These elements can include, but are not limited to, streets, pedestrian ways, bikeways, bridges, plazas, nodes, squares, transportation hubs, gateways, parks, waterfronts, natural features, view corridors, landmarks and building interfaces.
<b>Rapid transit</b>	Road based rapid transit service which is either light rail or bus rapid transit. These will operate with dedicated priority within existing streets, although there could be short sections where operation in mixed use traffic is needed. Similarly there will be areas where the services need overpasses or tunnels to bypass areas of major congestion, or will operate in traffic controlled transit malls.
<b>Regeneration, Transformation</b>	The action of renewing a place, usually involving a change for improvement, and includes physical elements such as roads and buildings and intangible elements such as community.
<b>Retail Sustainability Assessment</b>	An assessment of the impact of a major retail development on other surrounding centres. An assessment of the potential economic and related effects of a significant retail expansion on the network of activity centres in a locality in terms of effects on access or benefit of services.
<b>Sense of place</b>	An identifiable set of characteristics of a place which define the place and its uniqueness.
<b>Service industry</b>	A small low impact industrial activity which may have a retail shop front for receiving goods to be serviced and/or for the sale of goods made on the premises.
<b>Setbacks</b>	The distance between a building and a lot boundary, usually measured at right angles to the boundary.
<b>'Shoulder' bike lanes</b>	Bicycle lanes located on the outer extremities of a road pavement.
<b>Spatial</b>	Of, relating to, involving, or having the nature of space.
<b>Specialised Centre</b>	Specialised centres are places that have strong specialised roles based around major institutions or airports within the centre. Although most of the specialised functions of these centres takes place within the institutions located there, many nearby business and smaller institutions are related to, or supportive of, the main institutions are also important contributors to these centre's specialised role. The knowledge and logistical roles performed by these centres are some of the most important and high level in the metropolitan area.
<b>Statutory Planning</b>	The making and management of legal land use plans. Processes concerned with fulfilling legal requirements of land use planning laws such as the metropolitan region scheme and local town planning schemes.



<b>Street Interface</b>	The relationship between a public street and a building or development.
<b>Suburban</b>	Characteristics of a suburb, usually being a low density residential area in the outer areas of a city that are largely reliant on private car use.
<b>‘Town and gown’</b>	The relationship between the two distinct populations within a university town; “town” referring to the non-academic population/residents and “gown” referring to university and its staff and students.
<b>Transit Oriented Development (TOD)</b>	Urban development around transit stations that increases use of public transport. Locating moderate to high-intensity commercial, mixed use, community and residential development close to train stations and/or high-frequency bus routes to encourage public transport use over private vehicles.
<b>Travel Management, Travel Plan</b>	Actions to reduce car use and increase alternatives to car use. A package of measures, initiatives and promotions aimed at reducing single occupant travel by car (and associated emissions) by developing and encouraging alternatives and more travel choices like teleworking, walking, cycling, public transport and carpooling.
<b>Typology, Typologies</b>	A logical grouping of types, according to common elements, form, character and/or arrangement of those elements. A typology may serve as a model, such as models for urban form.
<b>Urban design</b>	Concerns the arrangement, appearance and functionality of towns and cities, and in particular the shaping and use of public space.
<b>Urban fabric, Urban form</b>	The design and layout of the structural elements of an urban area or city. The structural elements include natural features, open spaces, transport/road systems, infrastructure, streets, land uses, built form, and the like.
<b>Townscape</b>	The appearance of a town or city; an urban scene.
<b>Urbanisation economy</b>	The advantages to a collective system of enterprises of being located in a concentrated urban area. Advantages may include proximity to a market, labour supply, good communications, and financial and commercial services.
<b>Walkability</b>	A measure of how suitable, attractive and pleasant a place or route is for walking.
<b>Walkable catchment</b>	The area within a relatively easy walking distance along publicly accessible pedestrian routes from a given place. The distance is usually 400m (5 minute walk) or 800m (10 minute walk) from an activity centre or a public transport stop or station.
<b>Way finding</b>	Sensory cues to help people know where to go through a place to get from where they are to their desired destination. Wayfinding is assisted by maps, signage, graphical clues, landmarks, objects, pathways, landscaping, arrangement of spaces and other similar sensory cues.